

The Relationship Between Personality Traits And Adherence of Adolescents with Diabetes in Najran City

* Howaida Moawad Ahmed, **Rehab Elsayed Mohammed,

*Assistant professor of Pediatric Nursing, Faculty of Nursing, Najran University.

**Assistant Professor of Psychiatric Nursing, Faculty of Nursing, Najran University

Corresponding Author: * Howaida Moawad Ahmed

Abstract:

Background: Diabetes is a chronic illness with long-term effect about on health and quality of life.

The aim of the study was to investigate the association between adolescent's personality traits and their adherence to diabetes regimens.

Research design: descriptive correlational design was utilized to fulfill the aim of this study.

Setting: The present study was conducted at an outpatient clinic in King Khalid hospital at Najran City.

Sample: 100 adolescent from previously mentioned setting by using simple random sample technique were used in this study.

Tools: three tools was used in data collection, 1- Knowledge questionnaire sheet about type 1 diabetes. 2- An Adolescent Adherence Questionnaire. 3- Goldberg's International Personality Item Pool.

Result: Indicated that adolescent age at the onset of illness was 51.0% were at <1 year, more than one-third of male and female adolescent had satisfactory knowledge about type 1 diabetes. Also, 32.5% of male and 30.8% of a female was conscientiousness personality. There was a positive correlation coefficient between adolescent's Conscientiousness personality traits and their adherence to insulin administration and diet. Also there was a positive correlation coefficient between adolescent's Extraversion personality traits and their adherence to exercise and between adolescent Neuroticism personality and their adherence to insulin administration. In addition, there was positive significant correlation between adolescent's knowledge with their personality traits and their adherence to prescribed diabetes regimens at $p < 0.01$.

Conclusion: The study concluded that there was a relation between adolescent knowledge about type 1 diabetes with their adherence and personality traits.

Recommendation: Continuous update adolescent knowledge about type 1 diabetes and consider their personality traits and their adherence.

Keyword: adolescent, type 1 diabetes, personality traits, adherence, knowledge.

Date of Submission: 04-10-2017

Date of acceptance: 28-10-2017

I. Introduction

Incidence of Type 1 diabetes (T1D) among individuals aged more than 15 years in 35 countries, and published in 70 articles between 1982 and 2014 was larger in males than in females in 44 of the 54 (81%) studies reporting incidence by sex in people >15 years of age (Diaz-Valencia, et al., 2015). Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces. Diabetes is an important public health problem, one of four priority non-communicable diseases (NCDs) targeted for action by world leaders. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades. Type 1 diabetes (previously known as insulin-dependent, juvenile or childhood-onset diabetes) is characterized by deficient insulin production in the body. People with type 1 diabetes require daily administration of insulin to regulate the amount of glucose in their blood. If they do not have access to insulin, they cannot survive. The cause of type 1 diabetes is not known, it is generally agreed that type 1 diabetes is the result of a complex interaction between genes and environmental factors; though no specific environmental risk factors have been shown to cause a significant number of cases. The majority of type 1 diabetes occurs in children and adolescents and it is currently not preventable. Symptoms include excessive urination and thirst, constant hunger, weight loss, vision changes and fatigue (World Health Organization 2016).

Adolescent adherence is defined as active, voluntary behaviors in which an individual engages so as to improve, maintain, or prevent further deterioration of their health status. Adherence remains a significant concern for adolescents with Type 1 diabetes, the treatment regimen for which is complex and includes numerous behaviors. Accurate assessment of adherence is critical for effective healthcare and to measure trial

outcomes (**Gandhi, et al., 2015**). Adherence to a management regimen is critical to the overall health of adolescent, slowing the harmful progression of chronic disease and avoiding future health complications (**Sawyer & Aroni, 2003**).

Personality traits are seen as the basic level of analysis and describe the most fundamental personality differences between individuals. Nowadays, most researchers agree that personality can be subsumed under five broad traits: Extraversion (energy, sociability, and experiencing frequent positive moods), Agreeableness (kindness, empathy, and cooperativeness), Conscientiousness (self-discipline, organization, and responsibility), Emotional Stability (the ability to deal with negative emotions), and Openness to Experience (the way that an individual seeks and deals with new information) (**Rassart, et al., 2014**).

Effective therapies are available but require balancing insulin dosing, diet, and exercise along with frequent feedback from blood glucose monitoring results. Thus, implementation of and consistent adherence to such a complex and demanding treatment regimen challenges even the most motivated adolescent. The spontaneity and sense of immortality and exceptionalism that are hallmarks of the teen years are counter to effective diabetes management. Type 1 diabetes is a metabolic condition which requires a complex regimen of diet, exercise, blood glucose monitoring, and daily insulin administrations. Adherence to therapy is a particular concern in this adolescent, and the association between poor adherence and worsening glycemic control indicates that there is a critical need to improve adherence to therapy in adolescents with T1D (**Datye, et al., 2016**). Nurses can facilitate treatment adherence through the provision of educational, practical and socio-emotional support. Nursing interventions should target blood glucose monitoring and dietary regimens in particular, and nurses should be sensitive to the various caretaking challenges presented to parents by different components of the diabetes regimen (**Chisholm, et al., 2007**).

