A STUDY OF CORRELATION BETWEEN LOCUS OF CONTROL AND ADHERENCE TO MEDICATION IN DIABETES TYPE 2 PATIENTS

Kadambari*, Swati Singh** and Deepti Hooda***

ABSTRACT

The present study is an attempt to examine the role of locus of Control in adherence to medication in Type 2 Diabetes. The research sample consisted of 100 subjects (both males and females) with age range 25-60 years. All the subjects were administered on Multidimensional Health Locus of Control Scale and Medical Adherence Rating Scale. Correlation and Regression analysis revealed significant results.

Keywords: Diabetes Type 2, Adherence to Medication and Locus of Control.

INTRODUCTION

Diabetes Mellitus or simply Diabetes is a chronic condition where the body fails to utilize the ingested glucose properly. This could be due to lack of the hormone insulin or because the insulin that is available is not working effectively. There are mainly three type of Diabetes.

- Type 1 Diabetes Mellitus results from the body’s failure to produce insulin, and currently requires the person to inject insulin or wear an insulin pump. This form was previously referred to as “insulin-dependent diabetes mellitus” (IDDM) or “juvenile diabetes”.
- Type 2 Diabetes Mellitus results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. This form was previously referred to as non-insulin-dependent diabetes mellitus (NIDDM) or “adult-onset diabetes”.

* Research Scholar, Department of Psychology, M. D. University, Rohtak. (email-kadambarisheoran@gmail.com)
** Assistant Professor, Department of Psychology, M. D. University, Rohtak. (email-deepti.hooda17@gmail.com)
• The third main form, Gestational Diabetes, occurs when pregnant women without a previous diagnosis of diabetes develop a high blood glucose level. It may precede development of type 2 DM.

Along with a huge global burden, it is estimated to increase from 51 million to 58 million in 2030 in India. (Snehlata and Ramachandaran 2009). It caused 2.263 million disability adjusted life years in India during 2004 (ICMR 2006). The risk or complications with Diabetes can be reduced by adhering to medical advice and keeping Diabetes under control. Blood sugar should be regularly monitored so that any problems can be detected and treated properly.

Treatment involves both diet and exercise along with oral medications to control blood sugar level. In all Type 1 Diabetics and severely uncontrolled Type 2 Diabetics a daily dose of insulin through injections may be needed. The success and failure, or even the control over diseased condition depends on the extent to which a patient “Adheres to Medication”. ADHERENCE has been defined to the degree to which patient’s voluntary behaviour corresponds with the clinical recommendations of health care providers. It suggests that patients are self-sufficient individuals who assume an active and voluntary role in defining and achieve goals for their medical treatment.

So Medication adherence usually refers to whether patients take their medications as prescribed as well as whether they continue to take a prescribed medication. Results reported by Arunima Gupta, Punam Midha and Sonia Malik (2012) found maximum adherence to medication in Diabetic Patients (80%) and least in Arthritis (57.90%). Various factors influence person’s adherence to medication such as genetics, environment, demographic variables, socioeconomic status and other interpersonal and intrapersonal factors. As per the study, role of Locus of Control in Adherence to Medication is studied.

Locus of Control, the generalized belief that the occurrence of outcomes is under the control of oneself or outside the self controlling forces and also included control of one’s outcome by chance and /or other powerful people. Personal control beliefs, also referred to as locus of control and personal mastery beliefs, reflect individuals’ beliefs regarding the extent to which they are able to control or influence outcomes. A wide variety of theorists have emphasized the importance of perceptions of personal control and suggested that the desire to control the world around us (i.e., the desire for behaviour-event contingency or personal control) is a fundamental characteristic of human beings (Schultz et al, 1994; see also Haidt & Rodin, 1995; Rothbaum, Weisz and Snyder, 1982 for reviews). Reflecting these varied theoretical perspectives (as well as the extensive research interest in the concept of perceived control), the literature exhibits varying conceptualizations of “perceived control”.

Most well known is the concept of “locus of control” which derived originally from Rotter’s social learning theory (Rotter, 1966) and which focuses on “beliefs that individuals hold regarding relationships between actions and
outcomes” (Lefcourt, 1991). The earliest instrument developed to measure locus of control beliefs, the Rotter I-E Scale, focused largely on the distinction between beliefs in internal versus external loci of control. Later instruments, elaborated by Rotter, Lefcourt and others, included more specific assessments of beliefs about personal “internal” control contingencies but also control contingencies manifested by “powerful others” and (similar to the original “external” formulation) perceptions of non-contingency (i.e. “chance”) (for review see Lefcourt, 1991). Existing literature on control beliefs in relation to both SES and health largely reflects the “internal vs. external” conceptualization with assessment of individuals in terms of the extent to which they see “control” as residing primarily in themselves versus elsewhere (i.e., in others or chance). (Seeman, 1999).

Findings suggest that interventions aimed at improving internal locus of control may improve adherence to diabetic regimen but different diabetic patients have different attribution styles and interventional programmes to enhance diabetic self care will be more successful if patients locus of control is addressed. According to Rodin, an individual with high perceived control may have better health because he or she is more likely to take health enhancing action.

**METHOD**

**Sample**

A purposive sample of 100 adults (aged 25-60 years) was selected with following inclusion and exclusion criteria.

**Inclusion Criteria**

- Respondents in age range 25-60 were selected.
- Minimum education level was 12th.
- Respondents suffering from diabetes diagnosed by a medical practitioner were selected.
- The minimum duration of patient’s disease was at least 2 years and maximum of 10 years.

