

Psychological Factors Associated with Medication Adherence and Non- adherence among Diabetic Patients

Ved Prakash Rawat¹, Kuldeep Sharma², Santosh Kumar Mishra³, KC Barmola⁴

ABSTRACT

The present study aimed to find the association among social support, locus of control and types of personality of diabetic patients. Total of 319 diabetic patients has been selected from Sawai Madopur District, Rajasthan using purposive sampling technique and following co-relational research design for this study. A significant relationship ($\chi^2= 29.12$, $p=0.01$) between different levels of social support and unintentional non-adherence is observed and it can be said that social support is not independent from unintentional non-adherence among diabetic patients and there would be some impact of social support of the diabetic patient in unintentional non-adherence to the medical treatment. Also, no significant relationship ($\chi^2=0.98$) between different levels of locus of control & unintentional non-adherence were seen. From this, it can be inferred that there may not have any role of LOC of the diabetic patient in unintentional non-adherence to the medical treatment. Similarly, no significant relationship ($\chi^2=3.25$) between different types of personality and unintentional non-adherence is observed. Hence it is safe to infer that type of Personality is independent from unintentional non-adherence among diabetic patients and may not have any role of type of Personality of the diabetic patient in unintentional non-adherence to the medical treatment.

Key Words: Social Support, Locus of Control, Medication Adherence and Diabetic patients

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Introduction

Research on the association between personality characteristics and subsequent physical health has produced several consistent findings and identified other tentative relationships. Suggestions that illness is influenced by personality appear over centuries of medical writing.¹ Angell suggested that the emergence of medical disease is influenced by personality and other relevant psychological factors as “folklore”.² Diabetes is an increasingly important public health concern, but little is known about the contribution of psychological factors on diabetes risk. Personality is associated risk of incident diabetes and diabetes-related mortality. Diabetes is largest health care problem as it is non-transmissible yet it has an epidemic spread. It is also a problem as it can have a psychological burden and cost barring on the person accepting it. In general, abnormal glucose concentrations accumulate in the blood as result of the failure of pancreas or no proper work to produce the required amount of insulin (American Diabetes Association, ADA, 2000) or the amount of insulin that is available cannot be used by the body's cells.

Social Support: The presence of supportive people in one's life enhances emotionally and physically well being. Social support refers to the caring, ease, esteem, or any type of assistance a person receives from other people or group.^{3,4,5,6} Cobb has reported that individuals with social support believe that they are loved, cared, valued and considered a part of a social network, such as a family, individuals with social support believe that they are loved, cared, valued and considered a part of a social network, such as a family, community that can provide help at times of need the caring, ease, esteem, or a person's assistance from other people or group.³ House reported that there are many different forms of social support: It may involve socio-emotional support like empathy and group affiliation.⁷ Instrumental assistance is another way to provide support. This kind of assistance involves deeds or supplies that enable the fulfillment of duties like parenting and job responsibilities⁷. Informational aid is a third type of support; this can help with problem-solving efforts and includes suggestions and personal feedback. The different types of support are largely independent of one another and exhibit discriminating validity with regard to outcome measurements⁸.

Locus of Control: Locus of Control (LOC), the construct was derived from Social Learning theory, refers to degree to People believe they can influence outcomes or reinforcement of behaviour person who have higher internal locus of control believe that events result primarily from their own behaviour and action.^{9,10} Person who has high external locus of control believe that powerful others, fate, or chance primarily determine events. Those with a high internal locus of control have better behavioural discipline, tend to exhibit more political behaviours, and are more likely rather than those with a high external locus of control, to exert influence over others; they are more likely to simply assume that their efforts will be successful. Personality constructs, which reflects the individual's perception of the place or events and degree of individual control that he has over the reinforcements following his behaviour.