Significant of study:

The study done by (**Al herbish, et al., 2009**) concludes that the prevalence of type 1 diabetes mellitus in Saudi Arabian children and adolescents is 109.5 per 100,000. In addition, the study done by (**Abdul-Jabbar, et al., 2010**) concluded that the incidence rate of childhood type 1 diabetes mellitus increase alarmingly over the past 18 years in our study population. A kingdom-wide diabetes registry is essential to study the epidemiology of this disease in the whole country. Also reported that the incidence rate of type 1 diabetes mellitus increasing globally 3-5% per years. Numerous studies have shown that only 50% of the chronically ill population adheres to their prescribed management regimen, while other studies have reported even more dramatic noncompliance rates (**Sawyer & Aroni, 2003**). Determining which variables predict adherence is critical because it would allow primary care providers to intervene before adolescent become non adherent and engage in risky health behaviors.

Based on previous research, we expected that the conscientiousness domain and its underlying facets would be most strongly associated with the various adherence behaviors, in the positive direction. We also anticipated a negative correlation between the Neuroticism domain and its underlying facets with adherence behaviors. Although the extant literature did not provide a basis for making predictions regarding the other domains, we did anticipate that our exploratory analyses could reveal associations between extraversion traits, and possibly agreeableness traits, and adherence behaviors that might be unique to the adolescent stage of development. It is importance to examine the associations between broad personality traits and adolescent adherence to diabetes management regimens. Specifically, correlations were computed between all five personality domains (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness) and five frequently used measures of diabetic adherence: blood glucose monitoring, insulin administration, diet, and exercise (**Wheeler, et al., 2013**).

The aim of the study:

- Investigate the relation between knowledge of adolescent with their personality traits and adherence prescribed diabetes management regimens
- Investigate the association between adolescent personality traits and their adherence to prescribed diabetes management regimens.

Research question:

- Is there are an association between adolescent personality traits and their adherence to prescribed diabetes management regimens?

II. Material And Methods

Research design:

- A descriptive correlational research design was utilized in this study.

Setting:

-The study was conducted in the outpatient of the diabetes center at King Khalid hospital at Najran City.

Sample selection: Simple random sample was used to collect data pertinent to the study. Data were collected within 4 months. The total number of the sample was 100 adolescent having type 1 diabetes and their age range between 10 years to 19 years.

Tools:

Tool one: Part I: Adolescent's Demographic Data: as gender, and age.

Part II: Disease-Related Information: It includes items concerning diabetes disease itself such as, adolescents' age at the onset of illness, attending previous education session about diabetes and the duration of treatment.

Part III: Knowledge questionnaire sheet consisted of 5 items related to the adolescent's knowledge such as diabetes definition, causes, signs, and symptoms, complications and treatment.

Scoring system of knowledge: The complete correct answer was given two points, the incomplete answer given one point, and an incorrect answer was given zero. The total scores of the knowledge section were (10 degree): poor level of knowledge (<50%), the average level of knowledge (50-75%) and a good level of knowledge score from (>75%) points.

Tool two: Goldberg's International Personality Item Pool: The 50 Big Five Factor Markers scale (**Goldberg, 2004**) was used to assess five major domains of personality: extraversion, neuroticism, agreeableness, openness to new experiences, and conscientiousness. Since each factor is measured by only ten items.

The scoring systems: Items are scored on the a5-point Likert-type scale designed to reflect the adolescent's opinion for each item with scores ranging from 1. Very inaccurate, 2. moderately inaccurate, 3. neither accurate nor inaccurate, 4. Moderately accurate, or 5. Very accurate as the description of the adolescent personality.

Tool three:-Adolescent Adherence Questionnaire: Five self-reported indicators of adherence were assessed: blood glucose monitoring, insulin administration, diet, exercise, and Person responsible for managing your diabetes.

Scoring system: The total score of the adherence levels: never/ little of adherence level score (1-6 point = <35%), sometimes of adherence levels score (7-13 point =35-65%) and often of adherence level scores (14-20 point = >65%).

Tools validity and reliability:

Tools were submitted to a panel of two experts in the field of pediatric and psychiatric nursing to test the content validity. Modifications were carried out according to the panel judgment on the clarity of sentences and appropriateness of content.

Administrative Design

Official letters were issued from Dean Faculty of Nursing, Najran University to the director of the selected previously setting; explaining the aim of the study and asking permission for data collection and participation of adolescents in the research process.

