

Locus of Control Among Diabetic and Non-diabetic Patients - A Comparative Study

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Diabetes is by far, the most common of all endocrine disorders and its incidence is increasing especially in developing countries. Diabetes is divided into two major categories namely, Insulin Dependent Diabetes Mellitus (IDDM) or Type I diabetes and Non Insulin Dependent Diabetes Mellitus (NIDDM) or Type II diabetes. Both are abnormalities in insulin production or utilization that leads to chronically high blood glucose levels. There are however, differences in the etiology, pathology and treatment of the two types. IDDM is caused by a combination of genetic and immunological processes that ultimately destroy the pancreatic beta cells that produce insulin. The resulting insulin deficiency leads to the accumulation of glucose in the blood. Uncorrected, it can lead to ketoacidosis and coma. IDDM can occur at any age, but it is seen more often during childhood or adolescence. Diabetes mellitus is a serious condition associated with significant morbidity and mortality because of its both short and long term complications. The most frequent short-term complications include hypoglycemia, hyperglycemia, and diabetic ketoacidosis. The most common long-term complications include retinopathy, nephropathy, and cardiovascular disease. NIDDM, with a strong heredity component usually occurs after 40 and may be asymptomatic. It is characterized by a combination of insulin resistance and insulin deficiency. A host of other metabolic abnormalities co-exist – obesity, hypertension and disturbed lipid levels in the blood. Management of diabetes, a prime example of a metabolic disease can be controlled and not cured, and it includes exercise, dietary regimen and medications. The regimen involves physical and physiological discipline that significantly influences the patients psyche and lifestyle. Studies on mortality due to diabetes show that the psychological impact of diabetes was good predictor of death, often better than many clinical correlates.

The central focus of the present problem would be the partial role played by the individual with regard to his/her health, their attitude and

mental determination. They verbalize things like, “If I give in to this, I will get sicker”, or “I will decide what is best for me”! They also tend to make their own informed decisions about their care and adhere to regimens that they believe will work. Persons with the chance of locus of control will say things like, “if I am lucky I will get over this”, or “If my time is up, its up and there is nothing I can do to change that. Belief in one’s ability to control health related events and where a person falls on the locus of control continuum is largely determined by family origin, culture and social groups. Poor physical health in general and especially chronic disease tends to erode individual’s sense of control over their life and destiny (Fitzgerald, 1990). Emotional well being is likely to decline as health status is severely compromised.

The task of managing chronic illness include achieving some measure of control over the symptoms of illness, adhering to complex treatment regimens, coping with uncertainty of prognosis, supporting and maintaining family, work, social relationships, and other usual responsibilities within the parameters of the illness, and continuing to set goals and plans for the future. Furthermore, a sense of self-efficacy or the belief that, “We can succeed at something we want to do, is another factor in maintaining a sense of control in the face of serious illness (Anderson, 1977). In the medical literature, adherence occurs at two levels. Primary adherence that refers to a person’s ability or willingness to carrying out activities that prevent the initial onset of illness, and secondary and tertiary adherence which follows prescribed procedures that are aimed at controlling a specific health condition from getting worse (Goodall, 1991). The terminology “compliance,” rather than adherence was more commonly used in the past, suggesting people with disease follow the steps assigned to them by medical practitioners. The present notion of “adherence” requires that people make informed decisions, by selecting and then adhering to a specific protocol. It is this commitment to the decision and the following of

the particular protocol that is believed to determine the physical outcome of an illness rather than the medical effectiveness of a particular drug or procedure (Ingersoll, 1991).

Reaction to health concerns have been explained by theories of "locus of control" and self-efficacy (Peyrot, 1995). Rotter (1966) developed the original scale for measuring internal and external locus of control. People with an "internal locus of control" believe that they are in control of their own successes and failures. Hence, people with a powerful internal locus of control believe that something they do or do not determines their health status. These individuals are also more likely to think that their ability to overcome a serious illness is determined by themselves and their behavior. People with an external "powerful other" locus of control are more likely to believe that professionals or others outside themselves determine their illness successes or failures. These individuals believe that the outcome of their illness is determined by their doctor or surgeon and generally leave their care in the hands of a medical professional, basically doing only what they are told. Chance locus of control is exhibited by people who believe in luck, fate or that God determine their successes and failures.

