What is the dominant treatment attitude of psychiatric patients?

Laszlo Pogany[1,2], Carlos De las Cuevas[3,4] and Judit Lazary[1,2]

[1] *Országos Mentális, Ideggyógyászati és Idegsebészeti Intézet, Budapest*

[2] *Szentágothai János Idegtudományi Doktori Iskola, Semmelweis Egyetem, Budapest*

[3] *Department of Internal Medicine, Dermatology and Psychiatry, Universidad de La Laguna, Canary Islands, Spain*

[4] *Instituto Universitario de Neurociencia (IUNE), Universidad de La Laguna, San Cristóbal de La Laguna, Spain*

Background: Patients' attitude towards drug treatment is of prognostic value regarding adherence. However, few detailed analyses have been performed regarding the influencing factors of the treatment attitude of psychiatric patients. **Methods:** We enrolled in the study 295 psychiatric inpatients and analysed the data obtained using the recently developed Patient's Health Belief Questionnaire on Psychiatric Treatment (PHBQPT), the Behavioural Inhibition/Activation System (BIS/BAS) Scale, and the Hospital Anxiety and Depression Scale. We created a 'dominant treatment attitude' (DTA) variable from the 5 subscales of the PHBQPT. **Results:** The most common DTA was the Doctor HLOC and the rarest proved to be the Psychological Reactance. The double DTA carriers were the most frequently occurring multiple DTAs. We found that the Doctor-HLOC coupled most frequently with the Positive Aspect and the Doctor-HLOC with the Internal-HLOC. The Doctor-HLOC score was higher while the BAS Fun seeking score lower in the case of patients treated for affective disorders compared to patients who belonged to the psychosis and personality disorder subgroups. **Conclusions:** Screening of DTAs in psychiatric patients can provide useful information for the planning of a more effective therapeutic strategy.

(Neuropsychopharmacol Hung 2021; 23(2): 308-318)

Keywords: treatment attitude, health control beliefs, psychological reactance, adherence, drug attitude

INTRODUCTION

The therapeutic outcome of chronic psychiatric and somatic illnesses is largely influenced by patients' adherence to treatment. Several factors can be identified in the background of adherent behaviour, one of the most important ones is the patients' attitude towards drug treatment. The attitude assessed at the start of treatment is of prognostic value regarding the adherence which can be expected during the treatment process [1]. In the case of psychiatric disorders, maintaining long-term treatment adherence is an even more challenging task than generally due to the nature of the disease requiring treatment. A thorough assessment of adherence-influencing factors is needed in order to exert an adequate influence on the modifiable factors and to maintain the patients' willingness to cooperate. A lot of research has been done regarding the factors which influence therapeutic outcome, but the different theoretical models have been evaluated separately so far.

The theory of locus of control refers to the individual's beliefs about the extent of control that he/she has over things that happen to him/her [2]. Major positive or negative experiences related to health status or medical treatment may influence the locus of control. Health beliefs can change as a result of different experiences that the patients have during different stages of life [3] or they can be systematically modified through the application of cognitive-behavioural therapy [4].

Psychological reactance is the motivational state that occurs when a behavioural freedom is eliminated or threatened with elimination. The motivational arousal has behaviour-directing properties [5], targeting the re-establishment of the lost freedom. Highly reactant individuals are characterized by resistance to rules and regulations, high desire for autonomy, high defensiveness, and low concern for social norms [6, 7]. High psychological reactance contributes to the non-adherent behaviour of the patients.

The behaviour of the patient is influenced by an affective-motivational regulation system, the direction of the action is determined by the dynamic balance of the appetitive and aversive behaviour. Jeffrey Gray's Reinforcement Sensitivity Theory [8, 9] describes the individual differences of human personality structure based on animal research results of learning theory. The original theory is based on the concept that behaviour is driven by two distinct motivational systems (Behavioural Inhibition System, BIS and Behavioural Activation System, BAS). Behavioural Activation System activates when unconditioned reward or relief from punishment can be expected. In such circumstances BAS facilitates the approach behaviour. High BAS engagement can be observed in addictions, in the background of impulsivity and hostile behaviour, while low BAS engagement may lead to depression [10].

As attitude towards treatment is influenced by the affective state, the intensity of affective symptoms. Regardless of the condition requiring treatment, anxiety and depressive symptoms are the most frequent concomitant symptoms in the case of psychiatric inpatients. Considering this, it is reasonable to evaluate the impact of affective symptoms on the attitude towards treatment of the patients. In our research, we intended to assess besides the attitude towards treatment, psychological reactance and health control belief also the affective-motivational factors which influence treatment adherence, and to identify correlations between variables and compare the characteristics of different diagnostic groups.

METHODS

Subjects

The patient's ages ranged from 18 to 65 years (Mean age: 45.9 ± 14.8; 162 women and 133 men), they agreed to participate in the study after an informed consent process. We did not enrol patients living with mental retardation, having neurocognitive disorder or patients who were hospitalized involuntarily. The study was approved by the Hungarian Central Ethical Committee, Budapest, Hungary (number of approval: 45735-5/2020). A signed informed consent was obtained from all subjects. The study was conducted according to the Declaration of Helsinki.

Questionnaires

Patient's Health Belief Questionnaire on Psychiatric Treatment

We used the Hungarian version of the Patients' Health Belief Questionnaire on Psychiatric Treatment (PHBQPT) comprising 17 items, which was developed and validated by De las Cuevas and colleagues in 2019 [11]. The questionnaire was translated to Hungarian and validated by our group [12].

The questionnaire is composed of the selected items of three scales of widespread use.

1. Eight items were selected from the Drug Attitude Inventory (DAI-10) [13]. By using the DAI-10 the patients' attitude towards drug treatment (the potentially present pharmacophobia) can be assessed.

2. Six from the 18-item Multidimensional Health Locus of Control-Form C [14]. The health locus of control has been generally assessed with the Multidimensional health Locus of Control form C (MHLC-C) scale developed by Wallston and colleagues. The initially introduced versions A and B of the MHLC provide a general assessment of the health locus of control, whereas version C of the tool was developed to be used in the context of a specific health status, it can be adapted without difficulty to a great variety of conditions [14]. The scale provides information regarding the extent to which a person considers that his health status is related to his own behaviour or in contrast, is influenced by external factors, other people or even chance.

3. Three items from the 14-item Hong Psychological Reactance Scale (HPRS) [15]. As a result of the illness (or the treatment) the patient may feel that the level of his autonomy decreased. Psychological reactance, assessable by HPRS, is the emerging negative motivational arousal related to reduction of autonomy.