Ethical and legal considerations:

- All ethical issues of the research were maintained. The purpose, specific objectives, anticipated benefits and the method of the study were carefully explained to each eligible subject.
- The investigator emphasized that participation in the study is entirely voluntary, and their rights were secured; anonymity and confidentiality were assured through coding the data.
- Oral consent was taken from adolescents who accept to be included in the study.

Pilot study:

A pilot study was carried out on 10% of the total sample to check the clarity of items and determine the feasibility of the study and excluded from the sample.

Procedure:

The study was carried out from the beginning of December 2016 until the end of March 2017 in the previously mentioned setting covering four months. The researchers visited the previously mentioned setting two days/week from 1.00 p.m. to 3.00 P.m. until the predetermined sample size completed. The average time consumed to fill in the tools was 45 minutes, Interviewing the adolescent took place at the waiting room beside the clinic. The researcher met the adolescent attended to the aforementioned hospitals and introduced himself to them. A full explanation of the nature and aim of the study was carried out to the adolescent in order to obtain their cooperation. The researcher interviewed the adolescent and filled the structured questionnaire sheet from each adolescent individually. The data collected by the investigators and semi-structured interview technique

was used with the adolescent, individually interviewed” face to face”, after taking the initial consent of each adolescent to participate in the study.

Statistical analysis:

Statistical analysis was done using SPSS version 20 statistical software package. Data were presented using frequency, Qualitative data described by number and percent, Chi-square test used to test the relation between qualitative variables. Correlation between quantitative variables was done using Pearson correlation coefficient. A statistically significant difference was considered at $p \leq 0.05$, and a highly statistically significant difference was considered at $p \leq 0.001$.

III. Results

Table (1): Socio-demographic data of adolescences with diabetes (n=100)

Item	N	%
Gender		
• Male	74	74.0
• Female	26	26.0
Age		
• <13	27	27.0
• 13-15	38	38.0
• 16-18	35	35.0
Mean ± SD	14.79± 2.07	
Level of education		
• Primarily	27	27.0
• Secondary	73	73.0
Residency		
• Rural		
• Urban		
Age at the onset of illness		
• <1 year	51	51.0
• 1-3	31	31.0
• 4-6	18	18.0
Mean ± SD	1.55± 1.48	
Duration of treatment		
• ≤ 10 year	20	20.0
• 11-14	45	45.0
• 15-18	35	35.0
Mean ± SD	13.78± 2.46	

Table (1): was clear that 74.0% were male and 38.0% were age 13-15 year with mean 14.79 ± 2.07 . As regard level of education 73.0% of adolescences have the secondary level. As regarding age at the onset of illness, 51.0% were at <1 year with mean 1.55 ± 1.48 . Concerning their duration of treatment, 45.0% of them take 11-14 year of treatment.

Figure (1): Distribution of adolescent related attendant previous educational session about diabetes

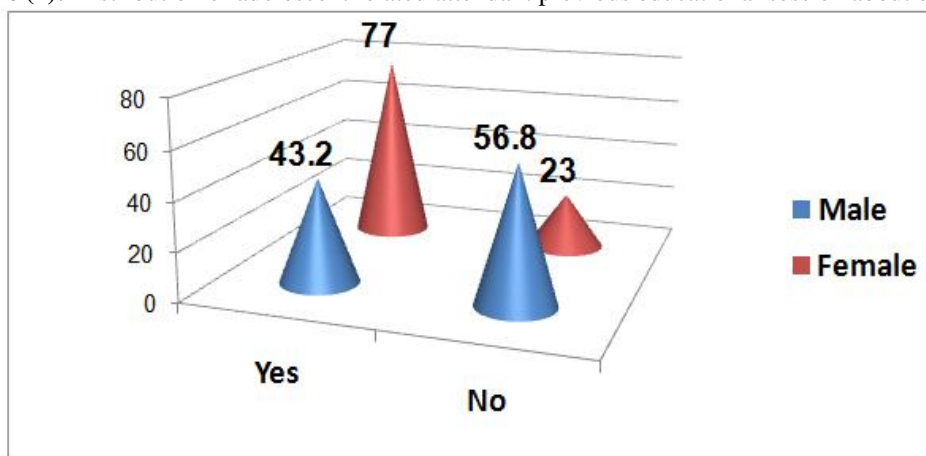


Figure 1: illustrated that more than two third of female adolescent and one-third of male adolescent attending previous education session about diabetes.

