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Prevalence of Bipolar Disorder and Associated Risk Factors Among Population in Western Region of Saudi Arabia: A Cross-Sectional Study

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RESEARCH

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ABSTRACT

Objective

To determine the prevalence of bipolar disorder and associated risk factors among the population in the Western Region, KSA.

Methods

This research will employ a cross-sectional study design. Cross-sectional studies are well-suited for assessing the prevalence and risk factors of a particular condition in a specific population at a single point in time. This design will allow us to gather data on the prevalence of bipolar disorder and identify associated risk factors among the population in the Western region of Saudi Arabia.

Results

The study included 407 participants. The most frequent weight among them was 51-65 kg (n= 109, 26.8%), followed by 66-75 kg (n= 93, 22.9%). The most frequent height among study participants was 1.61-1.70 m (n= 137, 33.7%) followed by 1.51-1.60 m (n= 128, 31.4%). The most frequent body mass index value was 18.5-24.9 kg/m2 (n= 161, 39.6%), followed by 25-29.9 kg/m2 (n= 142, 34.9%). The gender of study participants is almost equal with male (n= 204, 50.1%) and female (n= 203, 49.9%). The most frequent age among them was 62 years and above (n= 157, 38.6%), followed by 40-50 years (n= 92, 22.6%). Participants were asked the participants about what is the duration of their mental illness(bipolar). The most frequent answer was nothing (n=277,68.1%), followed by one year (n=96, 23.6%), and the least of them were six years (n=1,0.2%).

Conclusion

The results showed that most of the study participants are married and intermediate owners and most of them have a university education. Most participants are not overweight according to their body's bodies. Most of the study participants had a good social link.

Key Words

Bipolar disorder

Introduction

Mania, hypomania, and sadness are the two primary symptoms of Bipolar Disorder (BD), a significant mental condition that is often seen in clinical practice. One percent of the world's population is now living with the progressive impairment of cognitive and social functioning caused by this disorder. It places a heavy strain on healthcare systems

and society because to its high rates of morbidity, recurrence, disability, death, and comorbidity[2]. It is estimated that BD and its medical complications cost the United States economy more than $195 billion annually[3]. Comorbid respiratory disorders, cardiovascular diseases, and cancer account for the majority of deaths in patients with BD in China [4-15], leading to a loss of 6.78 and 7.35 additional life years for Chinese men and women with BD, respectively.

In addition to significant mood swings, people with bipolar affective disorder (bipolar) also have cognitive abnormalities, immunological and metabolic alterations, and functional impairments [6]. Premature death from suicide and other medical complications [8-10] are common among those with this disorder, making it one of the main causes of disability globally.

Research into bipolar disorder lags behind that of other mental illnesses like psychosis because its etiology is poorly known. Evidence into the disorder's genetics, underlying developmental processes, risk and susceptibility factors, gene-environment interactions, and possible prodrome traits has increased significantly during the last decade [16-25].

Bipolar disorder is a complex and debilitating psychiatric condition characterized by mood swings that range from manic episodes, where individuals experience heightened energy and activity levels, to depressive episodes, marked by profound sadness and loss of interest in daily activities. While bipolar disorder has been extensively studied in various populations, there is a paucity of research on its prevalence and associated risk factors in the Western region of Saudi Arabia. This gap in knowledge is particularly concerning given that cultural, environmental, and genetic factors can significantly impact the manifestation and course of bipolar disorder, making it essential to investigate the specific characteristics of this region [25-35].

The first aspect of the research problem focuses on estimating the prevalence of bipolar disorder in the Western region of Saudi Arabia. Understanding the extent of this condition's presence in the population is crucial for healthcare planning, resource allocation, and the development of effective intervention strategies. Additionally, the investigation will aim to identify the demographic and clinical factors associated with bipolar disorder, shedding light on potential risk factors and patterns of the disorder in this specific geographic and cultural context [35-55].

The second aspect of the research problem centers on identifying potential risk factors that may be contributing to the prevalence of bipolar disorder in the Western region of Saudi Arabia. These risk factors could include genetic predisposition, environmental influences, cultural factors, access to mental healthcare, and socioeconomic determinants. Examining these factors is vital for creating tailored prevention and treatment strategies and promoting mental health awareness in this region. Ultimately, addressing the gap in knowledge about the prevalence and risk factors of bipolar disorder in the Western region of Saudi Arabia is critical for improving the mental well-being of its population and advancing the field of mental health research and practice in this specific cultural context.

