

## **TRIAL OF HOPELESSNESS THEORY BY THE USE OF MODELLING. NEW PSYCHOMETRIC DATA ON THE HOPELESSNESS DEPRESSION SYMPTOM QUESTIONNAIRE**

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### *Abstract*

*The hopelessness theory claims the existence of hopelessness depression, a subtype of depression which supposedly has a characteristic causal profile, a set of symptoms and a certain course. The study analyses from an experimental point of view the Hopelessness Depression Symptom Questionnaire (HDSQ; Metalsky & Joiner, 1997) on the Romanian population and it also establishes its psychometric parameters. The results of factorial analysis in the case of the 315 participants support the initial factors of the HDSQ but they also reflect a distinct symptom of hopelessness depression. Diathesis-stress results, explained by the means of structural equation modelling, confirm the theoretic hypotheses issued by Abramson, Metalsky, and Alloy (1989) regarding the onset of depression. We confirm the efficiency of the HDSQ as a clinical instrument for the evaluation of hopelessness depression and the hopelessness theory of depression.*

Keywords: hopelessness, life experiences, attributional style, negative emotion

### **Introduction**

According to hopelessness theory, one proximal and sufficient cause for symptoms of depression is the expectancy that the desirable results shall not occur or that high aversive results shall appear and that no response within the

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intrinsic repertoire shall change the probability of occurrence of these results. Abramson, Metalsky, and Alloy (1989) showed that the term „hopelessness” commonly used in language captures the elements of the proximal causes sufficiently presented in theory: negative expectancies with regard to the production of highly valorised results (an expected negative results) and the expectancy of hopelessness regarding the probability of changing these results (the hopelessness expectancy). We shall use the hopelessness term in order to refer to proximal and sufficient causes. The causes of generalised hopelessness are considered to produce severe symptoms of depression, while pessimism is associated with a limited number of symptoms that have a low degree of severity.

The theory explicitly admits that depression can be a heterogeneous disorder and also admits to the probability that other factors such as genetic vulnerability, unbalances of neuro-transmitter substances, loss of interest for pleasant and gratifying activities to be sufficient for causing depressive type symptoms. Consequently, hopelessness theory has the etiological value of a depression subtype (hypothetic), hopelessness depression, partly defined by its proximal and sufficient cause.

Hopelessness theory (Abramson & al., 1989; DeVellis & Blalock, 1992; Metalsky & Joiner, 1992) claims the existence of hopelessness depression which supposedly has characteristic causes, a symptoms profile, a certain course, treatment and prevention. It is supposed that the symptoms of hopelessness depression include (as cited in Metalsky & Joiner, 1997, p. 360): a) retarded initiation of voluntary responses (motivational symptom), b) sad affect, c) suicidality, d) lack of energy, e) apathy, f) psychomotor retardation, g) sleep disturbance, h) difficulty in concentration, and i) mood-exacerbated negative cognitions.

The decrease of self esteem and interpersonal dependence are also part of the clinical picture in specific conditions. Last century researches (see Roberts & Monroe, 1992) suggested that the decrease or liability of self esteem could be seen as part of the causal succession while interpersonal dependence could have been a symptomatic particularity of hopelessness depression (Metalsky & Joiner, 1997, pp. 360-361).

Although researches have substantially advanced, so far there is only one established - the hopelessness theory, the researchers typically based on the existent instruments which measured the symptoms of depression such as Beck

Depression Inventory (Beck, 1967; Beck, Rush, Shaw, & Emery, 1979). Regardless of whether depression symptoms are measured by self report or by interview, the same problems exist: all actual instruments for measuring the characteristic symptoms of depression do not measure the symptoms of hopelessness depression with enough precision. We identify two main reasons for this problem. First, the existent usual instruments include some symptoms which are not claimed as part of hopelessness depression. Second, the presently existent instruments do not include a part of the symptoms which are postulated as being part of the hopelessness depression (errors by omission).