The 17 items of the PHBQPT scale are grouped in 5 subscales: Positive Aspects of Medications (PosAsp); Negative Aspects of Medications (NegAsp); control over health attributed to physician (Doctor HLOC), health attributed to one's own actions (Internal HLOC) and psychological reactance (PsycholReact).

BIS/BAS Scale

The Behavioural Inhibition System and Behavioural Activation System Scale (BIS/BAS Scale) [16, 17] is a widely used tool based on Gray's Reinforcement Sensitivity Theory which proved to be appropriate for assessing the sensitivity of the behavioural activation and inhibition systems. The questionnaire is comprised of 24 items which can be rated on a four point Likert scale by the patient. The items are grouped in four factors, respectively the BIS (7 items referring to the reactions emerging related to the expected punishment) and three BAS scales: BAS-FUN (5 items), BAS-DRIVE (4 items) and Reward Responsiveness (5 items). Besides these, the questionnaire comprises four filter items (1,6,11,17). In spite of the low number of items the internal validity of the four scales proved to be satisfactory and the tool proved to be stable in time as well. The questionnaire was adapted and validated to Hungarian sample [17].

HADS

The Hospital Anxiety and Depression Scale (HADS) is a self-rated questionnaire [18] which has proved to be reliable for assessing the intensity of anxiety and depressive symptoms of patients treated in ambulatory care and hospitals. The scale is appropriate for the assessment of the change of symptom intensity in time.

Statistical methods

For association analysis of the mean scores among two subgroups we used t-tests. For comparison of differences of the mean scores between more than 2 groups ANOVA tests and Tukey's post hoc tests were applied. Age and gender were entered into the ANOVA tests as covariants. The bidirectional correlations between the phenotypic measures were tested by Pearson's tests and general linear model (GLM) tests. Means and standard deviations (S.D.) are presented in the tables. The p-value is accepted as significant if the alpha-value is less than 0.05. The statistical analyses have been performed using the 25.0 version of the software SPSS.

RESULTS

The mean scores of the phenotypic scale scores of the total sample and by gender distribution are presented in Table 1.

Analysis of the prevalence and the structure of dominant treatment attitudes

We introduced a new variable using the cut-off point by mean in all subscales of the PHBQPT and we named it as dominant treatment attitude (DTA; $DTA_{Positive\ Aspect} = 0$, if <20.3 and it is = 1, if >20.3; $DTA_{Negative\ Aspect} = 0$, if <10.6 and it is = 1, if >10.6; $DTA_{Doctor\ HLOC} = 0$, if it is <15; and it is = 1 if >15.0; $DTA_{Internal\ HLOC} = 0$, if <13.1 and it is = 1, if >13.1 and $DTA_{Psychological\ Reactance} = 0$, if <11.4 and it is = 1 if >11.4 score). The frequency of the DTA is relatively high, since the different types of DTA-s are present in more than 90 % of the sample. The different types of DTA-s associated with subscales of the PHBQPT are presented on Figure 1. In case of 4 subscales, the

Table 1. Mean scores of psychometric scales in the total sample ans separately in women and men

	Total sample	Men	Women
Positive Aspect	20.3 ± 5.6	20.6 ± 5.7	20.2 ± 5.6
Negative Aspect	10.6 ± 3.7	10.4 ± 3.5	10.7 ± 3.8
Doctor HLOC	15.0 ± 2.9	15.1 ± 3.8	15.0 ± 2.9
Internal HLOC	13.1 ± 3.3	13.0 ± 3.3	13.3 ± 3.2
Psychological Reactance	11.4 ± 2.7	11.3 ± 2.8	11.5 ± 2.6
HADS-ANX	9.8 ± 4.9	9.5 ± 4.4	9.9 ± 5.1
HADS-DEP	7.7 ± 5.4	7.2 ± 5.0	8.1 ± 5.6
BIS	20.7 ± 3.9	19.8 ± 3.7[a]	21.2 ± 3.9[a]
BAS total	36.6 ± 7.4	37.9 ± 6.8	35.7 ± 7.6
BAS Drive	10.6 ± 2.9	10.9 ± 2.7	10.3 ± 3.1
BAS Fun seeking	10.3 ± 2.7	10.9 ± 2.5[b]	9.9 ± 2.5[b]
BAS Reward Responsiveness	15.7 ± 2.9	16.0 ± 2.7	15.4 ± 3.1

a p=0.02; b p=0.02

Table 2. Distributions of the double DTA carriers with different DTA patterns

	PosAsp	NegAsp	Doctor HLOC	Internal HLOC
PosAsp				
NegAsp	61(20.6 %)			
Doctor HLOC	108(36.5 %)	68(23.0 %)		
Internal HLOC	85(28.7 %)	70(23.6 %)	100(33.0 %)	
PsycholReact	24(8.1 %)	22(7.4 %)	23(7.8 %)	23(7.8 %)

DTA occurred in approximately half of the population, the presence of $DTA_{Psychological\ Reactance}$ is only 14.5 %. The most common DTA has been shown to be the Doctor HLOC.

Quantitative and qualitative analysis of multiple DTA prevalence

With regard to the fact that the PHBQPT subscales are meant to describe the complexity of the factors influencing drug adherence, in spite of the dichotomous nature (NegativeAspect-Positive Aspect; Doctor HLOC-Internal HLOC), the subscales do not exclude each other, but the different components provide a more detailed picture. Accordingly, the maximal score can be attained on more subscales concomitantly, which reflects the complexity of patients' attitude toward treatment and gives rise to further analysis. In order to analyse the variations of the concomitantly occurring DTA-s, we assessed the frequency of occurrence of the different DTA carriers. As it is shown on Figure 2, 6.4 % of the sample is not DTA carrier, 21 % is single DTA carrier, 33 % is double DTA carrier, 26 % carries 3, 11 % carries 4 and 2 % carries 5 DTA-s.

