

Original Article**Attitude scale and general health questionnaire subscales predict depression?**

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**Abstract**

**BACKGROUND:** According to Beck theory, dysfunctional attitude has a central role in emergence of depression. The aim of this study was to determine contributions of dysfunctional attitude and general health index to depression.

**METHODS:** In this case-control study, two groups of subjects participated. The first group consisted of 65 patients with major depression and dysthymic disorder, who were recruited from Noor and Navab Safavi Psychiatry Clinics in Isfahan. The control group was consisted of 65 non-patient individuals who were accompanied or relatives of the patients and was matched with them based on age, sex and education. Both groups completed 26-item Dysfunctional Attitude Scale (DAS-26) and 28-item General Health Questionnaire (GHQ-28). Logistic regression and correlation methods were applied for statistical analysis.

**RESULTS:** Logistic regression analysis showed that by an increase of one level in categorized DAS-26 scores and one score in the physical symptoms, anxiety, social dysfunction and depression subscales of GHQ-28 the risk of depression increase by 6.8, 1.6, 1.9, 3.7, 4.78 times, respectively.

**CONCLUSIONS:** Capability of dysfunctional attitude and general health subscales to predict depression supports the Beck's cognitive diathesis stress theory of depression that dysfunctional attitude may be a predisposing risk factor for depression.

**KEYWORDS:** Depression, Beliefs, Cognition, Dysfunctional Attitude, General Health.

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**D**ysfunctional attitudes are considered as predisposing risk factors for depressive episodes or indirectly as a factor of vulnerability under the stressful conditions.<sup>1</sup> Previous studies revealed that dysfunctional attitudes are related to the incidence of depression,<sup>2-4</sup> and that there was a correlation between high levels of dysfunctional attitude and the long-lasting survivals of episode<sup>3-5</sup> as well as shorter intervals of relapse in depression.<sup>6</sup> Cognitive vulnerability may be considered as trait-like tendency to interpret the information distortedly and negatively instead of rationally understanding the problems, which may be resulted from initial negative experiences. Al-

though it may act as risk factor for depression and some other disorders, it has the potential to be changed and improved during the intervention process.<sup>7</sup> Cognitive vulnerability has been demonstrated in diathesis-stress theory based on Beck's hopelessness theories.<sup>7</sup> Hopelessness theory considers the components of vulnerability as negative cognitive style (information processing), which is measured by cognitive style questionnaire (CSQ).<sup>8</sup> Beck's depression theory has conceptualized the vulnerability as dysfunctional attitude (unreasonable beliefs), which is operationalised in Dysfunctional Attitude Scale (DAS).<sup>9</sup> These two viewpoints were integrated and conceptua-

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lized under a unique structure as maladaptive cognitive patterns (MCPs). The studies conducted with MCPs (negative cognitive style and dysfunctional attitudes) supported its both developmentally roots<sup>8</sup> and generalization of this aspect to explain cognitive distortion in other mental disorders.<sup>10,11</sup>

Longitudinal studies showed that MCPs including negative cognitive style and dysfunctional attitudes are important risk factors to depression.<sup>8</sup> In addition, some other studies showed that the individuals, who are considered as high risk and low risk groups based on DAS scores vary in terms of depression and anxiety scores, emotional misbehavior in childhood, parent's negative attributions, and parents' scores of negative dysfunctional attitude. Odds ratio for incidences of mental disorders increased significantly with the increase of DAS-categorized scores in 12 months and the disease onset was predicted based on DAS scores.<sup>12</sup> Some of the experimental studies showed a relation between the self-injuring behaviors, 5-HT<sub>2</sub> and dysfunctional attitudes. Depressed patients indicated a low level of 5-HT<sub>2</sub> agonist in the cortex compared with the control group, which may explain the intensity of pessimism and dysfunctional attitudes in depression.<sup>13</sup> Although in most of the cognitive-behavioral clinical trials, especially on depression, dysfunctional attitudes are considered as core of psychopathology and the main indicator for determining the effectiveness of cognitive therapy and the ultimate goal of changes,<sup>14</sup> there are a lot of studies determining contribution of dysfunctional attitudes to predict depressive disorders. Undoubtedly, people who grow up in different cultures not only think about different things, but also seem to think differently. In other words, culture seems to shape and determine a person's way of perceiving and reasoning. Therefore, cognitive-behavioral therapies need to be adapted to the client's cultural background and beliefs.<sup>15</sup> Thus, by confirming this assumption the usage of DAS scale for measuring the cognitive therapy outcome will be justified. The main goal of this study was to identify the contribution of