Figure (2): Distribution of adolescent's according to personality traits of (n=100)

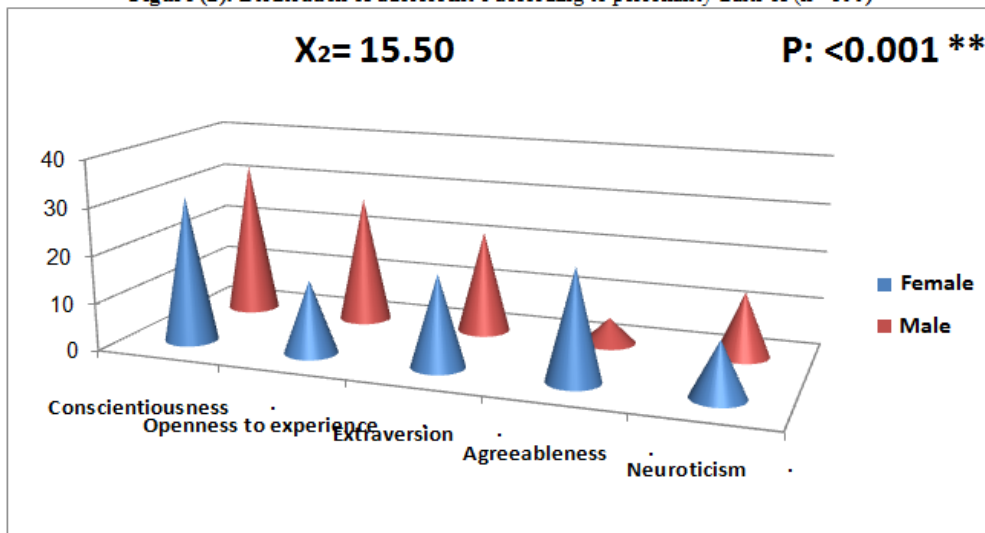


Figure (2): displays that, the highest percentage of adolescents with diabetic was 32.5% of male and 30.8% of the female were conscientiousness personality. While the lowest percentage was 11.5% of the female were had neuroticism and 5.4% of the male were have agreeableness personality.

Table (2): Percentage distribution of adolescent's according to adherence to diabetes management (n=100)

Table (2): illustrated that, there was the highly statistically significant difference between male and female adolescents according to adherence to diabetic management $p < 0.001$ in all item except item of blood glucose monitoring. Also, the highest percentage was 50.0% of the female were adhere to diet and exercise and 55.4% of the male was adhere to insulin administration and 51.4% adhere to diet and exercise.

Item of adherence	Female (n=26)		Male (n=74)		X ²	P
	N	%	N	%		
Blood glucose monitoring					3.50	>0.05
• Sporadic	0	0.0	0	0.0		
• 1/day or 3/week	7	26.9	18	24.3		
• 2/day or 3/week	10	38.5	30	40.5		
• 3/day or 3 or more /week	9	34.6	26	35.2		
Insulin administration					41.44	<0.001**
• Skips doses or forget	2	7.7	4	5.4		
• Change dosage amount	4	15.4	14	18.9		
• Technique and timing of insulin administration is good	9	34.6	41	55.4		
• Technique and timing of insulin administration is excellent	11	42.3	15	20.3		
Diet					65.20	<0.001**
• Little /no effort to follow diabetic diet	1	3.8	1	1.4		
• 50% adhere with time and eating diabetic diet	5	19.2	4	5.4		
• 50 - 90 % adhere with time and eating diabetic diet	13	50.0	38	51.4		
• 90 - 100% adhere with time and eating diabetic diet	7	27.3	31	41.8		
Exercise and physical activity					24.40	<0.001**
• 0-1 time/ week	8	30.8	0	0.0		
• 1-2 /week	13	50.0	16	21.6		
• 3-4 /week	4	15.4	38	51.4		
• 5 or more time /week	1	3.8	20	27.0		
Person responsible for managing your diabetes					32.90	<0.001**
• Mother	12	46.2	40	54.0		
• Father	8	30.8	20	27.0		
• Self	6	23.0	14	19.0		

Table (3) Distribution of adolescents' knowledge about diabetes (n=100)

Item	Male (n=74)						Female (n=26)						X ²	P
	Poor		Average		Good		Poor		Average		Good			
	N	%	N	%	N	%	N	%	N	%	N	%		
Definition	17	23.0	45	60.8	12	16.2	8	30.8	13	50.0	5	19.2	28.3	<0.001
Causes	13	17.6	37	50.0	24	32.4	6	23.1	13	50.0	7	26.9	14.6	<0.001
Sign and symptoms	18	24.3	33	44.6	23	31.1	6	23.1	13	50.0	7	26.9	7.7	<0.05
Management	18	24.3	37	50.0	19	25.7	5	19.2	12	46.2	9	34.6	11.4	<0.003
Complication	14	18.9	39	52.7	21	28.4	8	30.8	12	46.2	6	23.0	14.4	<0.001
Total	9	12.2	61	82.4	4	5.4	4	15.4	20	76.9	2	7.7	102.9	<0.001

Table (3): Portrays that, there was the highly statistically significant difference between male and female adolescent's knowledge about diabetes ($p < 0.001$) in all item except single and symptoms of diabetes was ($p < 0.05$). Also, the highest percentage was 82.4% of male and 76.9% of female had average knowledge about diabetes.