Personality: Everyone is familiar with the word personality and has probably used it and heard it many times while talking to others. We often say he/she has a wonderful personality. Each person is unique every human being possesses the quality of individuality. People are different in many respects in appearance, background, education, training, experience, interests and abilities. Different hereditary factors, environment, early childhood experiences and experiences through life and interaction with people makes his/her personality unique than another human being. Personality is the dynamic organization of an individual's characteristic, ways of responding to himself and to his experience.¹¹ Huczynki and Buchanan have cleared that personality has the characteristics: it has the stable nature and it distinguishes one individual to another. Personality is distinctive; each person's behaviour is different from the others. The distinctive properties of behaviour are assumed can be observed, measured, and compared with properties of other¹². There are so many personality type measurements. The A and B personality type, Type A personality is opposite to another personality type, Type B personality. Type A personality can be found on person who is aggressive, tend to make more achievement is lesser time, it can be said that type A personality can be characterized by ambition, hostility, impatience, and a constant time – pressure, such as Hurrying, clenched fists, explosive speaking, and quick talking are typically seen as signs of an underlying emotional condition that is unhealthy. Meanwhile, Type B personality as the opposite, can be found in a person who are relax, low focus on achievement, and able to take leisure time.^{13,12} It is known that both of those personality types have their own behaviour characteristics, respectively. Type A and Type B personality mainly related to the matter of respond to stress in daily life. Many famous researchers have found that Type A personality more likely to suffer heart disease than Type B personality.^{13,12}

In this context, social support, locus of control and personality are very important variable in human life. In diabetes one of the major difficulties is that many Diabetic patients are unable to commit to the treatment plan. People either stop eating medicines in between or stop following proper diet. Many researchers have shown that the kind of behaviour one showcase is the result of the personality one has. To understand this behaviour of 'lack of commitment towards the medical treatment plan' by the diabetic patients, it is important to understand their personality type and other factors like locus of control and social support that impacts the personality. By understanding these factors researcher can contribute in recognizing the reasons of lack of commitment and can help to improve this behaviour which may further have a great impact in the health care system.

Rationale of the Study: In last few years numerous studies have been conducted to examine the association among social support and locus of control on diabetic patients. But there were no such studies available where social support, locus of control and types of personality of diabetic patients have been taken as combined variables. Therefore, there is need to study to draw a conclusive fact about social support, locus of control and types of personality of diabetic patients in unintentional non-adherence to the medical treatment.

Objectives

1. To know the relationship between social support and diabetic patients' commitment in terms of unintentional non-adherence
2. To measure the association between locus of control and diabetic patients' commitment in terms of unintentional non-adherence
3. To find the relationship between personality and diabetic patients' commitment in terms of unintentional non-adherence
4. To know the relationship between social support and diabetic patients' commitment in terms of purposeful non-adherence
5. To measure the association between locus of control and diabetic patients' commitment in terms of purposeful non-adherence
6. To find the relationship between personality and diabetic patients' commitment in terms of purposeful non-adherence

Hypotheses

1. There will be no significant relationship between social support and diabetic patients' commitment in terms of unintentional non-adherence.
2. There will be no significant association between locus of control and diabetic patients' commitment in terms of unintentional non-adherence.
3. There will be no significant relationship between personality and diabetic patients' commitment in terms of unintentional non-adherence.
4. There will be no significant relationship between social support and diabetic patients' commitment in terms of purposeful non-adherence.
5. There will be no significant association between locus of control and diabetic patients' commitment in terms of purposeful non-adherence.
6. There will be no significant relationship between personality and diabetic patients' commitment in terms of purposeful non-adherence.

Research Methodology

1. **Research Design:** Correlation research design is used. The correlational method involves looking for relationship between variables. The correlational method is characterized by quantification since the magnitude of variables must be ascertained
2. **Sampling:** In this present study purposive sampling technique have been used. A purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. A Sample of 319 diabetic patients has been selected from Sawai Madopur District, (Rajasthan).
3. **Tools:**
 1. Social Support Scale (SSS)¹⁴
 2. Rotter's Locus of Control Scale.¹⁵
 3. Type A Behavioural pattern Scale.^{16, 17}
 4. The Medication Adherence Questionnaire; MAQ.¹⁸

Four scales have been used to obtain relevant information from them. Social Support Scale (SSS) was developed by Naik and Khan in 2019¹⁴. This scale is about how you feel in certain social situations. The purpose of this questionnaire is to know your feeling towards social support. This scale contains 21 items. Rotter’s Locus of Control Scale adopted by Kumar and Srivastava (1984)¹⁵ have been used to assess the level of locus of control. This scale contains 29 items. Type A behavioural pattern scale is adopted from Bortner and Rosenman (1967)¹⁶ and Powell (1992).¹⁷ This scale contains 13 items. With help of this scale try to know about type A personality of a patients. The Medication Adherence Questionnaire; MAQ (Morisky et al, 1986)¹⁸ have been used to know about the patient’s medication commitment. This scale contains 4 items.