Figure 1. Prevalence of the dominant treatment attitudes of different PHBQPT subscales

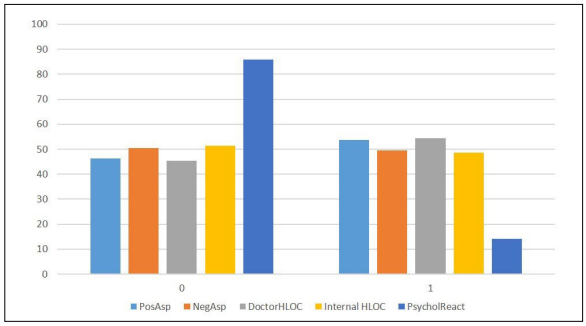


Figure 2. Prevalence of non-carriers and different number of DTA carriers in the study sample

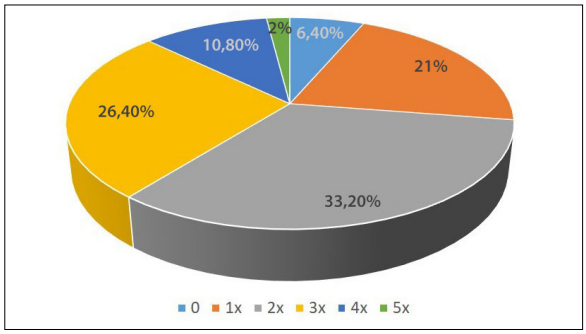
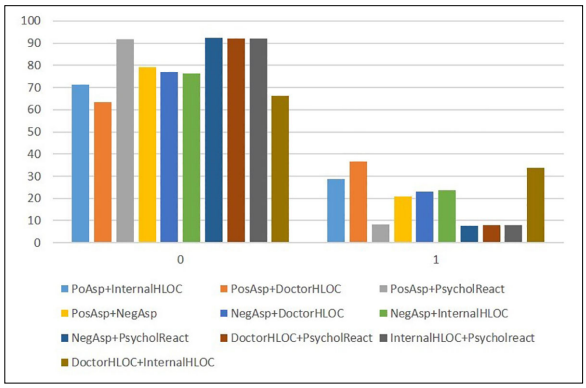
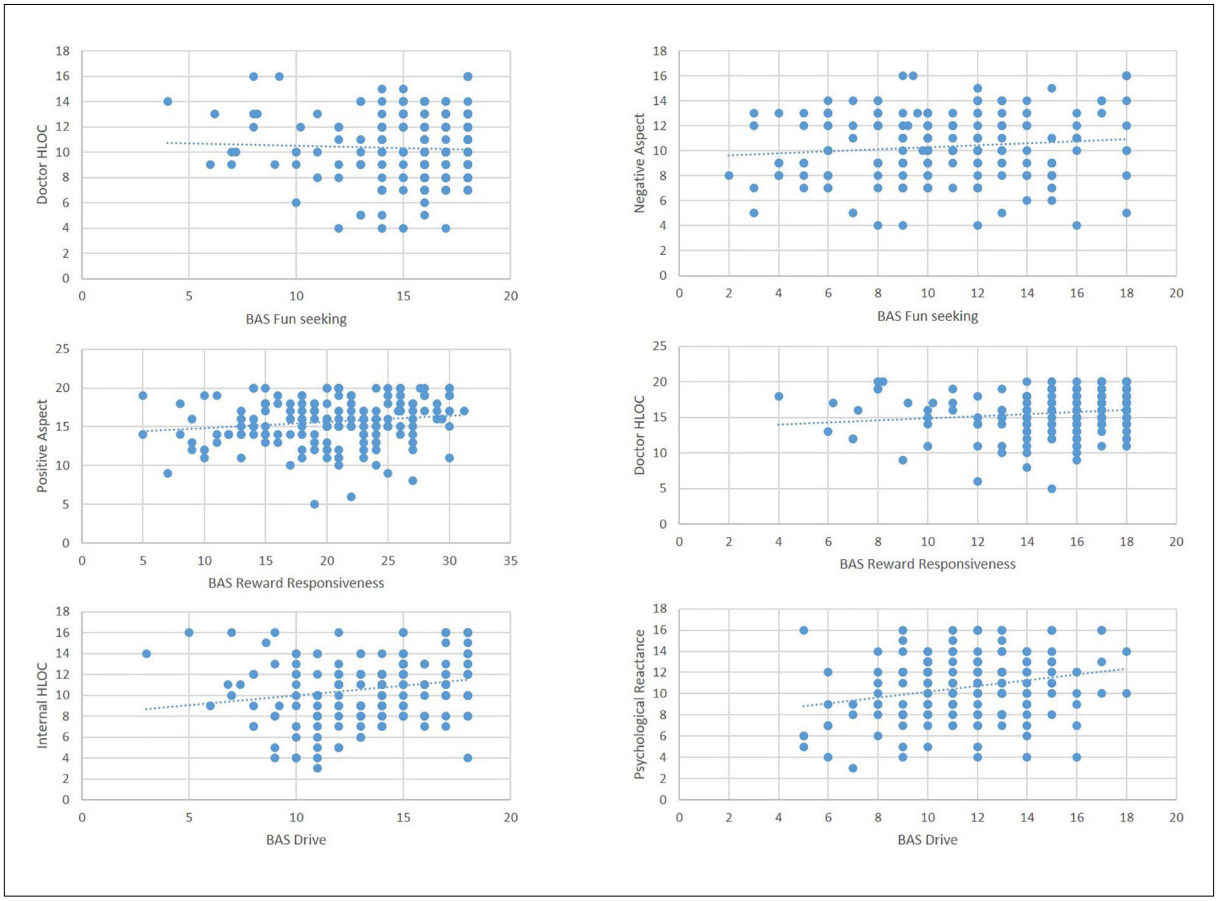


Figure 3. Frequencies of the double DTAs in the study sample of psychiatric inpatients



Since the double DTA occurred more frequently in the sample, we analysed the ratio of occurrence of the possible pairs (Table 2; Figure 3). According to our results, the most frequent pairs were the PosAsp-Doctor HLOC (37 %) and the Internal HLOC-Doctor HLOC (33 %). These pairs were followed by the PosAsp-Internal HLOC (29 %), the NegAsp-Internal HLOC (24 %), the NegAsp-Doctor HLOC (23 %) and the NegAsp-PosAsp (21 %). The pairs with Psychol React were the least frequent ones in the sample (7-8 %).