Figure 3: Distribution of adolescent total knowledge about type 1 diabetes



Figure 3: illustrated that satisfactory knowledge of adolescent related type 1 diabetes was (45% for female and 40% for male)

Table (4): Relationship between adolescent personality traits and adherence to prescribed diabetes regimens (n=100)

Item	Conscientiousness (n=32)		Openness (n=24)		Extraversion (n=21)		Agreeableness (n=10)		Neuroticism (n=13)		X ²	P
	N	%	N	%	N	%	N	%	N	%		
Blood glucose monitoring	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	>0.05
• Sporadic	8	25.0	4	0	9	42.0	0	0.0	4	30.8		
• 1/day or 3/week	12	37.5	9	1	8	9	5	50.0	6	46.2		
• 2/day or 3/week	12	37.5	11	6.0	4	38.0	5	50.0	3	23.0		
• 3/day or 3 or more /week												
Insulin administration												
• Skips doses or forget	3	9.4	3	12.5	0	0.0	0	0.0	0	0.0	2	<0.05
• Change dosage amount	4	12.5	8	33.3	2	9.5	3	30.0	1	7.7		
• Technique and timing of	14	43.8	10	41.7	16	76.2	3	30.0	7	53.8		
	11	34.3	3	12.5	3	14.3	4	40.0	5	38.5		

<ul style="list-style-type: none"> insulin administration is good Technique and timing of insulin administration is excellent 				12.5								
Diet												
<ul style="list-style-type: none"> Little / no effort to follow diabetic diet 50% adhere with time and eating diabetic diet 50 – 90 % adhere with time and eating diabetic diet 90 - 100% adhere with time and eating diabetic diet 	1 2 19 10	3.1 6.2 59.4 31.2	1 4 10 9	4 .2 1 6 .7 4 1 .7 3 7 .5	0 1 7 13	0.0 4.8 33.3 61.9	0 0 8 2	0.0 0.0 80.0 20.0	0 2 7 4	0.0 15.4 53.8 30.8	13.77	<0.05
Exercise and physical activity												
<ul style="list-style-type: none"> 0-1 time/ week 1-2 /week 3-4 /week 5 or more time /week 	3 10 13 6	9.4 31.2 40.6 18.8	2 7 8 7	8.3 29. 2 33. 3 29. 2	1 4 11 5	4.8 19.0 52.4 23.8	0 4 4 2	0.0 40.0 40.0 20.0	2 4 6 1	15.4 30.8 46.7 7.7	6.3 1	>0.05

Table (4): reveals that 59.4 % of adolescent with Conscientiousness personality adhere to 50-90% of time and eating diabetic diet and 45.8% of adolescent with Openness to experience personality adhere to blood glucose monitoring 3/day or 3 or more /week.76.2% of the adolescent with Extraversion adhere to technique and timing of insulin administration is good and 80.0% of adolescent with agreeableness personality adhere to 50 – 90 % with time and eating a diabetic diet. Where 53.8% of adolescent with Neuroticism personality adhere to technique and timing of insulin administration is good and 50-90% with time and eating a diabetic diet. Also, this table illustrated that, there was the significant difference between adolescent personality trait with adherence to insulin administration and diet ($p < 0.05$).

Figure 4: Distribution of total level of adolescent adherence regard prescribed diabetes regimens

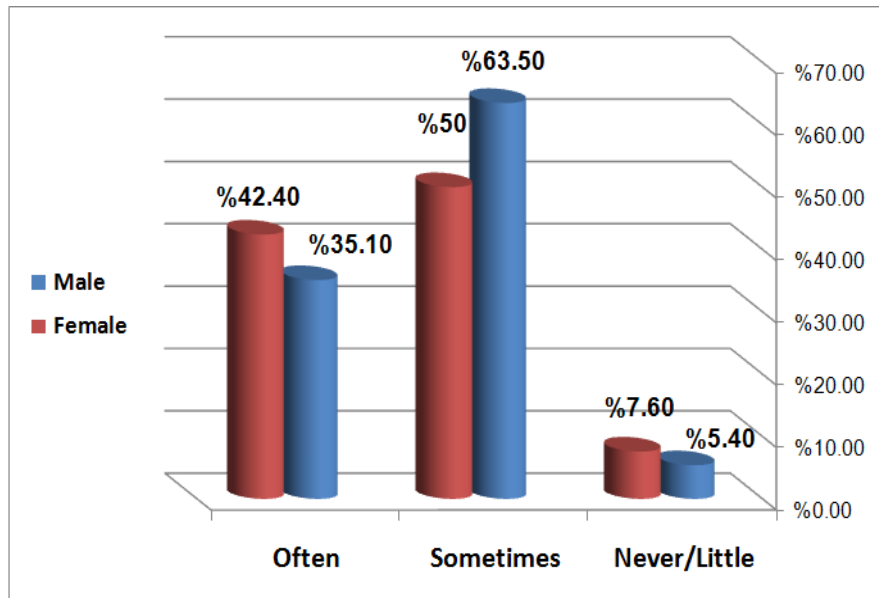


Figure 4: Show that adolescent total adherence to prescribed diabetes regimens was more than one-third of female and male had often adherence