It is important to underline the fact that the addiction to these “inadequate” instruments in testing hopelessness theory could lead to false conclusions regarding the validity evaluation of the theory. For example, in the Beck Depression Inventory (BDI) with 21 items, only nine items include the symptoms of hopelessness depression. Most items measured symptoms which were not characteristic for hopelessness depression and for this reason it is not very surprising for a researcher to obtain null conclusions when testing hopelessness theory (even if the theory is valid). On the other hand, if a group of participants obtained a high score for the BDI (due to the items estimating hopelessness depression), we could expect the results to be in line with hopelessness theory. Consequently, when we use the BDI, SCL-90 R or any other existent instrument for symptoms of depression, it is extremely difficult to interpret the findings by the means of the validity concept of hopelessness theory. Simply said, a precise test of hopelessness theory can not be completed as long as such instruments are used which include a combination of symptoms specific for depression but also for hopelessness depression.

Taking into account this gap in the speciality literature, Metalsky & Joiner (1997) presented a new instrument – Hopelessness Depression Symptom Questionnaire (HDSQ) – which was clearly designed to measure the symptoms of hopelessness depression. HDSQ is an instrument containing 32 items which allow the investigators to examine the symptoms of hopelessness depression individually or combined. The HDSQ’s format is similar to the BDI; each symptom is measured by a cluster with four items. Consequently, in total the instrument has eight subscales, each of it including four items and each measuring a different symptom of hopelessness depression.

Although Abramson et al. (1989) included apathy and not anhedonia, as a symptom of hopelessness depression, we consider the inclusion of anhedonia

as being logically concordant to hopelessness theory. Beck (1979, pp. 182-183) argued that the loss of motivation (usually) is accompanied by the lack of interest and by the lack of pleasure for activities which normally are agreeable.

In this context, apathy, by definition, includes both the lack of interest and the lack of pleasure. Consequently, the results which shall be presented along the study support our position regarding the inclusion of anhedonia as a symptom of hopelessness depression.

In this study we evaluate the fidelity and the validity of the HDSQ (Metalsky & Joiner; 1997, pp. 377-382). We test the extent to which the eight symptoms reflect a distinct symptom of hopelessness depression. Additionally, we test whether a latent variant – symptoms of hopelessness depression – are indicated by the eight subscales of HDSQ. In the last part we use structural equation modelling for testing the stress diathesis component of the hopelessness theory by using HDSQ (Metalsky & Joiner, 1997), SRLE (Oprea, Marian, Filimon, & Banciu, 2011), ASQ (Marian, 2010) and POMS (Marian, 2007). We start from the hypothesis according to which the attributional diathesis would interact with recent negative life events, anticipating the beginning of hopelessness depression symptoms.

## **Method**

### *Participants*

A sample of 315 participants (187 women; 128 men) was included in at least one aspect of the study. The participants were evaluated in groups of roughly 10-15 participants but also individually in the case of those who are hospitalised. The participants were informed that they have to fill in questionnaires related to personal perspective, emotions etc. All 315 participants filled in at least the HDSQ and they were included in the factor-analytic phase of the study.

Some of the participants (N=195; 108 women and 87 men) were included in the diathesis-stress phase of the study. These participants were evaluated again after 10 weeks, again by filling in questionnaires related to emotions and attitudes. At T1 (the first stage) the participants filled in the ASQ (Marian, 2010), POMS (Marian, 2007) and HDSQ (Metalsky & Joiner, 1997).

At T2 (the second stage) the participants filled in the SRLE (Oprea et al., 2011) a scale regarding life events and the HDSQ.

### *Measures*

*Hopelessness Depression Symptom Questionnaire.* All 315 participants filled in the HDSQ (Metalsky & Joiner, 1997) at T1. Alpha coefficients for each subscale in our study were: a) Motivational Deficit (retarded initiation of voluntary responses;  $\alpha = .83$ ); b) Interpersonal dependency ( $\alpha = .77$ ); c) Psychomotor retardation ( $\alpha = .83$ ); d) lack of energy ( $\alpha = .89$ ); e) Apathy / anhedonia ( $\alpha = .83$ ); f) Insomnia ( $\alpha = .90$ ); g) Concentration difficulty ( $\alpha = .73$ ); and h) Suicidality ( $\alpha = .75$ ). The alpha coefficient for the full HDSQ was .95 (see Table 1).

