# A Comparison and Prediction of Irrational Beliefs and Cognitive Functioning Among Depressed and Non-Depressed Adults in Gujrat, Pakistan

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## ABSTRACT

***Objective:*** To compare and predict the irrational beliefs and cognitive functioning among depressed and non-depressed adults in Gujrat, Pakistan.

***Study Design:*** Comparative cross-sectional study.

***Place and Duration of Study:*** Zulfiqar Hospital, Akram Hospital and Aziz Bhatti Hospital, Gujrat and Department of Psychology, the University of Gujrat from Dec 2017 to Mar 2018.

***Methodology:*** The data was collected from 200 adults, 100 depressed adults and 100 non-depressed adults using consecutive sampling. The non-depressed adults with no past psychiatric history were recruited from the community. The irrational beliefs were assessed using the Evaluative beliefs scale, and cognitive functioning was measured using the Montreal cognitive assessment scale.

***Results:*** The independent sample t-test indicated that there was a statistically significant difference ($p$<0.001) in the irrational beliefs of depressed and non-depressed adults, and the irrational beliefs of depressed were more (37.83 ± 8.12) than the non-depressed adults (4.33 ± 4.64). The comparison of cognitive functioning of the depressed and non-depressed was also significantly different ($p$<0.001). The cognitive functioning of depressed adults was poorer (12.44 ± 3.85) than the non-depressed adults (26.92 ± 2.55). Further-more, irrational beliefs predict cognitive functioning [$R^2$=0.729; F (1,198) = 532.763, $p$<0.001].

***Conclusion:*** The study findings indicated a difference in the irrational beliefs and cognitive functioning of depressed and non-depressed adults. Further, the depressed had more irrational beliefs and worsened cognitive functioning.

**Keywords**: Cognitive functioning, Depression, Montreal cognitive assessment.

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## INTRODUCTION

Depression was among the most prevalent problems prevailing globally as the affected population was above 264 million.[1] The diagnostic and statistical manual defines depression as having symptoms 5 out of 9 almost the whole day for a 2-week time. The symptoms lead to depression in mood or lack of interest in everyday events. The nine symptoms include depressive mood, lack of interest or pleasure, decreased weight or appetite, sleep problems, physical symptoms, easily exhausted or low energy, feelings of unimportance or extreme or unsuitable guiltiness, and problems in remembrance or paying attention to suicidal ideation.[2] many reasons can increase the probability of depression in people. The factors could be the abuse of any type, medication, conflicts with others, loss or death, genetics, major life events, threatening illnesses and substance abuse.[3]

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Depression may have several alarming issues. Among others, irrational beliefs predominant correlate with depression.[4] Mr. Ellis,[5] has illustrated that if a person encountered an event that put him or her in a situation that obstructs the person's goal or was against their norms, it may lead to emotionally distressed thinking and become irrational. Further, irrational beliefs in psychology are considered dynamic concepts linked with various dysfunctional beliefs based on particular cognitive prejudices or styles, suspicious beliefs and unproven self-linked beliefs that hinder the functioning of a person.[6] A research confirmed a positive relationship between irrational beliefs and depression, whereas the intensity of the relationship was at a moderate level.[7]

Furthermore, the cognitive functioning of the depressed individuals was also low. The human ability to think and experience may result from cognitive processes. Cognition may be defined as how individuals identify, select, interpret, store, and use the information to give meaning to their social and physical environment. All of these were helpful to give

meaning or sense to their social and physical environment, interact with the social and physical environment, perform daily life activities, and deal with work life.[8] The foremost cognitive abilities are language, concentration, perception, recall and executive functioning.[9] The cognitive problems were prevalent in the depressive persons as the review of the literature confirmed the existence of cognitive dysfunction in depression.[10]

The literature confirms the status of depression, and it is pretty relevant to explore the condition and problems associated with depression in Pakistan. Therefore, the main objective of the study was to compare and predict irrational beliefs and cognitive functioning among depressed and non-depressed adults in Gujrat, Pakistan.

