

## Multidisciplinary Approach to Research of the Adherence to Treatment Phenomenon in Patients with Diabetes Mellitus

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**Background:** Diabetes Mellitus (DM) – is one of the most common chronic diseases, and its control are affected by the patients' psychological attributes (Esmaeilinasab et al., 2016). The number of patients with this disease is expected to increase in a future. Given the increasing prevalence of DM, there is an urgent need for the treatment of DM and associated complications. Glycemic control largely depends on compliance with medication therapy. In fact, the most common problem in patients with DM – is a lack of medication compliance (Shamsi, Khodaifar, Arzaghi, Sarvghadi, Ghazi, 2014). For example, laboratory data of single components of the metabolic syndrome, according to International Diabetes Federation Consensus were dependent measures in multivariable regression models with self-reported alexithymia severity (TAS-20) and socio-demographic data. Alexithymia – is a clinical trait, consisting of the diminished introspective and interoceptive capacities that has been shown to implicate elevated autonomic outflow and to bias for hypertension (Lemche, Chaban, Lemche, 2014). One of the challenges in promoting adherence is having an accurate understanding of adherence rates and the factors that contribute to non-adherence (Lehmann et al., 2014). It's essential to consider the clinical assessment of psychological aspects in patients with DM, in order to prevent potentially adverse self-management care behaviors leading to diabetes-related complications, including declining levels of Life Quality (Conti et al., 2017). Patient's quality of life is one of the principal component in clinical decision-making (Chaban, Khaustova, Bezsheiko, n.d.).

**Purpose:** Improving the effectiveness of DM patients' therapy and demonstrating the consequence of psychosocial factors on their adherence to treatment.

**Method:** This study was conducted during the period from July to August 2017 on the basis of the Kyiv Endocrinology Center and the Department of Endocrinology in a partnership with the Department of Medical Psychology, Psychosomatic Medicine and Psychotherapy of the Bogomolets National Medical University. Study population (n=60) consists of two comparative groups (CG) of the patients with DM type 1 (DM1) (n=16) and type 2 (DM2) (n=33), other patients had newly diagnosed DM of both DM1 and DM2. Study data consists of: hospital chart data (including: age, demographic data, body mass index, level of systolic and diastolic arterial pressure, blood glucose and glycated hemoglobin (HbA1c); psychometric validated scales (including: Medication Compliance Scale (MCS), Holmes and Rahe Stress Scale (HRSS), Dysfunctional attitudes Scale (DAS), Toronto Alexithymia Scale (TAS-20), the Depression, Anxiety and Stress Scale (DASS-21) and Chaban Quality of Life Scale (CQLS). Glycemic control was assessed by HbA1c results.

The statistics analysis was performed by using descriptive statistics and Pearson's correlation with MS Excel and SPSS Statistics 22.0.

**Results:** Statistically significant difference was found between groups of patients with high (HC), middle (MC) and low level of compliance (LC) according to MCS. Patients with LC had statistically higher level of HbA1c results according to MCS (LC (M=13), SD:1 vs. MC (M=9.83), SD:1.4 vs. HC (M=9), SD:1.4). Average values by MCS results for CG – DM1 (M=19) and DM2 (M=18) present MC; by HbA1c results – DM1 (M=10) and DM2 (M=10) at the same level. So, there was no significant statistically difference found between scores by the results in CG.

A significant bilateral indirect correlation was found between the results by MCS (LC) with high level of the DAS, TAS-20, DASS-21, HRSS scores on level  $p < 0,001$  and direct by CQLS ( $r = 0,37$ ) results on  $p < 0,01$  (HC). The relationship was also found between the scores by: 1) DAS (direct) – with the indicators of age, blood glucose level and depression, on level  $p < 0,05$ , alexithymia, stress and anxiety (DASS-21) on  $p < 0,01$ ; 2) CQLS (indirect) – with the DAS ( $r = -0,28$ ) and TAS-20 ( $r = -0,29$ ) results – on  $p < 0,05$ , stress ( $r = -0,36$ ) on  $p < 0,01$  and depression (DASS-21) ( $r = -0,48$ ) on  $p < 0,001$ ; 3) TAS-20 (direct) – with the DASS-21 subscales results on  $p < 0,01$ .

There was found the strong relationship between LC in DM patients with high level by the scores of psychometric scales and laboratory indicators of HbA1c, as evidenced, that patients with LC most often had mental disorders and low rates of treatment effectiveness.

**Conclusions:** Adherence to treatment was not depended on the type of diabetes and diagnosis. LC and quality of life addicted, in consequence to non-adherence and respectively – inefficiency of DM patients' treatment. So, a multidisciplinary approach – involving psychologists for the improving adherence to therapy together with endocrinology specialists, can potentially improve treatment effectiveness.

**Originality:** The compare of DM patients' indicators by the psychosocial status, demographic data and level of compliance, depending on the type of diabetes and diagnosis.

**Limitations of the study:** The low sample of patients which is planned to correct in further studies.

**Strengths of the study:** The concept of “adherence to treatment” is so much spacious unlike the concept of “compliance”, which is signifying only a strict adherence to the prescription of a doctor. Adherence to treatment – is a complex of the external and intrinsic factors by the patients' environment and their characteristics as personalities, in a medication aspect. It is an extensive scope for studying and researching both in the fields by the clinical and social sciences directions. Multidisciplinary research would be perspective for a future, because different specialists in distinctive spheres may be unite with the general idea to solving the problem of comorbid.

**Keywords:** diabetes, health, health care, medical, medical research, medical science, medicine, mental health, mental illness, mental stress, psychology, quality of life, research, scientific research, social well-being.

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