*Attributional Style Questionnaire (A.S.Q.)* devised by Peterson, Semmel, von Baeyer, Abramson, Metalsky, and Seligman (1982); it is a measure of explanatory style patterns which in turn reflects one's tendency to select certain causal explanations for favourable or unfavourable events. The internal consistency reported by Marian (2010) was  $\alpha = .82$  for positive events, and  $\alpha = .72$  for negative events. This moderate internal consistency is supported by other findings.

*Profile of Mood States* was accepted as an efficient way of measuring psychological stress. This study evaluated the psychometric properties of a shorter, 20-item version of the P.O.M.S. Data were provided by 209 respondents. For all samples, internal consistency estimates for the P.O.M.S. subscales were comparable to those for the original P.O.M.S. (internal consistency is .90 for negative emotions and .88 for positive emotions; test-retest trust quotient is between .32 and .56) (Marian, 2007). This version of the P.O.M.S. is considered an alternative to the original P.O.M.S. when a brief measure of psychological distress is desired.

*Survey of Recent Life Experiences.* Kohn and Macdonald (1992) proposed the Survey of Recent Life Experiences (SRLE) which they validated starting from 92 items. In our study we use the short version of SRLE which is composed of 41 items meant to measure the hassles accumulated during a period of time. The internal consistency of the total score was .90 (41 items). Test-retest trust quotient of the two testing phases is between .66 and .78 (see Oprea, Marian, Filimon, & Banciu, 2011).

### *Procedure*

#### *Exploratory factor analysis vs. Confirmatory factor analysis*

The HDSQ was analysed in the first phase by using the main components analysis (PCA). Consequently, in order to increase the interpretability of the data, direct oblimin solution was used, but also the rotated factor solution (Varimax; according to the study published by Metalsky & Joiner, 1997, pp. 334-368). The data obtained by the means of PCA shall not be presented in extenso as this kind of presentation would be redundant (we validate the HDSQ on Romanian population proving its potential and we do not need to reconstitute it). In the second phase, the structuring of the HDSQ factors was examined by using the AMOS structural equation modelling software. This procedure allowed the testing of the hypothesis according to which the solution with one factor would be the appropriate model for the inter relations between the HDSQ and its subscales.

#### *Diathesis stress*

The experimental design is a multi-factorial one where the predictor is the negative attributional style (CN), recent life events (SRLE); the negative emotion (subscale NE; POMS) plays both the role of exogenous and endogenous variable. In the schema proposed, the HDSQ is an exclusively endogenous variable being caused by the mutual action of exogenous variables (see Fig. 2).

### **Presentation and interpretation of the results**

One first analysis of the data did not identify statistically significant differences between men and women for the HDSQ subscales. This analysis also did not identify statistically significant differences between men and women for each of the subscales; consequently the averages were calculated for the whole sample. Descriptive statistics including averages, standard deviations and ranges for each subscale of the HDSQ (and the total HDSQ) are presented in Table 1.

Table 1. Means, standard deviation, ranges and alpha coefficients for the HDSQ and its subscales

Subscale	Romanian sample (N=315)			
	Mean	SD	Range	Alpha coefficients
Motivational deficit	2.26	2.26	0-12	.83
Interpersonal dependency	2.61	2.44	0-14	.77
Psychomotor retardation	2.23	2.47	0-11	.83
Anergia	3.28	2.74	0-12	.89
Apathy	2.72	2.87	0-12	.83
Insomnia	2.55	2.96	0-12	.90
Concentration difficulty	2.30	2.07	0-9	.73
Suicidality	0.15	0.76	0-8	.75
HDSQ total	18.13	14.82	0-70	.95

Metalsky and Joiner (1997) reported fidelity coefficients for the HDSQ between .70 and .93. In our study after adapting the items we observed that the subscales present a relatively similar fidelity between .73 and .95 (Table 1). In table 2 we observe that in the case of the eight subscales the inter-correlations are not at close levels to those of fidelity coefficients which demonstrates that between them there is a clear demarcation.