Statistical Analysis: To make meaningful and appropriate inferences, the objectives-aligned classification and tabulation of the data collected was done by using SPSS and to find the relationship between variables, Chi-square test (χ^2) has been used in the present study.

Results

Findings of the study are presented in the following tables.

Table-1: Relationship among Social Support, Locus of Control Personality and Unintentional Non-adherence Commitment to Medical Treatment

		Unintentional Non-adherence				χ^2	p-value
		No.	Low	High	Total		
Social Support	Average	58	48	12	118	29.12	0.000**
	Low	18	60	14	92		
	High	56	47	6	109		
	Total	132	155	32	319		
Locus of Control	External	130	153	31	314	0.98	0.613
	Internal	3	2	0	5		
	Total	133	155	31	319		
Types of Personality	Type A	3	3	0	6	3.25	0.517
	Balanced	69	95	18	182		
	Type B	61	57	13	131		
	Total	133	155	31	319		

** Highly Significant at 0.01 levels

Table- 1 described the association among different study variables and represents the recorded frequencies of unintentional non-adherence medical treatment (column) of the diabetic patients given in Medical Adherence Questionnaire (MAQ). This unintentional non-adherence is divided into three categories in the current research according to the manual of administered Medical Adherence Questionnaire (MAQ). These three categories are “No” (patients who scored Zero in the test), “low” (patients who scored One in the factor of MAQ) and “high” (patients who scored two in the factor of MAQ). There were two items in Yes and No response category under the dimension of Unintentional Non-adherence of MAQ. First was “Do you ever forget to take your medicine?” and second “Are you careless at times about taking your medicine?” Total score of the responses of these questions were recorded in 0 (Zero= Means No unintentional non-adherence), 1 (One=Means Low unintentional non-adherence) and 2 (Two=Means High unintentional non-adherence) of diabetic patients. Level of Social support, types of Locus of control & Personality are presented in rows of the respective Table 1.

1. Social Support and Unintentional non-adherence: There was found significant relationship ($\chi^2= 29.12$, $p=.01$) between different levels (Average, Low and High) of social support and unintentional non-adherence (No, Low and High). Out 132 diabetic patients who scored “ZERO”, 56 had high, 58 average and 18 had low level of social support. Out of 155 diabetic patients who scored “ONE”, 47 had high, 48 average and 60 had low level of social support. Out of 32 diabetic patients who scored “TWO”, 6 had high, 12 average and 14 had low level of social support. According to the manual of MAQ higher the score on unintentional non-adherence factor more the unintentional no-adherence to medical treatment. On another hand higher the total score on social support so higher the level of social support. Table no 1 show 187 (155 scored “LOW” and 32 scored “HIGH”) participants scored high and 132 scored “NO” on unintentional non-adherence

factor of MAQ. It means there were more participants 187 (58.6%) of the study who falls under the category of unintentional non-adherence. Similarly there were 113 (60=Average and 53=High, total 32%) participants of the study who falls under the category of higher level of social support. Therefore, it may be said that social support is not independent from unintentional non-adherence among diabetic patients.

2. Locus of Control & Unintentional non-adherence: There was found no significant relationship ($\chi^2= 0.98$) between different levels (External and Internal) of locus of control & unintentional non-adherence (No, Low and High). Out 133 diabetic patients who scored “ZERO”, 130 had external, 3 internal locus of control. Out of 155 diabetic patients who scored “ONE”, 153 had external, 2 internal locus of control. Out of 31 diabetic patients who scored “TWO”, all 31 had external locus of control. According to the manual of MAQ higher the score on unintentional non-adherence factor more the unintentional no-adherence to medical treatment. On another hand higher total score on locus of control indicates external LOC. Table no 1 show 186 (155 scored “LOW” and 31 scored “HIGH”) participants scored high and 133 scored “NO” on unintentional non-adherence factor of MAQ. It means there were more participants (186=58.3%) of the study who falls under the category of unintentional non-adherence. Similarly, there were 153 (47.96%) participants of the study who falls under the external LOC. Therefore, it may be said that locus of control is independent from unintentional non-adherence among diabetic patients.