Figure 4. Associations between BIS/BAS and PHBQPT subscales
(Positive Aspect, Negative Aspect, Doctor HLOC, Internal HLOC, Psychological Reactance)



We assessed the presence of a significant correlation between the DTA pairs, the BIS/BAS scores and the HADS anxiety and depression subscores. A marginally significant correlation could be found between the PosAsp-Internal HLOC and the HADS-DEP score. The carriers of this DTA reached a lower score on the depression subscale of the HADS than the non-carriers ($p = 0.07$). The BAS Drive subscale score was higher in those pairs in which the Psychol React was present. Besides this, the carriers of Doctor HLOC-Psychol React pair scored higher on the BAS Fun seeking and BAS Reward Responsiveness subscales compared to the non-carriers ($p = 0.02$; $p = 0.003$). The DoctorHLOC-Internal HLOC pair separated most sharply the sample regarding the anxiety and depression subscale scores. The HADS-ANX and HADS-DEP scores of the carriers of this double DTA were significantly lower ($p<0.001$ in both cases). While the BIS score was significantly lower ($p = 0.04$), the BAS total score was higher. Only one of the BAS subscales, the BAS Fun seeking did not show any significant relatedness (Table 3).

Association analysis of the PHBQPT subscales and BIS/BAS and HADS

A correlation could be found between the Pos Asp and BAS Reward Responsiveness ($p = 0.04$) and the Neg Asp and BAS Fun seeking ($p = 0.05$) subscales. The Doctor HLOC correlated with BAS Fun seeking ($p = 0.01$) and with BAS Reward Responsiveness ($p = 0.008$), while the Internal HLOC correlated only with BAS drive ($p = 0.002$). Psychol React correlated with the BAS Drive as well ($p = 0.005$). It can be observed that the Positive Aspect and the Doctor HLOC is differentiated from the other factors through the higher score of Reward Responsiveness, while the Internal HLOC and Psychol React through the higher BAS Drive (Figure 4). Regarding the general affective symptoms, it was found that with lower HADS-DEP score correlated higher Doctor HLOC ($p = 0.02$), high Internal HLOC ($p = 0.007$) and high Psychological Reactance scores ($p = 0.0002$), all these DTA-s were of protective value against depressive symptoms. Interestingly, the higher Psychological Reactance

Figure 5. Associations between PHBQPT (Positive Aspect, Negative Aspect, Doctor HLOC, Internal HLOC, Psychological Reactance) and HADS subscales

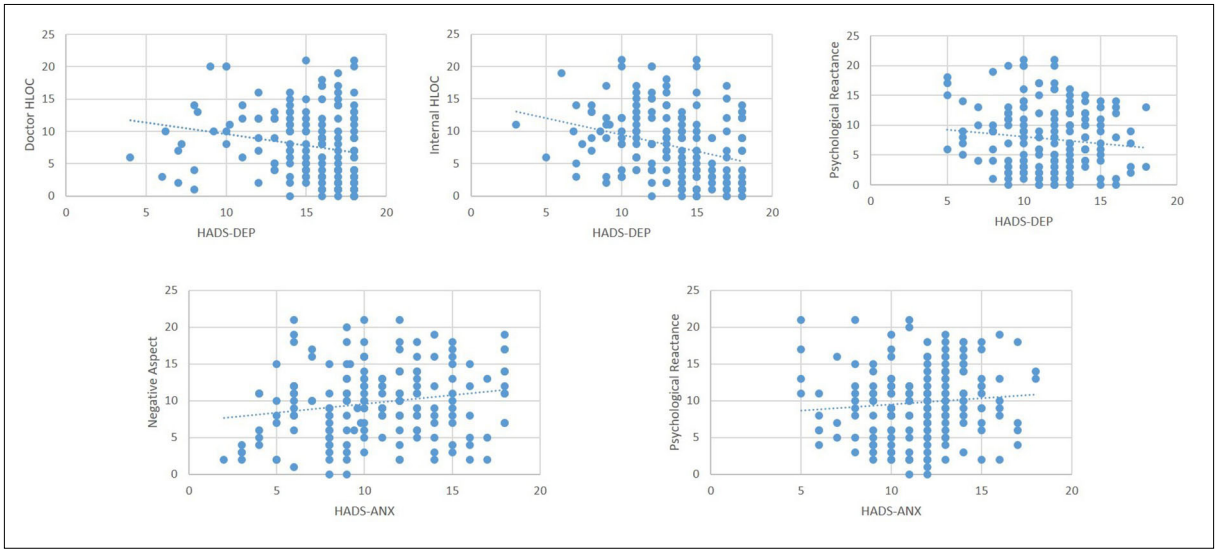


Table 3. Means and S.D. values of the phenotypic scale scores of different types of double DTA carrying