Table (5): Correlation coefficient between adolescent’s personality traits and their adherence to prescribed diabetes regiment (n=100)

Item	Blood glucose monitoring		Insulin administration		Diet		Exercise	
	r	p	r	p	r	p	r	p
• Conscientiousness	0.33	>0.05	0.48	<0.01*	0.52	<0.01*	0.05	>0.05
• Openness to experience	0.05	>0.05	0.10	>0.05	0.14	>0.05	0.04	>0.05
• Extraversion	0.34	>0.05	0.20	>0.05	0.09	>0.05	0.52	<0.01*
• Agreeableness	0.19	>0.05	0.45	>0.05	0.43	>0.05	0.02	>0.05
• Neuroticism	0.18	>0.05	0.51	<0.01*	0.30	>0.05	0.29	>0.05

Table (5): represents that, there was positive correlation coefficient between adolescent’s Conscientiousness personality traits and their adherence to insulin administration $r = 0.48$, $p < 0.01$ and adherence to diet $r = 0.52$, $p < 0.01$. Also there was positive correlation coefficient between adolescent’s Extraversion personality traits and their adherence to exercise $r = 0.52$, $p < 0.01$ and between adolescent Neuroticism personality and their adherence to insulin administration $r = 0.51$, $p < 0.01$.

Table (6): Correlation coefficient between adolescent’s socio-demographics data and their personality traits (n=100)

Socio-demographics	Personality traits									
	Conscientiousness (n=32)		Openness (n=24)		Extraversion (n=21)		Agreeableness (n = 10)		Neuroticism (n=13)	
	r	p	r	p	r	p	r	p	r	p
Age	0.09	>0.05	0.08	>0.05	0.06	>0.05	0.01	>0.05	0.10	>0.05
Age at the onset of illness	0.06	>0.05	0.05	>0.05	0.07	>0.05	0.03	>0.05	0.16	>0.05
Gender	0.17	>0.05	0.03	>0.05	0.09	>0.05	0.08	>0.05	0.11	>0.05

Table (6): represents that; there was no correlation coefficient between adolescent’s personality traits and their Socio-demographic data $p > 0.05$.

Table (7): Correlation coefficient between adolescent’s socio-demographic data and their adherence to diabetic management (n=100)

Item	Blood glucose monitoring		Insulin administration		Diet		Exercise	
	r	p	r	p	r	p	r	p
Age	0.08	>0.05	0.30	<0.01*	0.03	>0.05	0.14	>0.05
Age at the onset of illness	0.01	>0.05	0.03	>0.05	0.12	>0.05	0.06	>0.05

Gender	0.13	>0.05	0.11	>0.05	0.02	>0.05	0.10	>0.05
--------	------	-------	------	-------	------	-------	------	-------

Table (7): represents that; there was positive correlation coefficient between adolescent’s socio-demographic data and their adherence to insulin administration $r = 0.30, p < 0.01$.

Table (8): Correlation coefficient between adolescent’s knowledge with their personality traits and their adherence

	Personality traits		Adherence	
	r	p	r	p
Knowledge	0.50	<0.01	0.53	<0.01

Table (8): represents that; there was a positive significant correlation between adolescent’s personality traits and their knowledge $r = 0.50, p < 0.01$. Also there was a positive significant correlation between adolescent’s adherence and their knowledge $r = 0.53, p < 0.01$.

IV. Discussion

Adherence to a medical regimen is critical to the overall health of patients. Unfortunately, noncompliance to prescribed treatments is a chronic problem among many individuals suffering from chronic diseases, and the nonadherence rate is especially alarming among adolescent diabetics, as most adolescents do not adhere to their prescribed diabetes management regimen. An improved understanding of factors related to compliance, and an ability to predict compliance in a given patient, can enhance the effectiveness of the patient’s overall health plan. This study investigate the association between the “Big 5” personality domains (Neuroticism, Extraversion, Openness, Agreeableness, Conscientiousness), and the six narrow facets underlying each domain, and adolescent adherence (blood glucose monitoring, insulin administration, diet, and exercise) to diabetic regimens.