**Exclusion Criteria**

- Respondents suffering from an acute disease during preceding one month were not included in the sample.
- Patients with extreme severity of disease or secondary complication were excluded.
- Patients with co-morbid disorders were excluded.

**Tools**

Following tools were used in the present study.

- *Medical Adherence Rating Scale (Thompson, Kulkarni, & Sergejew 2000):* It consists of 10 items with yes or no response. The Medication
Adherence Rating Scale (MARS) is a questionnaire that tests a patient’s compliance with medication. Patients that respond “NO” to questions 1-6 and 9-10 and “YES” to questions 7-8 are compliant.

- **Multidimensional Health Locus of Control Scale (form c):** This form is designed by Ken Wallston et al and is condition specific. This form has 18 items. Each item is a belief statement about medical condition with which one may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item subject have to circle the number that represents the extent to which you agree or disagree with that statement. The more one agrees with a statement, the higher will be the number one circles. The more one disagrees with a statement; the lower will be the number one circles. Please make sure that you answer. This is a measure of personal beliefs; obviously, there are no right or wrong answers.

**Procedure**

Purposive sample of persons with diabetes was selected. First of all the subjects were introduced to the study. Good rapport was established. After they felt comfortable and became familiar to the situation, they were instructed as to how to respond on the scales of ‘Locus of Control’ and Medical Adherence. Each subject was administered 2 scales which included scale for Locus of Control and Adherence to Medication Scale. Subjects were also made to know the purpose their participation will serve. So all the subjects were assessed on above mentioned tools to see role of Locus of Control in adherence to medication in people with Type 2 Diabetes using correlation and regression statistical techniques.

**RESULTS AND DISCUSSION**

The present study aimed to investigate the relationship between Locus of Control and Adherence to Medication. Multidimensional Health Locus of Control Scale and Medical Adherence Rating Scale were administered on a sample of 100 Diabetes Type 2 patients. Correlation was computed to study the relationship between Locus of Control and Adherence to Medication. Further stepwise regression was applied to estimate the extent of variance in Medical Adherence with Locus of Control scores. Out of four types of Locus of Control taken *i.e.* ‘Internal’, ‘Chance’, ‘Doctor’ and ‘Other Powerful’, Medical Adherence was found to be significantly correlated with Internal Locus of Control and Powerful Others. This means that higher is the Internal Locus of Control, higher will be the Medication Adherence *i.e.* when the person feels himself responsible for his good health, better is the chances that he will adhere to Medication. Significant correlation with Powerful Others (such as health agencies) reveals that individual is more likely to rely on the medical professionals to take care of their health.
From table 1, it can be seen that Internal Locus of Control with correlation coefficient .505 (p<.01) has significant as well as positive correlation with Adherence to Medication i.e. increase in Internal Locus of Control will be accompanied by increase in Medical Adherence or better Adherence will be there. The finding in this study is in line with those of Oviageli Omeje and Chinenye Nebo (2011) who concluded that internally oriented patients adhered more to their treatment regimen than externally oriented patients.

The correlation of Medication Adherence to Powerful Others is .221(p<.05). This means that Medical Adherence and Powerful others (sub-factor of Locus of Control) correlate significantly. Positive correlation reveals that higher the score on powerful other, more will be Medication Adherence. Higher a person relies on powerful others (health agencies, medical professionals), more will be Medication Adherence. This also indicates that health agencies and medical professionals play a significant role in convincing people to adhere to medication. Elizabeth A. Schlenk, R.N., and Laura K. Hart, R.N. (1984) found a statistically significant relationship between Powerful Other Health Locus of Control and Medication Adherence. Chance and Doctor Support of Locus of Control do not correlate significantly with Adherence to Medication.

In order to examine the extent to which various sub-factors of Locus of Control predict the criterion variable i.e. Medication Adherence, stepwise multiple regression was employed to identify the factors that account for maximum proportion of variance in Medication Adherence.

Regression analysis on Medical Adherence Rating scores indicates that only one variable i.e. Internal Locus of Control is predictor of Medication Adherence. Multiple R is equal to .505 and R square equal to .255 (F = 33.619, P < .01).

**Table 1**

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Adherence to Medication</th>
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<tbody>
<tr>
<td>1. Internal</td>
<td>.505**</td>
</tr>
<tr>
<td>2. Chance</td>
<td>.073</td>
</tr>
<tr>
<td>3. Doctor</td>
<td>.008</td>
</tr>
<tr>
<td>4. Others Powerful</td>
<td>.221*</td>
</tr>
</tbody>
</table>

*p<.05 **p<.01
This shows that Internal Locus of Control accounts for 25.5% of variance in Medication Adherence. Annette L. Stanton (1987) found that greater expectancy of Internal control over health, greater knowledge of treatment regimen and strong social support were significant determinants of adherence.

CONCLUSION

Adherence to Medication is a very important factor in medicine efficiency. It is very important aspect of behaviour that promotes good health and promotes longevity. It also helps to assess accurately the degree of drug efficiency. Since, Diabetes is a chronic disease where management of diseased condition is the primary aim, the importance of Adherence to Medication become more significant. In such a situation, giving due consideration to the factors affecting Medication Adherence becomes more critical. In summary because research has shown the importance of adherence to medication in healthcare and also present study shows the influence of Locus of Control on it, healthcare providers should take this and other such variables into consideration when planning and implementing health policies in order to achieve desired objectives.

REFERENCES

Guidelines for Management of Type 2 Diabetes. Indian Council of Medical Research 2005.