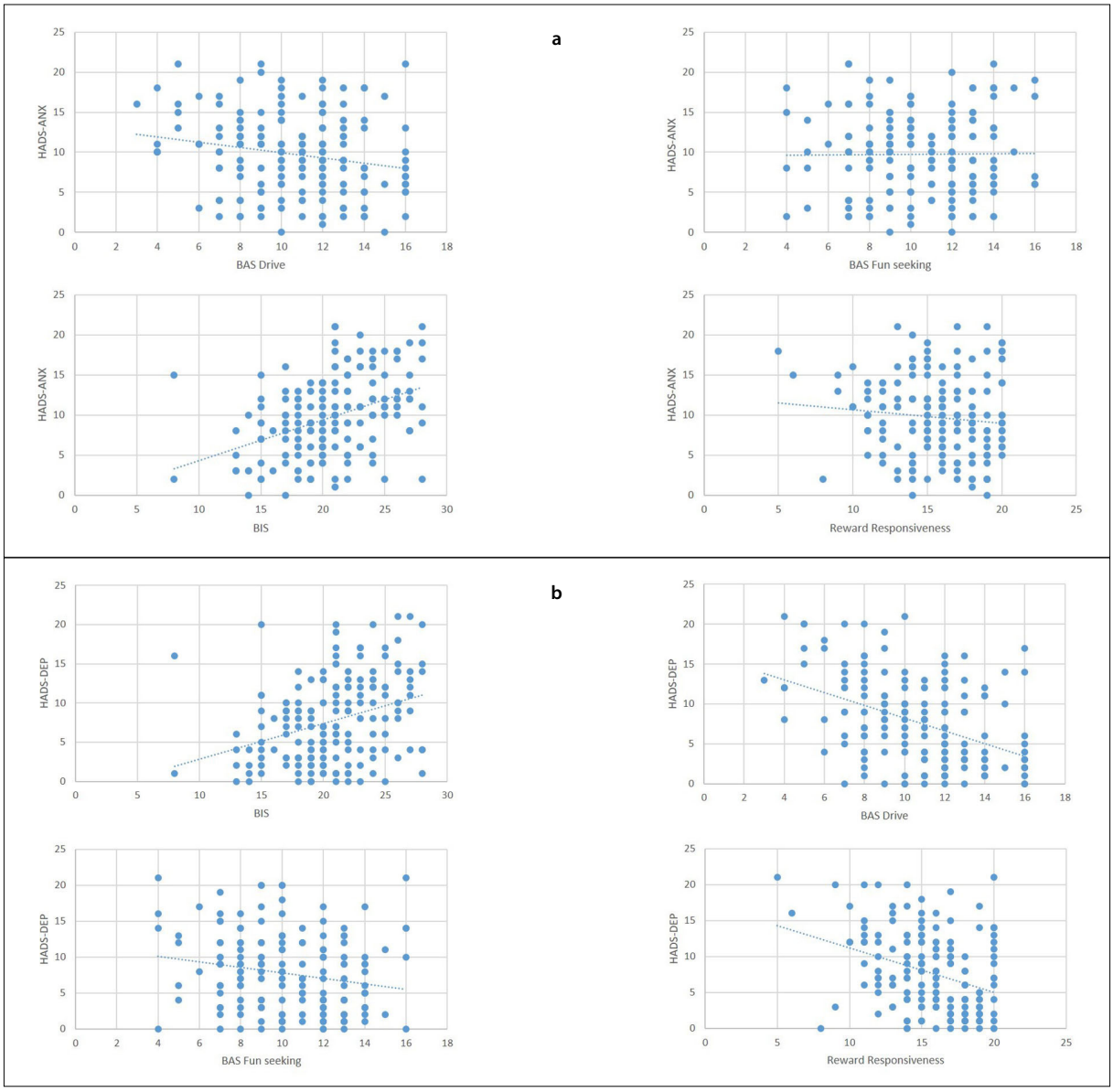
		HADS-ANX	HADS-DEP	BIS	BAS Drive	BAS Fun seeking	BAS Reward Resp	BAS total
PosAsp+DoctorHLOC	0	9.9±4.7	7.9±5.2	20.9±3.9	10.3±3.0	10.4±2.7	15.3±3.0	36.0±7.7
	1	9.5±5.1	7.4±5.6	20.3±3.7	11.0±2.9	10.3±2.6	16.1±2.8	37.4±6.8
PosAsp+InternalHLOC	0	10.2±4.9	8.2±5.3	20.8±3.9	10.4±3.0	10.4±2.7	15.5±2.9	36.3±7.5
	1	8.7±4.7	6.6±5.5	20.3±3.8	11.1±2.9	10.1±2.7	16.1±2.9	37.3±7.1
PosAsp+PsycholReact	0	9.6±4.8	7.6±5.4	20.7±3.8	10.4±2.9[a]	10.2±2.6	15.6±2.9	36.2±7.1
	1	10.9±5.3	8.8±5.2	20.8±4.4	11.8±2.8[a]	11.3±3.2	15.9±3.8	39.0±8.8
PosAsp+NegAsp	0	9.6±4.9	7.6±5.4	20.8±3.9	10.5±2.9	10.2±2.7	15.5±2.9	36.2±7.3
	1	10.3±4.5	8.2±5.1	20.3±3.8	11.2±3.2	10.6±2.8	16.2±3.3	38.0±7.8
NegAsp+Doctor	0	9.8±4.9	7.8±5.4	20.9±3.9	10.6±3.0	10.3±2.7	15.5±3.0	36.4±7.6
	1	9.5±4.8	7.5±5.5	19.7±3.8	10.5±2.9	10.4±2.7	16.1±2.8	36.9±6.8
NegAsp+InternalHLOC	0	9.8±4.9	8.1±5.5	20.9±3.9	10.4±3.1	10.1±2.6	15.4±2.9	35.9±7.4
	1	9.6±4.9	6.7±5.0	19.8±3.5	11.1±2.8	10.8±2.9	16.2±3.0	38.1±7.0
NegAsp+PsycholReact	0	9.7±4.8	7.9±5.4	20.7±4.0	10.4±2.9[b]	10.2±2.7	15.6±3.0	36.2±7.3
	1	10.2±5.5	6.8±5.0	20.4±3.1	12.1±2.5[b]	11.2±2.9	16.1±2.8	39.4±7.5
DoctorHLOC+PsycholReact	0	9.8±4.8	7.9±5.4	20.7±3.9	10.3±2.9[c]	10.1±2.7[d]	15.5±3.0	35.9±7.3[e]
	1	9.6±5.4	6.3±5.6	20.5±3.6	12.7±2.6[c]	11.6±2.5[d]	16.6±2.4	40.9±6.2[e]
Internal+PsycholReact	0	9.9±4.8	7.9±5.3	20.8±4.0	10.3±2.9[f]	10.2±2.7	15.6±2.9	36.2±7.2
	1	8.9±5.0	6.1±5.4	19.6±2.7	12.6±2.7[f]	11.0±2.9	15.8±3.2	39.4±8.0
DoctorHLOC+InternalHLOC	0	10.8±4.7[g]	9.1±5.0[h]	21.2±3.9[i]	10.1±3.0[j]	10.3±2.9	15.1±3.1[k]	35.4±7.9[l]
	1	8.1±4.7[g]	5.6±5.3[h]	19.9±3.8[i]	11.4±2.7[j]	10.4±2.4	16.4±2.6[k]	38.2±6.2[l]

Differences between the mean scores were significant at a, p=0.04; b, p=0.01; c, p<0.001; d, p=0.02; e, p=0.003; f, p=0.001; g, p<0.001; h, p<0.001 by GLM tests; i, p=0.04; j, p=0.003; k, p=0.005; l, p=0.01

scores were of protective value against depressive symptomatology (p = 0.0002) but potentiated anxiety (p = 0.0004) (Figure 5).

The BIS/BAS subscale scores correlated with the HADS scores in a manner that is in conformity with data found in already published sources (Table 4; Figure 6). Higher BIS scores correlated significantly with more intense anxiety, while all BAS subscale scores were lower in case of intense anxiety with the exception of BAS Reward Responsiveness. HADS depression scores were higher in the case of high BIS subscores and lower BAS subscale scores could be observed when HADS-DEP scores were higher. An important difference could be observed

Figure 6. Associations of BIS/BAS and HADS-ANX (a) and HADS-DEP (b) subscales



between anxiety and depressive symptoms, namely, only depressive symptoms correlated with Reward Responsiveness, anxiety did not.

Differences of the PHBQPT, BIS/BAS and HADS scale scores among the diagnostic categories

We analysed the difference between diagnostic categories regarding the scores of the phenotype questionnaire. Our results did not show major differences between the groups, with the exception of Doctor HLOC and BAS Fun seeking. The analysis has shown that the Doctor HLOC score of psychotic patients was lower than the score of the affective group ($p = 0.002$). Besides this, the score of BAS Fun seeking scale was higher in the case of patients with personality disorders than of the patients treated for affective disorders ($p = 0.008$; Table 5).