#### *Exploratory factor analysis (EFA)*

Preliminary examination of the correlation matrix proves that all HDSQ items are positively inter-correlated and that Barlett sphericity test is statistically significant  $\chi^2(496) = 3718,620$ ,  $p < .001$ . The testing of the degree of adequacy of the sample was done with Kaiser - Meyer - Olkin (KMO) method, obtaining a value of .86 which proves that the sample meets the base conditions for using the factorial analyses. Metalsky and Joiner (1997) noted the existence of eight important factors of hopelessness depression (motivational deficit, interpersonal dependency, psychomotor retardation, anergia, apathy, insomnia, concentration difficulty, and suicidality) confirmed in our study, representing 63,66% out of the data variance.

#### *Confirmatory factor analysis (CFA)*

In order to establish the number of factors for the Romanian population we used CFA, considered as one of the best methods for identifying the real number of factors which are at the basis of a data set.

Inter-correlations between the eight subscales of the HDSQ are presented in Table 2. According to the initial hypothesis we tested to which extent an eight factors model of the HDSQ can be loaded on a latent variable, Hopelessness Depression Symptom assuring an appropriated model for the observed data.

Table 2. Intercorrelations of subscales and HDSQ total

Subscale	1	2	3	4	5	6	7	8
1. Motivational deficit	-							
2. Interpersonal dependency	.69**	-						
3. Psychomotor retardation	.62**	.69**	-					
4. Anergia	.56**	.64**	.82**	-				
5. Apathy	.57**	.63**	.74**	.78**	-			
6. Insomnia	.46**	.42**	.47**	.52**	.66**	-		
7. Concentration difficulty	.56**	.53**	.59**	.63**	.64**	.56**	-	
8. Suicidality	.26**	.28**	.27**	.21**	.29**	.22**	.28**	-
9. HDSQ total	.77**	.80**	.86**	.87**	.89**	.73**	.77**	.36**

Note: \*\* p < .001

As we can see in the graphic representation (Fig. 1) one single latent variable was hypothesised (Symptoms of Hopelessness Depression) which was measured by the means of the eight observed variables. In the specialty literature, in most cases, the best solution was obtained when residual errors were estimated with the AMOS software. In Figure 1, errors residual were noted with er 1, er 2, er 3...er 8. Path coefficients in Figure 1 were calculated by using the option for completely standardized solution.

The factorial model proposed by us for the HDSQ is adequate and the observed data (Brown, 2006; Kline, 2010) corresponds to theoretic presumptions ( $\chi^2(20) = 82,104$ , p < .001 (overall)). The calculation of this index in the case of the model with one factor and its comparison with the null model indicates a matching degree of .98 .

Another indicator, root mean squared residuals (RMR < .09; RMSEA < .09) indicates an efficient model in explaining the evolution of the observed data. The index of goodness of fit (GFI > .90; AGFI > .80) claims the data presented in Table 3. The results obtained claim the fact that the model



proposed for the composition of the HDSQ factors is adequate.