3. Types of Personality and Unintentional non-adherence: There was found no significant relationship ($\chi^2= 3.25$) between different types (Type A, Type B and Balanced Type) of personality and unintentional non-adherence (No, Low and High). Out 155 diabetic patients who scored “ZERO”, 3 were Type A, 69 Balanced Type and 61 were Type B Personality. Out of 155 diabetic patients who scored “ONE”, 3 were Type A, 59 Balanced Type and 57 were Type B Personality. Out of 31 diabetic patients who scored “TWO”, there No Type A, 13 Balanced Type and 18 were Type B Personality. According to the manual of MAQ higher the score on unintentional non-adherence factor more the unintentional no-adherence to medical treatment. On another hand a total score 100 and above were Type A Personality, 70 to 100 Balanced Type and below 70 were Type B Personality. Table no 1 show 186 (155 scored “LOW” and 31 scored “HIGH”) participants scored high and 133 scored “NO” on unintentional non-adherence factor of MAQ. It means there were more participants (186=58.3%) of the study who falls under the category of unintentional non-adherence. Similarly there were 183 (113=Balanced Type and 70=Type B Personality total 57.37%) participants of the study who falls under the category of Balanced and Type B Personality. Therefore, it may be said that type of Personality is independent from unintentional non-adherence among diabetic patients.

Table 2: Relationship among Social Support, Locus of Control Personality and Purposeful Non-adherence Commitment to Medical Treatment

		Purposeful Non-adherence				χ^2	p-value
		No	Low	High	Total		
Social Support	Average	65	36	18	117	29.50	0.000**
	Low	21	49	21	91		
	High	53	46	10	109		
	Total	140	131	48	319		
Locus of Control	External	138	130	46	314	2.67	0.263
	Internal	2	1	2	5		
	Total	140	131	48	319		
Types of Personality	Type A	3	1	2	6	3.57	0.467
	Balanced	75	80	27	182		
	Type B	62	50	19	131		
	Total	140	131	48	319		

** Highly Significant at 0.01 levels

Table-2 described the association among different study variables. Table no 2 represents the recorded frequencies of purposeful non-adherence medical treatment (column) of the diabetic patients given in Medical Adherence Questionnaire (MAQ). This purposeful non-adherence is divided into three categories in the current study according to the manual of administered

Medical Adherence Questionnaire (MAQ). These three categories are “No” (patients who scored Zero in the factor of MAQ), “low” (patients who scored One in the factor of MAQ) and “high” (patients who scored two in the factor of MAQ). There were two items in Yes and No response category under the dimension of Purposeful Non-adherence of MAQ. First was “When you feel better, do you sometimes stop taking your medicine?” and second “Sometimes if you feel worse when you take the medicine, do you stop taking it?” Total score of the responses of these questions was recorded in 0 (Zero= Means No purposeful non-adherence), 1 (One=Means Low purposeful non-adherence) and 2 (Two=Means High purposeful non-adherence) of diabetic patients. Level of Social support, types of Locus of control and Personality are presented in rows of the respective Table 1.