## METHODOLOGY

The comparative cross-sectional study was conducted from December 2017 to March 2018. The data was collected from 200 adults of Gujrat.

**Inclusion Criteria:** The diagnosed patients of major depressive disorder from different hospitals and the non-depressed population from the community were included in the study. The study design and methodology were permitted by the research supervisor and the Research Review Committee of the Department of Psychology, the University of Gujrat, with the letter# PSY/UOG/20/2439.

**Exclusion Criteria:** Patients with any other psychological disorder, non-depressed individuals with any psychological disorder, children, adolescents and participants who had any physical problems or diseases were excluded from the study.

The psychiatrist recruited the clinically diagnosed with major depressive disorder adults from the hospitals (Zulfiqar hospital, Akram Hospital and Aziz Bhatti hospital) of Gujrat by using a consecutive sampling technique. The non-depressed were recruited directly from the community using a convenient sampling technique. Before data collection, the respondents were articulated about having any life history of psychological disorder and depression. Only those respondents were selected to participate in the study who had no previous history of any psychological disorder. Adults can be defined as individuals older than 19 years unless National law defines a person as earlier being an adult.[11]

The demographic information form and the measure of irrational beliefs and cognitive functioning were used for data collection. The irrational beliefs were assessed by using the Evaluative belief scale.[12] The scale investigates the negative evaluation of a person of others and oneself. It was translated into Urdu for easy understanding by a panel of experts. It is an 18 items scale and the sub-scales of other-self, self-self and self-other with the reliability of 0.90, 0.92 and 0.86, respectively. The cognitive functioning was measured by using the Montreal Cognitive Assessment (MOCA) Urdu version,[13] which weighs different factors of cognitive areas of executive functions, visuo-constructional skills, naming, attention, language, abstraction, delayed recall and orientation. The administration time of MoCA is approximately 10 minutes. The total possible score is 30 points; 26 or above is considered normal cognitive functioning. The MoCA test has shown excellent sensitivity of 87% for mild cognitive impairment and Alzheimer's disease.[14]

The participants were instructed about the research with informed consent before the start of data collection. The face to face interviews was used in the collection of information from the respondents. The MOCA scale was administered with thorough instructions, and further, the respondents were asked to fill the scale carefully with the most matched or applicable answer. The responses were documented in the booklet. The respondent's anonymity and confidentiality were kept intact. The scale of the study was used after permission from the authors.

The data of the study was analyzed by using descriptive statistics, an independent sample t-test and linear regression on Statistical Package for Social Sciences (SPSS) version 22 for windows. The *p*-value lower than or up to 0.05 was considered as significant.

## RESULTS

A total of 200 adults were selected for the research. The age of the adults ranges from 18-64 years, with a mean age of 37.37 ± 11.20 years. The participants were equally distributed among the categories of depressed and non-depressed.

Table-I showed that there was a significant difference ($p<0.001$) in the irrational beliefs of depressed and non-depressed adults, and the depressed showed more irrational beliefs (37.83 ± 8.12) than the non-depressed (4.33 ± 4.64). Further, there were significant differences in the cognitive functioning of depressed and non-depressed ($p<0.001$). The mean value of non-depressed had better (26.92 ± 2.55) cognitive functioning than non-depressed adults (12.44 ± 3.85). Further, the study also explored the role of irrational

beliefs in predicting the cognitive functioning of adults.

**Table-I: Comparison of different statistical scores of depressed and non-depressed adults on irrational beliefs and cognitive functioning (n=200).**

| Variables | Non-Depressed (n=100) | Depressed (n=100) | *p*-value |
|---|---|---|---|
| | Mean ± SD | Mean ± SD | |
| Irrational Beliefs | 4.33 ± 4.64 | 37.83 ± 8.12 | <0.001 |
| Cognitive Functioning | 26.92 ± 2.55 | 12.44 ± 3.85 | <0 .001 |

Linear regression was run to confirm the results. Analysis has confirmed that irrational beliefs are a significant predictor of cognitive functioning of Adults [$R^2$=0.729; F (1,198) = 532.763, $p$<.01]. Findings explained that 72.9% variation in the cognitive functioning of adults was due to irrational beliefs (Table-II).