As people move from middle to older age, their notions of chance tends to increase and they are more likely to turn to medical professionals to make their health related decisions (Krantz, 1986). People who optimize their health by living healthy lifestyles believe that they can determine their own health status. People who exhibit less stress and those who tend to cope with serious illness tend to have stronger internal locus of control. Externality or internality of control also influences the way people use the healthcare system. Individuals who hold belief systems that incorporate notions like "the doctor knows best" and turn their care over to the practitioner are less likely to seek second medical opinions and medical procedures unless their primary physician suggests it. Few questions are asked about the treatment process, treatment expectations, or the protocol and they tend to perform as a "good patient". On the other hand, believing in fate or God often causes people not to seek treatment or can limit the treatment they seek because they do not believe it will make any difference in the outcome. Hence, the task of managing serious

chronic illness include achieving some measure of control over the symptoms of the illness, adhering to complex treatment regimens, coping with the uncertainty of prognosis, supporting and maintaining family, work, social relationships, and other usual responsibilities within the parameters of the illness, and continuing to set goals and plans for the future.

This study aims to find out the psychological factors among the diabetic and non-diabetic individuals. Data is collected using Lochi survey measures of locus of control. Three aspects of health, cure, prevention and maintenance are studied.

METHODOLOGY

Hypothesis

- a) There will be no significant difference in locus of control among diabetic and non-diabetic individuals in relation to IP, IC, EL, EF, EG, and ED.
- b) There will be no significant difference in locus of control among diabetic males and non-diabetic males in relation to IP, IC, EL, EF, EG, and ED.
- c) There will be no significant differences in locus of control among diabetic females and non-diabetic females in relation to IP, IC, EL, EF, EG and ED.

Sample: Convenient sampling method was used in collecting the data. A total of 100 samples out of which 50 diabetic and 50 non-diabetic individuals were used for the study. From among the sample there were 25 males and 25 females. Lochi survey questionnaire was used in the study. Data was collected from diabetic patients who were visiting the diabetic clinics at Vijaya hospital, Hande hospital and Kilpauk medical college. Data from the non-diabetic individuals were collected from the public.

Lochi survey instrument measures the Locus of control in relation to three aspects of health. Cure of illness, prevention of ill health and maintenance of good health. It measures two types of Internality: personal (IP) and collective (IC) and four types of externality: luck (EL), fate (EF), God (EG) and doctor (ED). It contains eighteen items, one for each category as shown in Table. The inventory is easy to administer. The respondent records his/her degree of agreement

on a 4-point scale for each of the eighteen items.

Explanation of Abbreviations

IP	-	Internality Personal.
IC	-	Internality Collective.
EL	-	Externality Luck.
EF	-	Externality Fate.
EG	-	Externality God.
ED	-	Externality Doctor.

It is seen from Table 1 that the average value of diabetic males is high in the health aspect of building good health. The same is also true with the female individuals. The total mean value among diabetics male and female was also seen to be higher in building of good health followed by prevention of illness and cure of illness. The overall values for all the three health aspects were higher among females. Not much variation was noticed among males and females on the three parameters tested. However, the total average value among the male and female non-diabetic individuals was seen to be more in the health

aspect of cure of illness, followed by building good health and prevention of illness. While comparing the diabetic and the non-diabetic health aspects, higher mean value among the diabetics was seen in the building of good health while among the non-diabetics it was seen to be high in the cure of illness.