Methods

Study design

This research will employ a cross-sectional study design. Cross-sectional studies are well-suited for assessing the prevalence and risk factors of a particular condition in a specific population at a single point in time. This design will allow us to gather data on the prevalence of bipolar disorder and identify associated risk factors among the population in the Western region of Saudi Arabia.

Study approach

The study will be conducted in various urban and rural areas within the Western region of Saudi Arabia. These locations will be selected to ensure a representative sample of the population, encompassing the diverse cultural and environmental factors of the region.

Study population

The target population for this research includes individuals aged 18 and above residing in the Western region of Saudi Arabia. A random sample of participants will be selected from this population to ensure the generalizability of the findings. Given the regional diversity, the sample size will be determined through power analysis to achieve statistical significance.

Study sample

A stratified random sampling technique will be employed to ensure a balanced representation of different demographic groups within the region, such as age, gender, and urban/rural areas. This technique will involve dividing the population into strata and then selecting a random sample from each stratum.

Study tool

For the current study, questionnaire was adopted for data collection, which was also categorized as a study tool.

Data collection

Data will be collected through online google form approach using a structured questionnaire.

Data analysis

Descriptive statistics, such as frequencies and percentages, will be used to report the prevalence of bipolar disorder. Bivariate and multivariate analyses, including logistic regression, will be conducted to identify associated risk factors.

Ethical considerations

This study will adhere to ethical principles, including informed consent, confidentiality, and anonymity. Ethical approval will be obtained from a relevant institutional review board, and all participants will provide informed consent before participating. Participation will be voluntary, and no identifying information will be disclosed in any publications or reports to ensure participant confidentiality and privacy.

Results

The study included 407 participants. The most frequent weight among them was 51-65 kg (n= 109, 26.8%), followed by 66-75 kg (n= 93, 22.9%). Figure 1 shows the weight distribution among study participants. The most frequent height among study participants was 1.61-1.70 m (n= 137, 33.7%) followed by 1.51-1.60 m (n= 128, 31.4%). Figure 2 shows the height distribution among study participants. The most frequent body mass index value among study participants was 18.5-24.9 kg/m2 (n= 161, 39.6%), followed by 25-29.9 kg/m2 (n= 142, 34.9%). Figure 3 shows the distribution of BMI among study participants.

The gender of study participants is almost equal with male (n= 204, 50.1%) and female (n= 203, 49.9%). Figure 4 shows the gender of the study participants.

The most frequent age among them was 62 years and above (n= 157, 38.6%), followed by 40-50 years (n= 92, 22.6%). Figure 5 shows the weight distribution among study participants.

Participants were asked to assess their diseases among the study participants. Their responses and results are presented in Table 1.

Participants were asked to assess their Participants were asked to assess their diseases among the study participants. Their responses and results are presented in Table 2.

Participants were asked the participants about what is the duration of their mental illness(bipolar). The most frequent answer was nothing (n=277,68.1%), followed by one year (n=96, 23.6%), and the least of them were six years (n=1,0.2%).

Discussion

Bipolar spectrum disorders are a substantial public health concern, with estimates of lifetime prevalence in the general population of the United States at 3.9 percent [11], with a range from 1.5 to 6.0 percent [12]. One in four people with bipolar illness will try suicide at some point in their lives, and one in seven will succeed[13]. Inadequate treatment and service structure also contribute to the disproportionately high incarceration rates of people with bipolar disorder [14]. Patients with bipolar depression still go untreated 31.9% of the time over approximately 13 years [15]. Progress has been suggested by review studies for both adults [16–17] and children [18], although not all aspects of depressive episodes, combination treatments, health care interventions, or particular populations have been thoroughly explored. The well-written but not user-friendly documents include practice recommendations [19], decision trees [20], and complex algorithms [21, 22].

There are currently more pharmaceutical choices available, and they are often combined with psychoeducation, self-help, and psychotherapy (individual, couple, and family) [19]. When it comes to spreading awareness and understanding of manic-depressive disorder, no organization has done more than the Depression and Bipolar Support Alliance. The National Alliance for the Mentally Ill (NAMI) has surveyed family members to learn more about their experiences with and perspectives on mental health care [23].