DISCUSSION

In our research we used a new questionnaire, the PHBQPT in order to assess the patients' attitude towards treatment and health locus of control in correlation with the emotional state and the affective-motivational system. In order to identify specific

Table 4. Results of the GLM tests of the PHBQPT, the BIS/BAS, and the HADS subscales

	PosAsp	NegAsp	Doctor HLOC	Internal HLOC	Psychol Reactance	HADS-ANX	HADS DEP
HADS-ANX	NS	NS	NS	NS	0.0004		
HADS-DEP	NS	NS	0.02	0.007	0.0002		
BIS	NS	NS	NS	NS	NS	1.5×10^{-8}	6.7×10^{-7}
BAS total	NS	NS	NS	NS	0.01	NS	1.2×10^{-8}
BAS Drive	NS	NS	NS	0.002	0.005	0.001	8.0×10^{-8}
BAS Fun seeking	NS	NS	0.01	NS	NS	0.006	0.003
BAS RewardResp	0.04	NS	0.008	NS	NS	NS	0.002

Table 5. Differences of the PHBQPT, BIS/BAS and HADS scale scores in different diagnostic categories

	F2	F3+F4	F6	Sig
PosAsp	19.8 ± 0.5	21.1 ± 0.6	19.9 ± 5,0	NS
NegAsp	10.9 ± 4.3	10.2 ± 3.2	10.3 ± 2.9	NS
Doctor HLOC	14.4 ± 3.4	15.6 ± 2.3	15.3 ± 2.2	0.002 (F2 vs F3+F4)
Internal HLOC	13.0 ± 3.4	13.1 ± 2.8	13.8 ± 2.8	NS
Psychol React	11.6 ± 2.8	11.2 ± 2.7	12.0 ± 2.7	NS
BIS	20.2 ± 3.7	21.2 ± 4.1	20.9 ± 4.2	NS
BAS Drive	10.7 ± 3.2	10.4 ± 2.9	10.9 ± 2.6	NS
BAS Fun seeking	10.4 ± 2.8	9.9 ± 2.6	11.6 ± 2.5	0.008 (F3+F4 vs F6)
BAS total	36.6 ± 7.5	35.7 ± 7.5	39.0 ± 6.7	NS

Results of ANOVA tests and the Tukey's post hoc tests are presented.

patterns of the different attitudes, we created the dominant treatment attitude (DTA) for the scores of the five subscales which were higher than the average subscale score. The results have shown that all DTA-s were presented in equal proportion in the sample, with the exception of Psychological Reactance which proved to be the rarest. Considering that some subgroups can be characterized by more than one DTA-s, we assessed the occurrence of multiple carriers and we found that the double DTA carriers are the most frequent. Among the double DTA carriers the Doctor HLOC+Positive Aspect and the Doctor HLOC+ Internal HLOC carriers have been shown to be the most common. Regarding the distribution of the HADS and BIS/BAS scores, the sharpest difference could be observed between the carriers and non-carriers of the DoctorHLOC+Internal HLOC DTA. The carriers of this DTA had a significantly lower BIS scores and higher BAS total scores than the non-carriers. All BAS subscales with the exception of BAS Fun seeking correlated with the DTA carrier status. At the same time, the anxiety and depression subscale scores were much lower (the depression subscale score was lower by approximately the half) in the case of the carriers of this DTA. The analysis of correlation of DTA and BIS/BAS scale scores has shown that the PosAsp and Doctor HLOC is correlated with Reward Responsiveness, while the Internal HLOC and the Psychological reactance is correlated with BAS Drive. We did not find correlation between the Negative Aspect and any other subscale. The Positive Aspect, Doctor HLOC and Internal HLOC subscales correlated with lower scores on the depression subscale of the HADS, however, in the higher scores of the Psychological Reactance subscale scores were related to lower anxiety, but higher depression subscale scores. When comparing the different diagnostic categories, the sharpest difference could be observed between the group of patients with affective disorders and psychotic disorders: the Doctor HLOC score was higher in the former group. The BAS Fun Seeking subscale score was lower in the group of patients with affective disorder than in the group of personality disorders.

The correlation between the attitude of patients towards treatment and adherence has been evaluated by several researchers. The lower self-efficacy, negative attitude towards drugs and poor insight correlated negatively with adherence [19-21]. The control preference correlates negatively with adherence [22] and the shared decision making and higher trust towards psychiatrists have correlated with stronger

adherence [22-25]. Non-adherence was found to occur more frequently in the case of patients with higher scores on the external locus of control subscale [26]. The connection between the attitude towards drugs and treatment adherence has been assessed in several studies. Pharmacophobia leads to poor adherence [22, 27, 28] and the acceptance of treatment depends on the level of worrying about side-effects [22, 27-30]. Rusch et al. (2009) found that while the implicit positive attitude toward psychiatric treatment was of predictive value regarding the insight about disorder and the perception of the necessity of the therapy, the explicit positive attitude predicted adherence [20]. The modification of these attitudes during the therapeutic process is one of the primary goals of the physician.

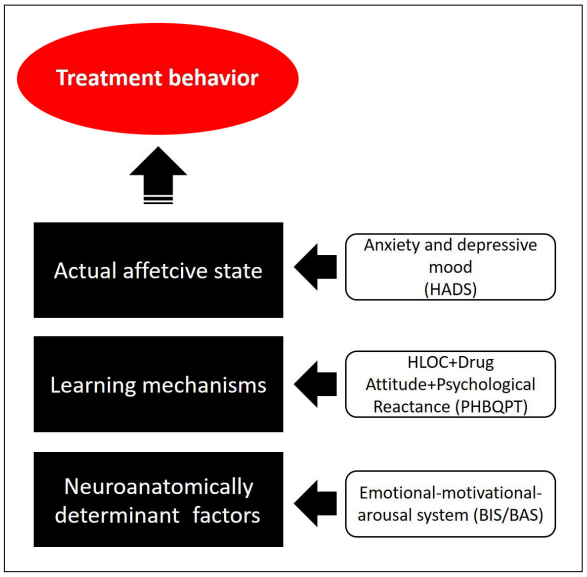
In spite of the large amount of studies regarding adherence and attitudes toward treatment, the psychobiological background of these factors has not yet been extensively studied. The results of our study might help in identifying the psychological factors which need to be evaluated at the start of the treatment in order to establish a better treatment adherence, which are the factors that can be modified in order to attain this goal. In our sample of psychiatric inpatients the higher score on Positive Attitude toward drug treatment scale was the most frequent and there were less patients with high Psychological Reactance. This finding is encouraging and is in contradiction with the general belief that in the case of psychiatric patients, especially in hospital settings, the negative attitude towards treatment is characteristic. It is concordant with the findings of our earlier publication, in which we reported that the drug attitude did not differ significantly between the psychiatric and non-psychiatric subgroups [31].