dysfunctional attitudes in defining the cognitive vulnerability and the odds ratio of depression, whereby, the usage of the DAS-26 scale in measuring cognitive therapy outcome in dysthymic and major depression will be justified.

## Methods

In a case-control study, a total of 65 patients with mood disorders (major depression and dysthymic disorder), with a mean age of  $30.2 \pm 5.0$  years and male percentage of 34 were recruited from Noor and Navab Safavi Psychiatry Clinics in Isfahan, in June and July 2009. The control group consisted of 65 non-patients that were matched with patients based on age, sex, and education, and were the relatives and accompanied individuals of the patients. The inclusion criteria were Persian speaking, the ability of reading and understanding the questions, not having serious neurological disease, mental retardation, and psychotic symptoms. In order to diagnose major depression and dysthymic disorder, clinical interviews based on the Diagnostic and Statistical Manual of Mental Disorder 4<sup>th</sup> ed, Text revised (DSM-IV-TR)<sup>16</sup> were conducted by psychiatrist. DAS and General Health Questionnaire (GHQ) were completed after clinical interview.

### *Dysfunctional Attitude Scale- 26-item (DAS-26)*

The main version of DAS composed of 40 items which was developed by Beck and Weismann.<sup>9</sup> In order to use a shorter but still valid and reliable form of DAS in Iranian clinical population, a new version of DAS, named as DAS- 26, and consisted of 26 items was developed. Adaption and psychometric properties of DAS-26 were determined through a psychometric survey.<sup>17</sup> Its Cronbach's alpha was 0.92. The correlation coefficient with original form was 0.98, and validity of its prediction was calculated through correlation with the scores of GHQ-28 ( $r = 0.56$ ). The new form consisted of 26 questions using 7-point Likert scale. DAS-26 covered 4 fundamental factors as follows: Perfectionism, seeking others' attention (confirmation), seeking others' satisfac-

tion, vulnerability and functional evaluation. In general, the items evaluated pathologic self-attitudes, relationship with others and future mindedness based on Beck's cognitive theory of depression.

#### General Health Questionnaire (GHQ-28)

This questionnaire was developed by Goldberg in 1972 and consisted of 4 subscales. It is one of the most popular and reliable scales for screening the psychological disorders.<sup>18</sup> The psychometric properties of GHQ-28 were determined according to the Iranian psychiatric population. Subsequently, the Cronbach's alpha and concurrent validity were obtained based on correlation with checklist of psychological problems as 0.91 and 0.72, respectively.<sup>19</sup> Patients and matched control group from general population completed the questionnaires after being explained and consenting to participate. Data was analyzed by logistic regression and Pearson's correlation methods. According to Oliver et al.<sup>7</sup> and in order to determine the cognitive vulnerability and prediction of depression, we divided the subjects into high and low risk groups. This was done by obtaining the dysfunctional attitudes scores based on the DAS-26 scale and considering their cut-off point. The cut-off point was 82, and subject with scores above 82 were regarded as cognitive vulnerable.

## Results

The logistic regression analysis showed that by an increase in categorized DAS-26 scores level and one score increase in the physical symptoms, anxiety, social dysfunction and depression subscales of GHQ-28, risk of depression increased by 6.8, 1.6, 1.9, 3.7, 4.78 times, respectively (Table 1). Logistic regression analysis also showed that that the risk of depression in individuals categorized as high risk group compared with low risk group (in terms of cognitive vulnerability) increases by 6.82 [OR = 6.82 (95% CI 2.9-16.06)] (Table 2).