Table 2 and 3 shows the mean of internal and external locus of control in health among diabetic and non-diabetic individuals. It is seen that the total mean value for all the parameters of internal and external was higher among the diabetic individuals compared to the non-diabetic individuals. Among the diabetic individuals, the females exhibited higher mean values for all the parameters against their counterparts. The highest among females was seen in EG which means that their externality of locus of control is God. While for the male it is ED that is the doctor. However, the lowest mean value among the diabetic males

Table 1: Mean score of health aspects of diabetic and non diabetic individuals

	<i>Cure of illness</i>		<i>Prevention of illness</i>		<i>Building good Health</i>	
	<i>Diabetic</i>	<i>Non Diabetic</i>	<i>Diabetic</i>	<i>Non Diabetic</i>	<i>Diabetic</i>	<i>Non Diabetic</i>
Male (25)	14.36	13.40	14.36	13.32	15.36	13.80
Female (25)	15.88	13.52	16.32	13.00	17.04	13.54
Total (50)	15.12	13.64	15.44	12.68	16.20	13.28

Table 2: Mean score of internality and externality of locus of control in diabetic patients

	<i>IP</i>	<i>IC</i>	<i>EL</i>	<i>EF</i>	<i>EG</i>	<i>ED</i>
Male (25)	4.20	4.880	7.28	8.32	9.12	10.40
Female (25)	5.12	5.520	8.88	9.12	10.72	10.16
Total (50)	4.66	5.200	8.08	8.72	9.92	10.28

Table 3: Mean score of internality and externality of locus of control in non diabetic individuals

	<i>IP</i>	<i>IC</i>	<i>EL</i>	<i>EF</i>	<i>EG</i>	<i>ED</i>
Male (25)	4.64	5.20	5.64	6.68	8.20	10.16
Female (25)	3.84	4.00	5.12	6.52	9.84	10.16
Total (50)	4.24	4.60	5.38	6.60	9.02	10.16

Table 4: Correlation data between diabetics and non-diabetics

	<i>IP</i>	<i>IC</i>	<i>EL</i>	<i>EF</i>	<i>EG</i>	<i>ED</i>
Diabetic and Non-Diabetic	0.103598	-0.0621	-0.02817	-0.11011	0.150616	-0.02761
Diabetic and Non-Diabetic Males	0.225388	-0.27247	-0.23219	-0.31381	-0.10828	0.011294
Diabetic and Non-Diabetic Females	0.211784	0.315512	0.327914	0.143632	0.299154	-0.04496

and females was recorded in IP. From the data it is evident that the lowest mean value among the ND was also recorded from IP.

The correlation data between diabetic and non-diabetic, between diabetic males and non-diabetic males and between diabetic females and non-diabetic females is shown in the table 4. Negative correlation is observed in parameters IC, EL, EF & ED among diabetic and non-diabetic individuals. Correlation between diabetic males and non-diabetic males is recorded negative in the IC, EL, EF and EG parameters. However, negative correlation between diabetic females and non-diabetic females were observed only in the ED parameter. It is interesting to note that the highest positive correlation between diabetic females and non-diabetic females was observed from the EL parameter.

Internal Collective (IC) parameter, the t-test value is less than the table value at 5% level of significance. Hence hypothesis 2 is rejected. In the case of diabetic and non-diabetic and males between diabetic and non-diabetic, the t-test value is greater than the table value which means that the hypothesis is accepted in both the cases. Externality Luck (EL) parameter, the calculated t-test value shows that it is less than the table value in all the three cases viz., the diabetic and non-diabetic females, the diabetic and non-diabetic males and the whole group of diabetic and non-diabetic, which means that the hypothesis in all the three cases are rejected (Tables 5, 6, 7). The role of gender in explaining differences in diabetes related psychosocial adaptations, self care and physical health outcomes has been largely under studied. Rubin and Peyrot (1999) investigated gender differences in psychosocial, behavioral and physical aspects of diabetes. Womack (1993) found that American Indian men scored higher than women on the diabetics attitude scale (DAS)

Table 5: t-test scores for diabetic and non-diabetic females

Variables	Degrees of freedom (df)	Calculated t-value
IP	48	2.689
IC	48	3.1
EL	48	6.659
EF	48	3.974
EG	48	1.408
ED	48	0

autonomy sub scale. Quackenbush et al. (1996) found that men were more likely than women to believe that they could control the effects of their diabetes. Glasgow et al. (1997) found that men had lower perceived barriers to diabetes self management than did women.