Regarding socio-demographic data of adolescences with diabetes table (1) clear that, 74.0% were male and 38.0% were age 13-15 year with mean 14.79 ± 2.07 . As regarding age at the onset of illness, 51.0% were at <1 year with mean 1.55 ± 1.48 . Concerning their duration of treatment, 45.0% of them take 11-14 year of treatment. This result not matched with the study of (Weiss and Cukic, 2016) who found that 40.1% of adolescent were male and 59.9% of them were female. In addition, the study was done by (Sparapani, et al., 2012) who found that a total of 19 children were interviewed: 13 girls and six boys who were on average 9.8 years old with an average time of diagnosis of type 1 diabetes was 3.3 years.

Concerning to percentage distribution of adolescent’s according to adherence to diabetes management table (2) illustrated that there was the highly statistically significant difference between male and female adolescents according to adherence to diabetic management $p < 0.001$ in all item except item of blood glucose monitoring. Also, the highest percentage was 50.0% of the female were adhering to diet and exercise and 55.4% % of the male was adhered to insulin administration and 51.4% adhere to diet and exercise. This result in the same line with the study done by (Kitzler, et al., 2007) who found that adherence to basal insulin prescriptions was highly significant in both groups (all $P < 0.001$). Also in patients with type 1 diabetes on intensified therapy, a positive relationship between adherence to the therapy prescribed and metabolic control exists.

As regards distribution of adolescents’ knowledge about diabetes table (3) portrays that, there was the highly statistically significant difference between male and female adolescent’s knowledge about diabetes ($p < 0.001$) in all item except sign and symptoms of diabetes was ($p < 0.05$). Also, the highest percentage was 82.4% of the male and 76.9% of the female had average knowledge about diabetes. This result in the same line with the study of (Flora, and Gameiro, 2016) who found that although most adolescents had a good level of overall knowledge about diabetes and in 3 of the 5 dimensions, the study revealed some misconceptions, as well as adolescents with a poor level of knowledge. Positive correlations were found between the adolescents’ knowledge and age. Also, concluded that it is important to correct misconceptions and identify the adolescents with insufficient knowledge so as to provide a more targeted intervention.

According to relationship between adolescent personality traits and adherence to diabetes management table(4) reveals that 59.4 % of adolescent with Conscientiousness personality adhere to 50-90% with time and eating diabetic diet and 45.8% of adolescent with Openness to experience personality adhere to blood glucose monitoring 3/day or 3 or more /week. 76.2% of adolescent with Extraversion adhere to technique and timing of insulin administration is good and 80.0% of adolescent with agreeableness personality adhere to 50 – 90 % of time and eating diabetic diet. Where, 53.8% of adolescent with Neuroticism personality adhere to technique and timing of insulin administration is good and 50-90% with time and eating the diabetic diet. Also, this table illustrated that there was the significant difference between adolescent personality trait with adherence to insulin administration and diet ($p < 0.05$). This result in the same line with (Waller, et al., 2009) who suggests that an individual’s personality may play a role in the management of type 1 diabetes, yet the role of adolescent

personality has received little attention. Also revealed that adolescent conscientiousness best-predicted self-care variables whilst openness to experience best-predicted knowledge of diabetes. On the other hand, this study not agree with the study done by (Weiss and Cukic, 2016) who found that higher neuroticism was associated with 39% higher chance of having type 1 diabetes per standard deviation increase and openness was associated with 26% decrease in that chance per standard deviation increase. Extraversion and Type A personality were not associated with type 1 diabetes in our models.

As regard correlation coefficient between adolescent's personality traits and their adherence to prescribed management regimen of type 1 diabetes table (5) represents that, there was positive correlation coefficient between adolescent's conscientiousness personality traits and their adherence to insulin administration $r = 0.48$, $p < 0.01$ and adherence to diet $r = 0.52$, $p < 0.01$. Also there was positive correlation coefficient between adolescent's Extraversion personality traits and their adherence to exercise $r = 0.52$, $p < 0.01$ and between adolescent Neuroticism personality and their adherence to insulin administration $r = 0.51$, $p < 0.01$. This is in the same line with (Wheeler, et al., 2013) who found that a pattern of significant correlations between the Conscientiousness and Neuroticism personality domains and one or more self-reported adherence behaviors. In addition, correlations were also found between one facet of Extraversion and one facet of Agreeableness.

The researcher view that the roles of adolescent personality traits were very important in diabetes regimens because there was individual variation effect on adherence towards diabetes regimens of an adolescent. Assessing and monitoring adherence are important parts of routine diabetes clinical practice, but several unique features of T1D present challenges. In addition knowledge of adolescent about diabetes also challenge towards adherence to prescribed type 1 diabetes regimens. The researcher suggests that continued efforts and further investigation to understand how personality traits affect glycemic control in diabetes can lead to new insights into the disease and its management.

V. Conclusion

The study concluded that there was important association between personality traits of adolescent and their adherence to prescribed type 1 diabetes regimen. In addition, there was the relation between adolescent knowledge about type 1 diabetes with their adherence and personality traits.