Epidemiology

On average, people experience the onset of bipolar I at the age of 18, and of bipolar II at the age of 22 [19-24]. Using the Mood Disorder Questionnaire (MDQ), researchers found that 3.7% of the population was affected by mood disorders in a recent study [25]. According to data from the National Comorbidity Study, symptoms commonly manifest between the ages of 18 and 44, with peak incidence between the ages of 18 and 34. More than half of DBSA members surveyed delayed seeking therapy for five years, and the average time to an accurate diagnosis was eight years after first treatment [26,27].

There is inconsistent evidence linking sociodemographics to bipolar disorder [55-85]. Both sexes are equally susceptible to

bipolar I, however women are more likely to have bipolar II. There is no correlation between your racial or ethnic background, your social level, or your geographic location (rural vs. urban, for example). Bipolar disorder is more common in single persons [86-106].

Direct costs of treatment, indirect costs of death, and indirect costs of sickness and lost output are the standard components of economic studies. This serves as a template for bipolar illness and other chronic conditions. Misdiagnosis results in wasted resources and improper care [95-107]. The expenses associated with a delayed diagnosis, improper treatment, or both are substantial.

Conclusion

The results showed that most of the study participants are married and intermediate owners and most of them have a university education. Most participants are not overweight according to their body's bodies. Most of the study participants had a good social link.

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Prevalence of Bipolar Disorder and Associated Risk Factors Among Population in Western Region of Saudi Arabia: A Cross-Sectional Study

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Tables & Figures

Table 1: diseases among study participants.

survey item	Yes	No
Do you smoke?	133 32.70%	274 67.30%
Do you have a chronic disease?	65 16.00%	342 84.00%
Do you have a psychiatric illness?	53 13.00%	354 87.00%
Do you have a Bipolar disease?	11 2.70%	396 97.30%
Have you been hospitalized due to a mental illness?	23 5.70%	384 94.30%
Have you sought medical care because of a mental illness that afflicted you?	62 15.20%	345 84.80%
Did you have a manic episode?	29 7.10%	378 92.90%
Have you had a bout of depression?	136 33.40%	271 66.60%

Table 2: symptoms and risk factors for bipolar among study participants.

survey item	Yes	No
Do you have a Fast speech?	96 23.60%	311 76.40%
Do you have a Lack of concentration?	163 40.00%	244 60.00%
Do you have a Decreased need for sleep with increased energy?	81 19.90%	326 80.10%
Do you have an Increased impulsiveness?	93 22.90%	314 77.10%

	2	405
Do you Take drugs?	0.50%	99.50%
	175	232
Do you have a Loss of energy?	43.00%	57.00%
	108	299
Do you have a feeling hopeless?	26.50%	73.50%
	138	269
Do you have a Difficulty concentrating?	33.90%	66.10%
	38	369
Do you have an Irritability?	9.30%	90.70%
	169	238
Do you have Sleep problems?	41.50%	58.50%
	132	275
Do you have a Change in appetite?	32.40%	67.60%
	47	360
Do you have a Thoughts of death and suicide?	11.50%	88.50%
	13	394
Did you try to commit suicide?	3.20%	96.80%
	87	320
Do you have a family history of mental illness?	21.40%	78.60%
	210	197
Have you gone through a period of extreme stress?	51.60%	48.40%