The majority of research data refers to the adherence of schizophrenic patients, which show that the rejection of drug treatment occurs frequently at the beginning of the treatment. Our results have shown that this rejection is not related to Psychological Reactance (this is not higher in the group of schizophrenic patients compared to patients treated for affective disorders) but to the lower score on the Doctor HLOC subscale. We found correlation between Psychol React and BAS Drive, between the Doctor HLOC and Reward Responsiveness and between Pos Asp and Reward Responsiveness as well. The latter correlation points to the importance of the reward system sensitivity regarding the presence of Positive Attitudes. It needs to be emphasized that we could identify also subgroups of double DTA carriers like Psychol React combined with high Pos Asp or Doctor HLOC or Internal HLOC. Consequently, the direction of the high BAS Drive can be modified and harmonized with treatment adherence. Interestingly, the most consistent correlation could be found between the Doctor HLOC+ Internal HLOC DTA and the BIS/BAS. The depression subscore was the lowest in this group, which suggests that the combination of high Internal HLOC and high Doctor HLOC is of protective value against depressive state. Conversely, the less anxious and depressed patients are able to trust their physician and are also self-confident that they have a control over their health status. Necessarily, the symptom intensity is lower in this group of patients, but it can be concluded, that even in the case of patients with more severe symptoms, irrespective of the diagnostic category, can be reached a higher Internal and Doctor HLOC by decreasing anxiety and depressive symptom intensity which is an important adherence-improving factor. There is also an important correlation between the reward system sensitivity and the Positive Aspect and the Doctor HLOC as well. A higher reward system sensitivity could be found in the case of patients with more severe depressive symptoms, while in the group of anxiety-prone patients instead of this a higher BIS was present. Considering this, it can be concluded that rewarding techniques could be useful in strengthening PosAsp and Doctor health locus of control which can be succesful in the case of patients with more severe depressive symptoms but probably less efficient in the case of anxiety. Surprisingly, there was no correlation between the Negative Aspect of drugs and the BIS/BAS or depressive symptoms.

CONCLUSIONS

In summary, the dominant treatment attitudes can be a useful tool for studying the different types of combination of health control beliefs, drug attitude and psychological reactance in patients with psychiatric disorders. The behavioral activation and inhibition system and the current affective state influence the dominant treatment attitudes in specific in manner depending on the types of combination. Based on our results, the modification of the relevant cognitive and emotional-motivational factors can be planned at the start of the therapy in order to establish a better treatment adherence.

Figure 7. The relationships of health locus of control, psychological reactance, emotional-motivational system, and affective symptoms with the treatment behaviour



PRACTICAL IMPLICATIONS

We can conclude, that while the locus of control is related to the biologically determined affective-motivational system and the current affective state, the Negative Aspect is independent of these. The latter is mostly related to experiences acquired in adulthood and not during earlier stages of life, is not the result of factors influencing the developing nervous system. In other words, it can be modified using psychoterapeutic and/or educational techniques (Figure 7). Therefore, Negative Aspects can be modified more easily than the HLOC and Psychological reactance, which are considered to be personality traits. The physician has to identify as early as possible those attitudes toward treatment which can be modified in a short time, and which of them will require a lengthy therapeutic intervention in order to establish treatment adherence. Our results have shown that in the acute phase Doctor HLOC and Internal HLOC can be improved, and Negative Aspect can be decreased by the reduction of depressive symptom severity. At a later stage, we can expect the improvement of Positive Aspect, while it is more difficult to exert influence on Psychological Reactance. Considering the results of our research regarding double DTA carriers, efforts should be done in order to modify the direction of high BAS Drive so that the Positive Aspect, Doctor HLOC and Internal HLOC can be favourably influenced even in the case of patients with high Psychological Reactance.

Acknowledgments: This study was supported by the FK OTKA 131315 grant of the National Research, Development and Innovation Office, Budapest, Hungary.

Corresponding author: Judit Lazary
Országos Mentális, Ideggyógyászati és Idegsebészeti Intézet
H-1135 Budapest, Lehel u. 59.
E-mail: lazaryjudit@gmail.com

REFERENCES

1. Gaebel, W., et al., Drug attitude as predictor for effectiveness in first-episode schizophrenia: Results of an open randomized trial (EUFEST). Eur Neuropsychopharmacol, 2010. 20(5): p. 310-6.
2. Rotter, J.B., Generalized expectancies for internal versus external control of reinforcement. Psychological monographs, 1966. 80: p. 1-28.
3. Baum, A., Aiello, J. R., Calesnick, L.E., Crowding and personal control: social density and development of learned helplessness. Journal of Personality and Social Psychology, 1978. 36: p. 1000-111.
4. Shapiro, S.L.A., J.A., The role of control and self-control in psychotherapy and health care. Wiley, 1998.
5. Brehm, S.S.B., J.W., Psychological reactance: A theory of freedom and control. New York Academic Press, 1981.
6. Seibel, C.A. and E.T. Dowd, Personality characteristics associated with psychological reactance. J Clin Psychol, 2001. 57(7): p. 963-9.
7. Thomas Dowd, E.W., F.; Sanders, D. , Psychological reactance and its relationship to normal personality variables. Cogn Ther Res 1994. 18(601-612).
8. Gray, J.A., The psychophysiological basis of introversion-extraversion. Behav Res Ther, 1970. 8(3): p. 249-66.
9. Gray, J.A., The Neuropsychology of anxiety: An inquiry into the functions of the septal-hippocampal system. Oxford University Press, 1982.
10. Depue, R.A.K., S. P.; Spoont, M. R., A two-dimensional threshold model of seasonal bipolar affective disorder. Personality, psychopathology, and psychotherapy, Academic Press, 1987: p. 95-123.
11. De las Cuevas, C. and J. de Leon, Development and validation of the Patient's Health Belief Questionnaire on Psychiatric Treatment. Patient Prefer Adherence, 2019. 13: p. 527-536.
12. Pogany, L., De las Cuevas, C., Lazary, J., The validation and analysis of the Patient's Health Belief Questionnaire on Psychiatric treatment in a sample of Hungarian psychiatric patients. Neuropsychopharmacologia Hungarica, 2021. 23(1): p. 221-231.
13. Hogan, T.P. and A.G. Awad, Subjective response to neuroleptics and outcome in schizophrenia: a re-examination comparing two measures. Psychol Med, 1992. 22(2): p. 347-52.
14. Wallston, K.A., B.S. Wallston, and R. DeVellis, Development of the Multidimensional Health Locus of Control (MHLC) Scales. Health Educ Monogr, 1978. 6(2): p. 160-70.
15. Hong, S.M., Faedda, S., Refinement of the HPRS. Educational and Psychological Measurement, 1996. 56: p. 173-182.
16. Carver, C.S., White, T.L., Behavioural inhibition, behavioural activation and affective responses to impending reward and punishment: The BIS/BAS scales. J Personality and Social Psychology, 1994. 67: p. 319-333.