Externality Fate (EF) parameter value is less than the table value for all the three cases, and hence the hypothesis is rejected. Externality God (EG) and Externality Doctor (ED) factor value for all the three tables show greater than the table value. Hence the hypothesis is accepted.

Understanding the psychosocial and behavioral facts that affect health and disease has been marked by investigation of specific relationship and mechanism underlying them. Reaction to health concerns have been explained by theories of locus of control and self-efficacy. Rotter (1966) developed the original scale for measuring internal and external locus of control and Wallston et al., (1978) applied these concepts to health-related measure called the multi dimensional health locus of control scale. Although experimental evidence is still inconsistent in some cases, data from studies on health and behavior strongly suggests that psychological process and emotional states influence the etiology and progression of disease and contribute to overall host resistance or vulnerability to illness. In general, psychosocial or behavioral factors exert their influence on health or illness. Direct effects of stress and emotions are supplemented or modified by behaviors that affect health and disease processes.

A general mechanism, linking behavior and health characterizes how people behave when they are ill, suspect when they are ill, or learn they are at risk for serious illness. Early detection of disease is a critical element of health care

Table 6: t-test scores for diabetics and non-diabetic males

Variables	Degree of Freedom (df)	Calculated t-value
IP	48	-1.138
IC	48	-0.691
EL	48	2.611
EF	48	2.286
EG	48	1.214
ED	48	0.696

Table 7: t-test scores for the entire sample of Diabetics and non-diabetics

Variables	Degree of Freedom (df)	Calculated t-value
IP	98	1.33
IC	98	1.726
EL	98	6.208
EF	98	4.38
EG	98	1.755
ED	98	0.388

because identification and treatment of disease at an early stage is usually more effective. Health beliefs are also associated with surveillance, but the focus of research has shifted from health beliefs to the emotional reaction that perceptions of risk may bring, including distress and worry about disease. Research increasingly suggests a strong link between how people think, feel and behave and how well they with stand illness and poor health. In the present study, even though no major differences are seen in the three health aspects and internal and external factors, some marked differences are evident in certain aspects. No variation is seen in non-diabetic male and female sample with regard to the three health aspects. On the contrary, all the three health aspects were found to be higher among diabetic females. Overall data compared between diabetic and non-diabetic for the three health aspects reveal higher good health among diabetics and cure of illness among non-diabetics.

Internal and external factors on locus of control when compared between diabetic and non-diabetic show that diabetic individuals had higher values in all the parameters than the non-diabetic. Among the diabetic group, females show higher values in all the parameters than their male counterparts. Female diabetic individuals show higher value towards externality god (EG) and diabetic male towards externality doctor (ED). Lower values on Internality Personal (IP) was observed among both male and female groups. Among the non-diabetic, no marked differences are seen on various parameters of Internality and Externality. Negative correlation for most of the Internality and Externality factors was observed among diabetic and non-diabetic group. However, negative correlation was observed only in ED (Externality Doctor) among diabetic and non-diabetic females. However, positive correlation was seen among female diabetic and non-diabetic group in EL (Externality Luck) which is an

interesting observation

KEYWORDS Endocrine disorders; common metabolic disorder; insulin deficiency; blood; management

ABSTRACT Diabetes is a common metabolic disorder resulting from an insufficient supply of insulin, a hormone produced by the pancreas, an endocrine gland in the human body. Diabetes results when the body either does not produce enough insulin or is not able to use the available supply appropriately. The principal action of insulin is to regulate the amount of circulating glucose and maintain it at a normal level without wide fluctuations. When there is insufficient insulin, carbohydrates are not utilized effectively resulting in much of the glucose, that is a carbohydrate staying in the bloodstream rather than being metabolized or stored. The unused glucose builds up in the bloodstream resulting in short term and long term complications of diabetes.

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