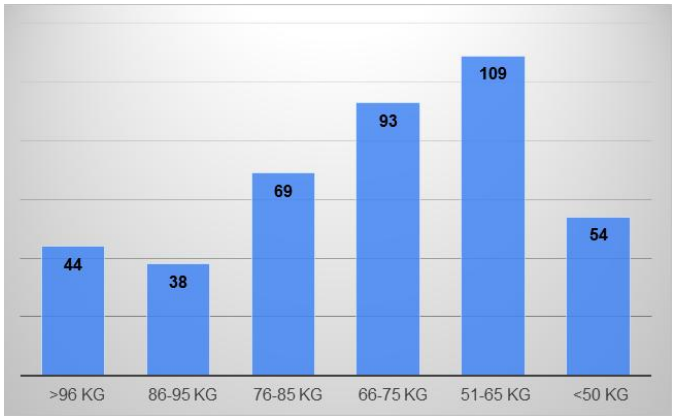

Figure 1: Weight distribution among study participants

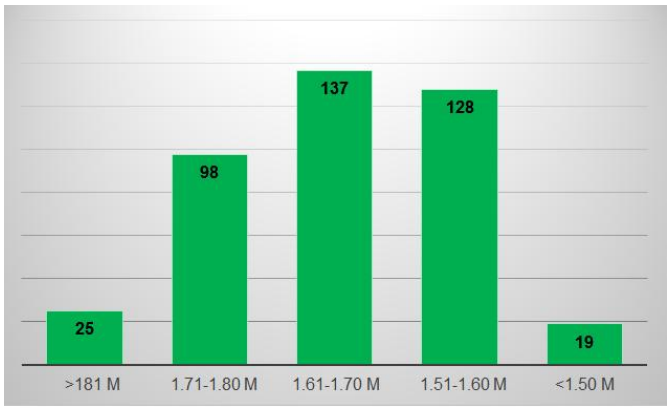

Figure 2: Height distribution among study participants.

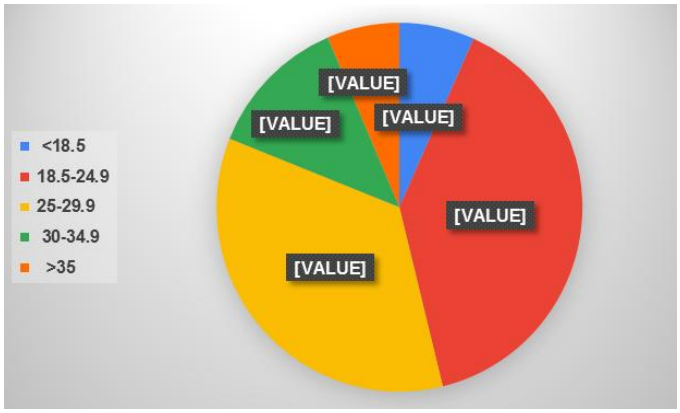

Figure 3: BMI distribution among study participants.

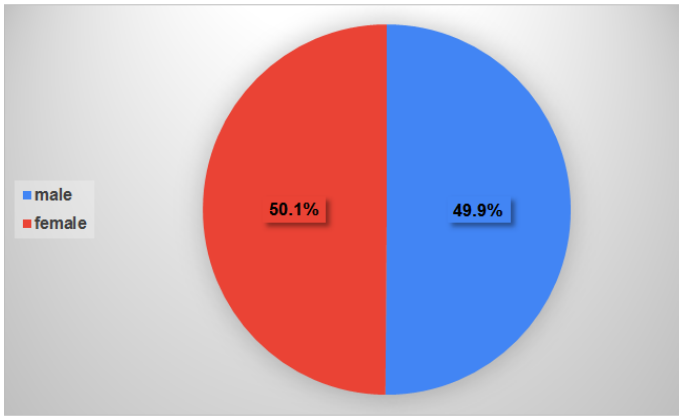

Figure 4: Gender distribution among study participants.

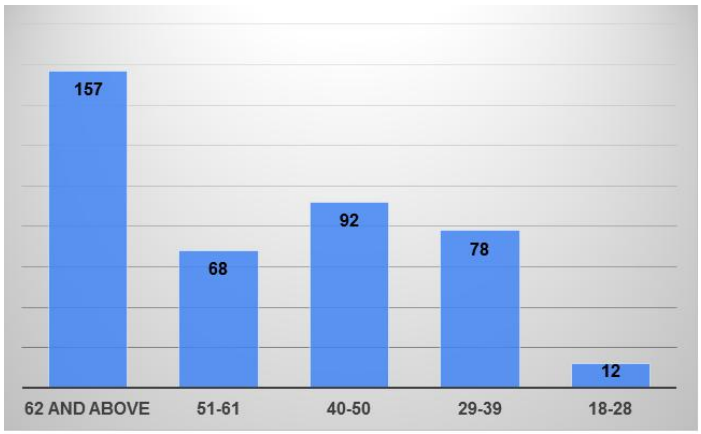

Figure 5: Age distribution among study participants.