VI. Recommendation

The important of greater understanding of adherence of adolescent could enhance nurses' ability to provide care tailored to families' needs.

-Replicated the results in larger studies, provide useful information to clinicians as they design and monitor individualized diabetes management regimens for adolescents according to personality traits.

-An intervention program for dealing with the individual difference of adolescent with type 1 diabetes which effects on adherence to the prescribed diabetes regimen.

- Continuous update adolescent knowledge about type 1 diabetes and consider their personality traits and their adherence.

Acknowledgement

To the Najran University, all the gratitude for its support for scientific research to improve the scientific research system and to benefit from research in the practical side. The research is supported by the Najran University and all the pride of the university that supports scientific research to promote scientific research at the University.

References

- [1]. -Al-Herbish, A.S, El-Mouzan, M.I, Al-Salloum, A.A, Al-Qurachi, M.M., and Al-Omar A.A.,(2009):Prevalence of type 1 diabetes mellitus in Saudi Arabian children and adolescents,Saudi Medical Journal, Sep;29(9):1285-8.
- [2]. -Abduljabbar,M.A., Aljubeih,M.J., Amalraj, A., and Cherian,P, M., (2010):Incidence trends of childhood type 1 diabetes in eastern Saudi Arabia, Saudi medical journal, Vol,31,4.
- [3]. Chisholm, V, Atkinson, L, Donaldson, C, Noyes, K, Payne, A, Kelnar, C.,(2007): Predictors of treatment adherence in young children with type 1 diabetes, Journal Advance Nurses. March; 57(5):482-93.
- [4]. -Cukic, I., Mottus, R., Luciano,M., Starr, J., and Weiss,A.,(2015): Do personality traits moderate the manifestation of type 2 diabetes genetic risk,Journal of Psychosomatic Research,Volume 79, Issue 4, Pages 303-308.
- [5]. -Datye, K.A., Moore, D.J., Russell, W.E., Jaser, S.S., (2016):A review of adolescent adherence in type 1 diabetes and the untapped potential of diabetes providers to improve outcomes,CurrDiab Rep. Aug;15(8):51.
- [6]. -Diaz-Valencia, P.A., Bougnères, P., Valleron, A.J., (2015): Global epidemiology of type 1 diabetes in young adults and adults: a systematic review, BMC Public Health.; 15: 255.
- [7]. -Flora, M.C., and Gameiro, M.G., (2016): Self-Care of Adolescents with Type 1 Diabetes Mellitus: Knowledge about the Disease, Journal of Nursing Referência, Pp.17-26.

- [8]. Gandhi K, Vu BK, Eshtehardi, S,S., Wasserman, R,M., Hilliard, M,E., (2015):Adherence in adolescents with Type 1 diabetes: strategies and considerations for assessment in research and practice,Diabetes Management (Lond). Nov;5(6):485-498.
- [9]. -Kitzler, T, M., Bachar, M., Skrabal, F., and Kotanko, P.,(2007): Evaluation of treatment adherence in type 1 diabetes: a novel approach, European Journal of Clinical Investigation , 37, 207–213.
- [10]. Rassart, J., Luyckx.,K., Philip, M., and Weets, I. ,(2014): Personality and self-esteem in emerging adults with Type 1 diabetes,Journal of Psychosomatic Research, P. 139–145.
- [11]. -Sawyer,S.M.,&Aroni,R.A. (2003):Sticky issue of adherence. Journal of Pediatrics and Child Health, 39, 2–5.
- [12]. -Sparapani,V,C., Borges,A, L.,Dantas,I,O., Pan^R. Nascimento, L, C., (2012): Children with Type 1 Diabetes Mellitus and their friends: the influence of this interaction in the management of the disease, Latino-Am. Enfermagem vol.20 no.1. *Online version* ISSN
- [13]. -Waller,D., Johnston, C., Smith, L., and Overland, J., (2009): Big Five personality traits and self-management of Type 1 diabetes in adolescence, Conference: 8th Australian Conference on Personality and Individual Differences.
- [14]. -Weiss, A., and Cukic, L.,(2016): Personality correlates of type 1 diabetes in a national representative sample, Psychological topics, Vol.25 No.1, p: 45-58.
- [15]. -Wheeler, K, Wagaman, A, and McCord, D.,(2013): Personality Traits as Predictors of Adherence in Adolescents With Type I Diabetes, Journal of Child and Adolescent Psychiatric NursingISSN 1073-6077, Wiley periodical INC 25,66-74.
- [16]. -World health organizationWHO, (2016):GLOBAL REPORT ON DIABETES.

Howaida Moawad Ahmed. "The Relationship Between Personality Traits And Adherence of Adolescents with Diabetes in Najran City." IOSR Journal of Nursing and Health Science (IOSR-JNHS) , vol. 6, no. 5, 2017, pp. 26–36.