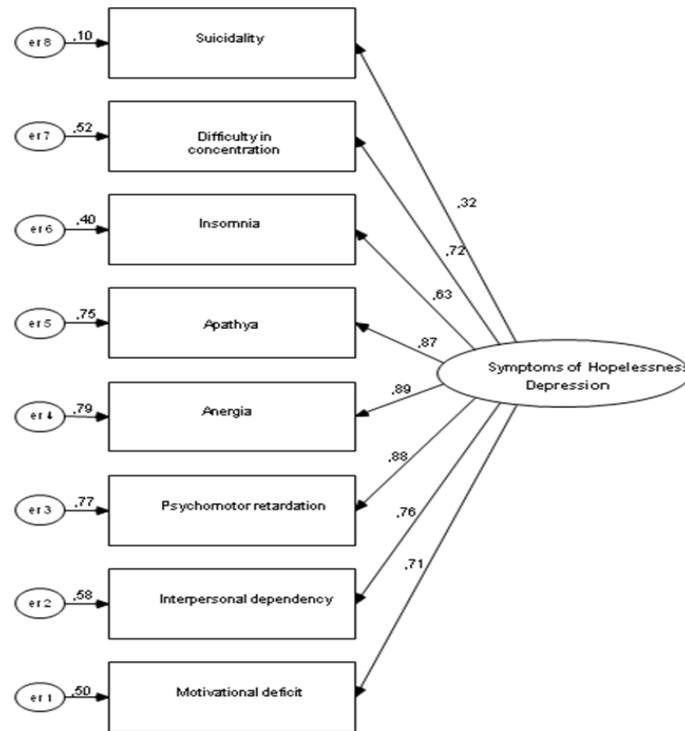


Fig. 1. Model of hopelessness depression symptoms – confirmatory factor analyses

Table 3. The values of the main absolute indicators for the factorial model of HDSQ

$\chi^2$ normalized (CMIN/DF)	RMR	RMSEA	GFI	AGFI	NFI	RFI	IFI	CFI
4.105	.088	.086	.91	.82	.86	.80	.82	.80

Psychometric characteristics of the HDSQ presented in the case of the Romanian population reached their purpose. As we have seen before, the eight subscales clearly reflect a distinct symptom of hopelessness depression. By CFA we prove that the HDSQ has a good validity, besides that we prove that it has a high internal consistency (alpha coefficient); in the case of our participants it is .95 (Table 1).

*Diathesis-Stress Results*

We consider that the statistical method chosen by us for testing the causal model is efficient (Baron & Kenny, 1986) for the hopelessness model. The exogenous variable in the case of the model is negative attributional style (cause variable), while the scores for recent life experiences (SRLE) and negative emotion plays the role of an exogenous variable (cause variable) in relation with the HDSQ.

In the model proposed, the HDSQ is an exclusively endogenous variable considering the fact that it is influenced by negative attributional style, recent life experiences, and negative emotion (NE).

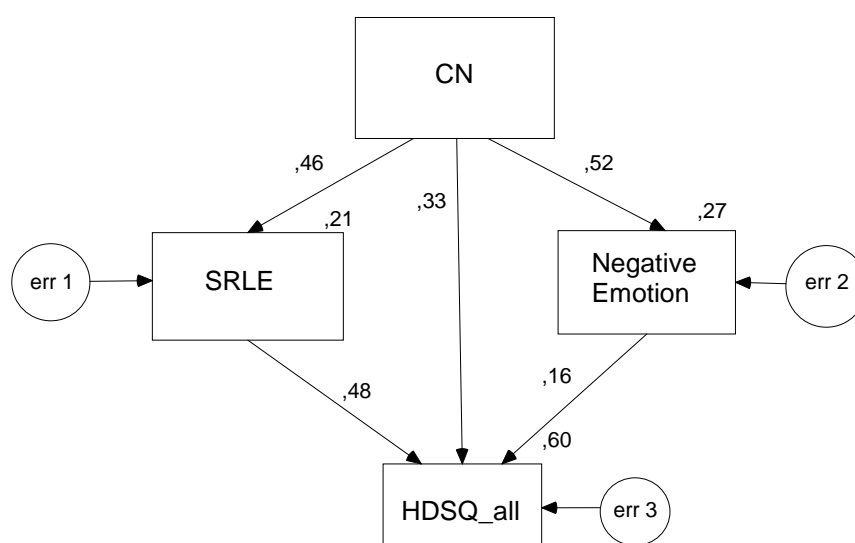


Fig. 2. Structural model – the estimated parameters (standardised) of negative attributional style, recent life experiences and negative emotion connected to HDSQ

The structural equation in the case of the causal model of hopelessness depression tested with the AMOS software (Table 4) indicates a high degree of match ( $\chi^2 = 94.194$ ,  $p < .001$ ), considering the fact that there are no significant differences between the data of the participants and the matrix obtained based on the connections specified in our model.