ANNEXURE 1: Data Collection Tool

1. How old are you?
- **18-28**
- **29-39**
- **40-50**
- **51-61**
- **62 and above**

2. What is your gender?
- **Male**
- **Female**

3. What is your educational level?
- **Uneducated**
- **The school**
- **The university**

4. What is your marital status?
- **Bachelor**
- **Married**
- **Absolute**
- **Widower**

5. What is your job?
- **Student**
- **does not work**
- **government or private sector employee**
- **free work**
- **Other**

6. What is your monthly income?
- **Weak**
- **Middle**
- **High**

7. What is your weight?
- **<50 Kg**
- **51-65 Kg**
- **66-75 Kg**
- **76-85 Kg**
- **86-95 Kg**
- **>96 Kg**

8. What is your height?
- **<150 cm**
- **151-160 cm**
- **161-170 cm**
- **171-180 cm**
- **>181 cm**

9. What is your BMI value?
- **<18.5**
- **18.5-24.9**
- **25-29.9**
- **30-34.9**
- **>35**

10. Do you smoke?
- **Yes**
- **No**

11. Do you have a chronic disease?
- **Yes**
- **No**

12. Do you have a psychiatric illness?
- **Yes**
- **No**

13. Do you have a Bipolar disease?
- **Yes**
- **No**

14. Have you been hospitalized due to a mental illness?
- **Yes**
- **No**

15. Have you sought medical care because of a mental illness that afflicted you?
- **Yes**
- **No**

16. Did you have a manic episode?
- **Yes**
- **No**

17. Have you had a bout of depression?
- **Yes**
- **No**

18. Do you have a Fast speech?
- **Yes**
- **No**

19. Do you have a Lack of concentration?
- **Yes**
- **No**

20. Do you have a Decreased need for sleep with increased energy?
- **Yes**
- **No**

21. Do you have an Increased impulsiveness?
- **Yes**
- **No**

22. Do you Take drugs?
- **Yes**
- **No**

23. Do you have a Loss of energy?
- **Yes**
- **No**

24. Do you have a feeling hopeless?
- **Yes**
- **No**

25. Do you have a Difficulty concentrating?
- **Yes**
- **No**

26. Do you have an Irritability?
- **Yes**
- **No**

27. Do you have Sleep problems?
- **Yes**
- **No**

28. Do you have a Change in appetite?
- **Yes**
- **No**

29. Do you have a Thoughts of death and suicide?
- **Yes**
- **No**

30. Did you try to commit suicide?
- **Yes**
- **No**

31. Do you have a family history of mental illness?
- **Yes**
- **No**

32. Have you gone through a period of extreme stress?
- **Yes**
- **No**

APPENDIX 2: Participants responses to scale items

variable		Frequency	Percent
Age	18-28	12	2.9%
	29-39	78	19.2%
	40-50	92	22.6%
	51-61	68	16.7%
	62 and above	157	38.6%
Gender	male	204	50.1%
	female	203	49.9%
educational level	uneducated	0	0.0%
	the school	37	9.1%
	the university	370	90.9%
marital status	Bachelor	177	43.5%
	Married	204	50.1%

	Absolute	25	6.1%
	Widower	1	0.2%
work nature	Student	86	21.1%
	does not work	55	13.5%
	government or private sector employee	240	59.0%
	free work	15	3.7%
	Other	11	2.7%
monthly income	Weak	66	16.2%
	Middle	276	67.8%
	High	65	16.0%
weight	<50 Kg	54	13.3%
	51-65 Kg	109	26.8%
	66-75 Kg	93	22.9%
	76-85 Kg	69	17.0%
	86-95 Kg	38	9.3%
	>96 Kg	44	10.8%
height	<1.50 m	19	4.7%
	1.51-1.60 m	128	31.4%
	1.61-1.70 m	137	33.7%
	1.71-1.80 m	98	24.1%
	>181 m	25	6.1%
BMI	<18.5	27	6.6%
	18.5-24.9	161	39.6%
	25-29.9	142	34.9%
	30-34.9	51	12.5%
	>35	26	6.4%