## Discussion

The main purpose of this study was to determine the contribution of dysfunctional attitude and indices of general health in predicting depressive disorders, as well as the odds ratio of depression based on the scores obtained from DAS-26 and GHQ-28. The findings indicated significant relationship between DAS-26 scores and the state of being depressed or not. The odds ratio of the depression was higher when DAS-26 scores were categorized into high and low risk groups based on the cut-off point of 82. The odds ratio of depression in the high risk group (based on DAS-26) was 6.8 compared to the low risk one. These findings support the results of Weich et al. study that indicated

**Table 1.** The association of Dysfunctional Attitude Scale (DAS-26) and General Health Questionnaire (GHQ-28) with depression

	B	SE	OR	CI	Prediction power		
					Sensitivity	specificity	Total
Dysfunctional attitude(categorized scores)	1.92	0.44	6.8**	2.9-16.1	0.55	0.86	0.69
Physical symptom	0.47	0.08	1.6	1.37-1.88	0.81	0.908	0.86
Anxiety	0.64	0.10	1.9*	1.54-2.34	0.82	0.907	0.82
Social dysfunction	1.30	0.26	3.7**	2.18-6.14	0.90	0.96	0.93
Depression Scores	1.56	0.31	4.78**	2.60-8.78	0.89	0.96	0.93

\* p < 0.01

\*\* p < 0.001

B: Regression coefficient

SE: Standard error of coefficient

OR: Odds ratio, CI: Confidence interval

**Table 2.** High risk and low risk groups in terms of DAS-26 scores

	Dysfunctional attitude	Physical subscale	Anxiety subscale	Social dysfunction subscale	Depression subscale
	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD
high risk (DAS > 82)	111.6 ± 17.7	7.5 ± 5.6	9.4 ± 4.8	10.2 ± 4.2	7.4 ± 5.7
Low risk (DAS < 82)	53.5 ± 12.41	5.6 ± 4.6	5.65 ± 4.8	6.3 ± 3.7	2.4 ± 3.8
t	-21.63***	-1.95*	-4.18**	-5.39**	-5.9**

\*p &lt; 0.05

\*\* p &lt; 0.01

\*\*\* p &lt; 0.001

significant increase of depression risk in high risk individuals based on DAS scores, even after adjusting for other variables.<sup>12</sup> Moreover, these findings are compatible with those of Lam et al. that indicated potential relapse prediction of depression based on dysfunctional attitude scores.<sup>6</sup>

As previous studies emphasized, it is possible that health indices such as anxiety, insomnia, social dysfunction, and physical symptoms contribute to predicting depressed patients' vulnerability.<sup>12</sup> Therefore, in order to test this assumption, general health subscales (GHQ-28) were used. According to our results, 3 subscales except physical subscale had a high potential to predict the state of depression (depressed - no depressed).

Furthermore, in comparison with the low risk individuals, the odds ratio of high risk ones increased by 6.82 (using DAS-26). These two findings totally support Beck's cognitive diathesis stress theory.<sup>20</sup> Demonstrating these findings in the framework of the above theory shows that cognitive diathesis (dysfunctional attitude), anxiety, social dysfunction are robust predictors of vulnerability to depression. The results of the present study are consistent with those of Oliver et al.<sup>7</sup> Because in their findings, anxiety was considered as indicator of tension,

which together with cognitive vulnerable diathesis were two significant variables in predicting depression. These two variables had relatively high common variance with depression symptoms.

The limitation of this study is partly due to its cross-sectional and case control design. The statistical method which is normally used in this design is correlation analysis. Therefore it should be considered in the interpretation of the results that the relation between variables is correlational and not casual. It is recommended that in future studies cohort design is used to investigate the contribution of dysfunctional attitude and maladaptive thinking in the incidence and persistence of other psychiatric disorders.

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### Conflict of Interests

Authors have no conflict of interests.

## Authors' Contributions

AE, HA, HTN, SGhM Participated in designing this Study and all authors read and approved the final draft of the manuscripts.

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