17. Hargitai, R., Csókási, K., Deák, A., Nagy, L., Bereczkei, T., A VISELKEDÉSES GÁTLÓ ÉS AKTIVÁLÓ RENDSZER SKÁLÁK (BIS-BAS)HAZAI ADAPTÁCIÓJA. Magyar Pszichológiai Szemle, 2016. 14(4): p. 585-607.
18. Zigmond, A.S. and R.P. Snaith, The hospital anxiety and depression scale. Acta Psychiatr Scand, 1983. 67(6): p. 361-70.
19. Beebe, L.H., K. Smith, and C. Phillips, Descriptions and Correlates of Medication Adherence, Attitudes, and Self-Efficacy in Outpatients With Schizophrenia Spectrum Disorders (SSDs). Arch Psychiatr Nurs, 2016. 30(3): p. 400-5.
20. Rusch, N., et al., Implicit versus explicit attitudes toward psychiatric medication: Implications for insight and treatment adherence. Schizophr Res, 2009. 112(1-3): p. 119-22.
21. Shon, K.H. and S.S. Park, Medication and symptom management education program for the rehabilitation of psychiatric patients in Korea: the effects of promoting schedule on self-efficacy theory. Yonsei Med J, 2002. 43(5): p. 579-89.
22. De las Cuevas, C., W. Penate, and E.J. Sanz, The relationship of psychological reactance, health locus of control and sense of self-efficacy with adherence to treatment in psychiatric outpatients with depression. BMC Psychiatry, 2014. 14: p. 324.
23. De las Cuevas, C., et al., Factors influencing adherence to psychopharmacological medications in psychiatric patients: a structural equation modeling approach. Patient Prefer Adherence, 2017. 11: p. 681-690.
24. Stein, B.D., et al., Use of a computerized medication shared decision making tool in community mental health settings: impact on psychotropic medication adherence. Community Ment Health J, 2013. 49(2): p. 185-92.
25. O'Brien, M., et al., Attitudes and experience of youth and their parents with psychiatric medication and relationship to self-reported adherence. Community Ment Health J, 2013. 49(5): p. 567-75.
26. Sajatovic, M., et al., Attitudes regarding the collaborative practice model and treatment adherence among individuals with bipolar disorder. Compr Psychiatry, 2005. 46(4): p. 272-7.
27. De las Cuevas, C. and W. Penate, Explaining pharmacophobia and pharmacophilia in psychiatric patients: relationship with treatment adherence. Hum Psychopharmacol, 2015. 30(5): p. 377-83.
28. De las Cuevas, C., et al., Skepticism and pharmacophobia toward medication may negatively impact adherence to psychiatric medications: a comparison among outpatient samples recruited in Spain, Argentina, and Venezuela. Patient Prefer Adherence, 2018. 12: p. 301-310.
29. Jonsdottir, H., et al., Beliefs about medications: measurement and relationship to adherence in patients with severe mental disorders. Acta Psychiatr Scand, 2009. 119(1): p. 78-84.
30. Nicolino, P.S., et al., [Schizophrenia: adherence to treatment and beliefs about the disorder and the drug treatment]. Rev Esc Enferm USP, 2011. 45(3): p. 708-15.
31. Pogany, L. and J. Lazary, Health Control Beliefs and Attitude Toward Treatment in Psychiatric and Non-Psychiatric Clinical Samples. Front Psychiatry, 2021. 12: p. 537309.

Melyek a pszichiátriai betegek kezeléssel szembeni domináns attitűdjei?

Háttér: A páciensek gyógyszeres kezeléssel szembeni attitűdje prognosztikus értékű a későbbi adherencia tekintetében. Ennek ellenére, eddig viszonylag kevés részletes elemzés készült a pszichiátriai betegek kezeléssel szembeni attitűdjét befolyásoló tényezőkkel kapcsolatban. Módszerek: Vizsgálatunkba 295, kórházi kezelés alatt álló pszichiátriai beteget vontunk be. A vizsgálat során elemeztük az Egészségtudat és Pszichiátriai Kezeléssel Kapcsolatos Páciens Attitűd Skála (PHBQPT), a Viselkedéses gátló és aktiváló rendszer skálák (BIS/BAS Scale) és Kórházi Szorongás és Depresszió Skála (HADS) kérdőívek segítségével nyert adatokat. A PHBQPT 5 alskálájának eredményei alapján egy új változót alkottunk, melyet DTA-nak (Dominant Treatment Attitude) neveztünk el. **Eredmények:** A leggyakrabban megjelenő DTA a Doctor HLOC, a legritkább pedig a Psychological Reactance volt. A kettős DTA hordozás volt a leggyakoribb a többszörös DTA-k közül. A Doctor HLOC- Positive Aspect valamint a Doctor HLOC-Internal HLOC párok voltak a leggyakrabban észlelhetők. A Doctor HLOC alskála pontszámai magasabbak és a BAS Fun seeking alskála pontszámai alacsonyabbak voltak az affektív zavar miatt kezelt betegek csoportjában a pszichózis- valamint személyiségzavar alcsoportokba tartozó betegekéhez képest. **Következtetés:** A DTA meghatározása pszichiátriai betegek kezelésének kezdetekor hasznos támpontot eredményezhet egy hatékonyabb terápiás stratégia megtervezéséhez.

Kulcsszavak: terápiás attitűd, egészségkontrollhit, pszichológiai reaktancia, adherencia, gyógyszerszedési attitűd