- 1. Social Support and Purposeful non-adherence:** There was found significant relationship ($\chi^2= 29.50$, $p=.01$) between different levels (Average, Low and High) of social support and purposeful non-adherence (No, Low and High). Out 140 diabetic patients who scored “ZERO”, 53 had high, 65 average and 21 had low level of social support. Out of 131 diabetic patients who scored “ONE”, 46 had high, 36 average and 49 had low level of social support. Out of 48 diabetic patients who scored “TWO”, 10 had high, 18 average and 21 had low level of social support. According to the manual of MAQ higher the score on purposeful non-adherence factor more the purposeful no-adherence to medical treatment. On the other hand higher the total score on social support so higher the level of social support. Table no 2 show 179 (131 scored “LOW” and 48 scored “HIGH”) participants scored high and 140 scored “NO” on purposeful non-adherence factor of MAQ. It means there were more participants 179 (56.1%) of the study who falls under the category of purposeful non-adherence. Similarly there were 110 (54=Average and 56=High, total 34%) participants of the study who falls under the category of higher level of social support. Therefore it may be said that social support is not independent from purposeful non-adherence among diabetic patients.
- 2. Locus of Control & Purposeful non-adherence:** There was found no significant relationship ($\chi^2= 2.67$) between different types (External and Internal) of locus of control & purposeful non-adherence (No, Low and High). Out 140 diabetic patients who scored “ZERO”, 138 had external and 2 had internal locus of control. Out of 131 diabetic patients who scored “ONE”, 130 had external and 1 internal locus of control. Out of 48 diabetic patients who scored “TWO”, all 46 had external and 2 had internal locus of control. According to the manual of MAQ higher the score on purposeful non-adherence factor more the purposeful no-adherence to medical treatment. On the other hand, higher total score on locus of control indicates external LOC. Table no 2 show 179 (131 scored “LOW” and 48 scored “HIGH”) participants scored high and 140 scored “NO” on purposeful non-adherence factor of MAQ. It means there were more participants 179 (56.1%) of the study who falls under the category of purposeful non-adherence. Similarly there were 176 (55.2%) participants of the study who falls under the external locus of control. Therefore it may be said that overall locus of control is independent from purposeful non-adherence among diabetic patients.
- 3. Types of Personality and Purposeful non-adherence:** There was found no significant relationship ($\chi^2= 3.57$) between different types (Type A, Type B and Balanced Type) of personality and purposeful non-adherence (No, Low and High). Out 140 diabetic patients who scored “ZERO”, 3 were Type A, 75 Balanced Type and 62 were Type B Personality. Out of 131 diabetic patients who scored “ONE”, 1 were Type A, 80 Balanced Type and 50 were Type B Personality. Out of 48 diabetic patients who scored “TWO”, 02 were Type A, 27 Balanced Type and 19 were Type B Personality. According to the manual of MAQ higher the score on purposeful non-adherence factor more the purposeful no-adherence to the medical treatment. On the other hand a total score 100 and above were Type A Personality, 70 to 100 Balanced Type and below 70 were Type B Personality. Table no 1 show 179 (131 scored “LOW” and 48 scored “HIGH”) participants scored high and 140 scored “NO” on purposeful non-adherence factor of MAQ. It means there were more participants 179 (56.1%) of the study who falls under the category of purposeful non-adherence. Similarly, there were 176 (107=Balanced Type and 69=Type B Personality total 55.2%) participants of the study who falls under the category of Balanced and Type B Personality. Therefore, it may be said that type of Personality is independent from purposeful non-adherence among diabetic patients.

Discussion

The present study aimed to find the association among social support, locus of control & types of personality of diabetic patients. This association measured among those patients who could unintentionally or purposefully not adhered the medical

treatment. The major findings of the present study are discussed in the light of issues, objectives and hypotheses mentioned in the study.

- There was found significant relationship between different levels (Average, Low and High) of social support and unintentional non-adherence (No, Low and High).

Therefore, it may be said that social support is not independent from unintentional non-adherence among diabetic patients. Null hypothesis no 1 which state that there will be no significant relationship between unintentional non-adherence and social support of the current study is rejected. Thus, on the basis of the current study finding it can be inferred that there would be some impact of social support of the diabetic patient in unintentional non-adherence to the medical treatment.

- There was found no significant relationship between different levels (External and Internal) of locus of control & unintentional non-adherence (No, Low and High).

Therefore, it may be said that locus of control is independent from unintentional non-adherence among diabetic patients. Null hypothesis no 2 which states that there will be no significant relationship between unintentional non-adherence and locus of control of the current study is accepted. Thus on the basis of the current study finding it can be inferred that there may not have any role of LOC of the diabetic patient in unintentional non-adherence to the medical treatment.

- There was found no significant relationship between different types (Type A, Type B and Balanced Type) of personality and unintentional non-adherence (No, Low and High).

Therefore it may be said that type of Personality is independent from unintentional non-adherence among diabetic patients. Null hypothesis no 3 which states that there will be no significant relationship between unintentional non-adherence and type of Personality present study is accepted. Thus, on the base of the current study finding it can be inferred that there may not have any role of type of Personality of the diabetic patient in unintentional non-adherence to the medical treatment.

- There was found significant relationship between different levels (Average, Low and High) of social support and purposeful non-adherence (No, Low and High).

Therefore, it may be said that social support is not independent from purposeful non-adherence among diabetic patients. Null hypothesis no 4 which states that there will be no significant relationship between purposeful non-adherence and social support of the current study is rejected. Thus on the basis of the current study finding it can be inferred that there would be some effect of social support of the diabetic patient in purposeful non-adherence to the medical treatment.