Table 4. The values of absolute indicators for tested models

$\chi^2$	df	p	CMIN/DF	RMSEA	RMR	GFI	AGFI
94.194	2	.001	94.194	.069	.06	.97	.93

The RMR indicator (*root mean squared*) indicates an efficient model considering the fact that the values obtained by us is situated under the critical point of .10 which means that we explain adequately the evolution of the observed data. Also the RMSEA (*root mean squared error of approximation*) indicator does not exceed the degree .08. GFI (*index of goodness of fit*) is an indicator (comprises values between 0 and 1) which depends on the data collected, in the case of the model proposed it supports the data previously presented and the adjusted form of the indicator AGFI has a very close value which confirms and supports the data presented in table 4.

Table 5. Path indices for the proposed structural model

			Estimare	S.E.	C.R.	P
SRLE	<---	CN	2.600	.365	7.124	***
NE	<---	CN	1.485	.174	8.527	***
HDSQ	<---	CN	1.025	.177	5.802	***
HDSQ	<---	SRLE	.258	.027	9.494	***
HDSQ	<---	NE	.167	.057	2.938	.003

Note: NE – negative emotion; CN - negative attributional style; SRLE - Scale of Recent Life Experiences; HDSQ - Hopelessness Depression Symptom Questionnaire

In table 5 we present the balance of regression in the model, meaning the influence of causal variables (exogenous) on the endogenous variables. We consider that a major part is played by the negative attributional style, meaning that the more a person considers that negative events similar to those experienced will be produced, it is possible for an activation of a maladaptive causal attributional style to occur, which shall lead to chronic deficits and will be generally used for the adaptation to life facts; the final point shall be mood change in the direction of depression.

We expect that the interaction between CN and SRLE to be predictive for changes in HDSQ. The results are in this direction. In addition, the interaction between CN and NE (Fig. 2) presents a similar form in the case of the HDSQ results.

The patients with a negative attributional style can present an increase

of negative emotion (anhedonia) in comparison with other patients.

### **Conclusions**

We consider that the HDSQ could reflect a differentiated symptom of hopelessness depression (starting from the eight subscales discussed along the study). Diathesis-stress component of hopelessness theory is supported when it anticipates the beginning of hopelessness depression symptoms and anergia, motivational deficit, and dependency. Globally, our results suggest that the HDSQ would allow investigators to provide precise tests of hopelessness theory rather than by the means of depression symptoms alone.

For an adequate evaluation of hopelessness theory it is essential to determine if the causal mechanism proposed in the theory contributes to the specified symptoms of hopelessness depression and not other symptoms.

We consider that the HDSQ is an extremely important clinical instrument not only for testing the hopelessness theory. In addition, considering the fact that each minor subscale measures a specific symptom, it allows the clinicians and researchers to test separately the symptoms of depression and not only a global score (to reflect the gravity of the disorder).

We tried to analyse from an experimental point of view the matching degree of the HDSQ to the Romanian population. We are also testing a model (Fig. 2) of diathesis-stress which includes recent life events (Marian & Filimon, 2011). The results obtained are satisfactory but for the future they will have to be confirmed by studies going in the same research direction.

The logic of the components for stress predisposition shows that attributional style in a private domain (such as interpersonal life events) attracts specific vulnerability for the symptoms of depressive hopelessness (Fig. 2) when an individual confronts negative live events in the same domain (for example: social rejection). Consequently, Beck's concept (1967) of dysfunctional attitude and Ellis' (1977) concept of irrational beliefs seem to be partly superposed with these cognitive predispositions.

A test of the etiological chain which appears in hopelessness theory involves an examination of diathesis-stress and of the causal mediation component of the theory (Spangler, Simons, Monroe, & Thase, 1993). Consequently, in the study there are involved at least two aspects: 1. A proof of

the fact that the interaction between cognitive diathesis and recent negative events foretell future depressive symptoms, mainly the symptoms of depression caused by lack of hope; and 2. Proof of the fact that this interaction predicts the constellation of symptoms, which supposedly constitute the subtype of depression caused by the hopelessness element of depression.

We consider that some researchers shall understand the utility of the HDSQ in testing hopelessness theory of depression but also as an efficient instrument in clinical practice.

Finally, a last reason for adequate testing of this theory can be represented by the increase of acknowledging depression and psychological health from a cognitive perspective and the construction of a solid link between clinical and experimental psychology.

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