What is the duration of mental illness(bipolar)?		
	Frequency	**Percent**
nothing (0)	277	68.1%
one year	96	23.6%
two years	11	2.7%
three years	4	1.0%
four years	4	1.0%
five years	7	1.7%

six years	1	0.2%
seven years	2	0.5%
ten years	5	1.2%

Logistic Regression

Case Processing Summary			
Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	407	100.0
	Missing Cases	0	.0
	Total	407	100.0
Unselected Cases		0	.0
Total		407	100.0

Dependent Variable Encoding	
Original Value	Internal Value
yes	0
no	1

Classification Table[a,b]					
			Predicted		
			Bipolar diseases		
	Observed		yes	no	Percentage Correct
Step 0	Bipolar diseases	yes	0	11	.0
		no	0	396	100.0
	Overall Percentage				97.3

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	3.584	.306	137.440	1	.000	36.000

Variables not in the Equation					
			Score	df	Sig.
Step 0	Variables	smoke	4.925	1	0.026
		Chronic disease	0.041	1	0.839
		Psychiatric illness	60.552	1	0.000
		Hospital mental illness	71.295	1	0.000
		Medical care mental illness	62.910	1	0.000
		manic. episode	73.523	1	0.000
		depression	22.528	1	0.000
		fast. speech	15.147	1	0.000
		Lack of concentration	16.924	1	0.000
		Decreased sleep increased energy	19.791	1	0.000
		Increased. impulsiveness	15.954	1	0.000
		Take drugs	17.098	1	0.000
		Loss energy	4.077	1	0.043
		Feeling hopeless	7.983	1	0.005
		Difficulty concentrating	22.038	1	0.000

		Sleep problems	7.560	1	0.006
		Change appetite	17.642	1	0.000
		Thoughts death suicide	6.816	1	0.009
		Try to commit suicide	8.213	1	0.004
		Family history mental illness	12.014	1	0.001
		Period extreme stress	6.996	1	0.008
		Duration of mental illness	38.828	1	0.000
	Overall Statistics		170.961	22	0.000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	101.140	22	.000
	Block	101.140	22	.000
	Model	101.140	22	.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	0.000[a]	0.220	1.000

Classification Table[a]

			Predicted		
			Bipolar diseases		
	Observed		yes	no	Percentage Correct
Step 1	Bipolar diseases	yes	11	0	100.0
		no	0	396	100.0
	Overall Percentage				100.0

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	smoke	10.766	7377.677	.000	1	0.999	47383.799
	Chronic disease	-23.360-	6294.134	.000	1	0.997	0.000
	Psychiatric illnes	37.741	7291.509	.000	1	0.996	2459242651832070 8.000
	Hospital mental illness	38.158	6409.482	.000	1	0.995	3729845496894329 6.000
	Medical care mental illness	28.757	5323.196	.000	1	0.996	3082756698573.934
	Manic episode	42.860	8784.601	.000	1	0.996	4111580663565529100.000
	depression	24.348	6749.011	.000	1	0.997	37502416060.326
	fast. speech	47.140	4091.724	.000	1	0.991	2969042759776699000 00.000
	Lack of concentration	-3.517-	12035.001	.000	1	1.000	0.030
	Decreased sleep increased energy	-.818-	8137.809	.000	1	1.000	0.441
	Increased impulsiveness	3.543	5706.635	.000	1	1.000	34.582
	Take drugs	23.258	31773.986	.000	1	.999	12609102568.376
	Loss energy	-6.438-	12298.570	.000	1	1.000	0.002
	feeling. hopeless	-12.540-	8261.790	.000	1	0.999	0.000
	Difficulty concentrating	-4.780-	7288.684	.000	1	0.999	0.008
	Sleep problems	-36.809-	10111.256	.000	1	0.997	0.000
	Change appetite	-25.259-	11949.155	.000	1	0.998	0.000

	Thoughts death. suicide	-25.596-	9723.834	0.000	1	0.998	0.000
	try. Commit suicide	-38.177-	11749.960	0.000	1	0.997	0.000
	Family history of mental illness	1.254	2788.459	0.000	1	1.000	3.505
	Period extreme stress	7.826	5526.713	0.000	1	0.999	2505.633
	Duration of. mental illness	-5.729-	838.916	0.000	1	0.995	0.003
	Constant	-79.947-	63575.990	0.000	1	0.999	0.000

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