- There was found no significant relationship between different types (External and Internal) of locus of control & purposeful non-adherence (No, Low and High).

Therefore, it may be said that overall locus of control is independent from purposeful non-adherence among diabetic patients. Null hypothesis no 5 which states that there will be no significant relationship between purposeful non-adherence and locus of control of the present study is accepted. Thus on the basis of the current study finding it can be inferred that there may not have any role of locus of control of the diabetic patient in purposeful non-adherence to the medical treatment.

- There was found no significant relationship between different types (Type A, Type B and Balanced Type) of personality and purposeful non-adherence (No, Low and High).

Therefore it may be said that type of Personality is independent from purposeful non-adherence among diabetic patients. Null hypothesis no 6 which states that there will be no significant relationship between purposeful non-adherence and type of Personality of the present study is accepted. Thus on the basis of the current study finding it can be

inferred that there may not have any role of type of Personality of the diabetic patient in purposeful non-adherence to the medical treatment.

On the basis of major findings, it can be said that in one study, Azeem has described that emotional tiredness has a negative correlation with commitment, challenge, control, and total personality hardiness. Depersonalization has also been found to have a negative relationship with commitment and total personality hardiness.¹⁹ In other study, Halbesleben, and their associates have found that work-linked couples have a stronger relationship between spouse instrumental support and the reduction of emotional exhaustion.²⁰ In this context, Nicklett and Liang have cleared that found that diabetic support is not significantly related with health decline, but diabetic support is related with adherence to health promoting behaviours consisting of a diabetic regimen.²¹

A study done by Bhatia and Dey have also found that social support does buffering effect on daily hassles among working women.²² In other context Injeyan and their associates have found the LOC and dispositional optimism are aspects of personality known to influence coping style. Those at highest risk experienced moderate-to-high burnout, low-to-moderate compassion satisfaction, and tended to rely on religion/spirituality when coping with stress.²³

Morowatisharifabad, and their associates have cleared that male diabetics demonstrated more internal locus of control, whereas females displayed evidence of chance locus of control.²⁴

Tol and their associates have claimed that social support relationship with HbA1C in Type II and not in Type I. Marital status, BMI and gender had significant relationship with Social Support from family & HbA1C in both Type I & II Diabetes. Age had significant relation with perceived Social Support & HbA1C in Type II Diabetes.²⁵

A study done by Theofilou investigated that the influence of the social support on mental health and locus of control support was associated positively with internal LOC a positive influence was resulted between social support and internal health locus of control study.²⁶ In other context, Aghaei and their associates have examined the role and contribution of each of the variables of personality types, locus of control & occupational satisfaction on job burnout. The results of multiple regression analysis highlight that personality type, locus of control and occupational satisfaction can predict occupational exhaustion.³⁷

Aflakseir and their associates deemed to have a strong locus of control was more likely to follow the suggested diet plan. Chance LOC was discovered to be strongly connected with diet non-adherence.²⁸ Awasthi and their associates have reported that found social support can alter a patient's perspective of their health issues as well as the effects of those concerns.²⁹

Jahan has found that patients having a high Internal Locus of Management had well-controlled blood sugar levels and could be kept under better medical control women exhibited a very submissive behaviour.³⁰ Oluwakemi concluded that academic locus of control and social support was found to exert influence on undergraduates' research help-seeking behaviour.³¹ Besen and their associated have explained that found Internal LOC is positively correlated to self care activities. Locus of control predicts 19% of self-care activities.³²

Biernacka and their associates have explored a better internal health locus of control was favorably connected with the relationship between the self-health locus of control and the effectiveness of participation in the treatment process in teenagers with chronic diseases. The chance health locus of control and treatment outcomes was found to be negatively correlated. Gender, age, and other clinical groups were found to be related to variations in the locus of control for health.³³

Bagherian and their associates have found that the participants with better illness perception regarding myocardial infarction (MI) may have had better perceived social support and/or may had less chance locus of control & were more prone to be diagnosed as Diabetic. A positive correlation was found between powerful others locus of control & chance locus of control.³⁴

Finally, it can be said that social support is not independent from unintentional non-adherence among diabetic patients. While locus of control and personality is independent from unintentional non-adherence among diabetic patients. In another finding social support is not independent from purposeful non-adherence among diabetic patients and both locus of control and personality are independent from purposeful non-adherence among diabetic patients.

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