**Table-II: Summary of regression analysis of irrational beliefs as the predictor of cognitive functioning of adults (n=200) .**

| Variables | R | R2 | Adjusted R2 | F | *p*-value |
|---|---|---|---|---|---|
| Irrational Beliefs Cognitive Functioning | 0.854 | 0.729 | 0.728 | 532.763 | <0.0001 |

## DISCUSSION

The current study was conducted on depressed and non-depressed adults to compare and predict irrational beliefs and cognitive functioning. The problem of depression is in high density in the developing regions. The study conducted in Karachi, Pakistan, by Nisar *et al,* in 2019 showed the majority of the respondents explain depression as a natural sadness feeling and not a psychological disorder. At the same time, the significant reasons behind the depression were stress (72.2%) and traumatic events (51.3%). The most prominent signs of depression included sad (53.3%) and irritated (53.3%) feeling, along with incapability to work out routine chores (52.8%) and disturbed sleep patterns (52%).[15]

The findings of current research showed a significant difference in the irrational beliefs of depressed and non-depressed adults. The depressed sample demonstrated high irrational beliefs (37.83 ± 8.12) compared to the non-depressed (4.33 ± 4.64). The previous literature was also consistent with the current study results. A study conducted by Tecuta *et al,* in 2019 showed that nearly 50% of the respondents had low depression while the other 37.4% demonstrated a moderate level of depression, followed by 11.1% with severe depression. The study confirmed the presence of irrational beliefs in the depressed persons.[16]

Furthermore, there were statistically significant differences present in the cognitive functioning of depressed and non-depressed. The non-depressed adults displayed better cognitive functioning (26.92 ± 2.55) than the depressed sample (12.44 ± 3.85). While exploring the previous research, the present study results showed the same findings and Perini *et al,* in 2019, in their review article, confirmed that the depressed population encountered problems related to cognitive abilities.[10] Cartreine in his blog written for Harvard Medical School, reported that cognitive issues were evident in the depressed population. The impairment was evident in the abilities of memory, attention, processing of information, decisional ability, cognitive flexibility and executive function.[17]

Finally, irrational beliefs significantly predict the cognitive functioning of adults [$R^2$=.729; F (1,198)= 532.763, $p$<.01]. There was 72.9% (R2) explained variation in the cognitive functioning due to irrational beliefs. Literature showed that if a cutoff value of R2 is below 50%, it is considered acceptable if measuring human behaviour which is difficult to forecast. Here, in the current study, the value was above 50% hence establishing the significance of the result.[18] Further, the previous study conducted by Gunduz in 2013 at Mersin University confirmed that irrational beliefs might also predict cognitive functioning with 12% explained variance, which is lesser than the 72.9% explained variance in the current study. Research has set that irrational beliefs predict cognitive flexibility.[19] Another study by Buschmann *et al,* conducted in 2018 identified the role of irrational beliefs in leading to problems in the automatic thoughts or cognition with a 56.3% explained variance in the individuals with depressive symptoms.[20] While the current study, the explained variation was greater.

There was difficulty approaching the depressed patients in hospitals and problems in taking consent and building rapport.

The significant stake holders should take notice of the high prevailing depression in adults. The problems directly intervene in the families of the depressed person, so there must be proper assessment and interventions to overcome the depression. There must be some proper instructions and policies to avoid the problem. For future consideration, the study can be replicated on adolescents and children. Further, qualitative

studies are also necessary to investigate the problem thoroughly.

## CONCLUSION

The study findings indicated a difference in the irrational beliefs and cognitive functioning of depressed and nondepressed adults. Further, the depressed had more irrational beliefs and worsened cognitive functioning. Finally, irrational beliefs predict cognitive functioning.

**Conflict of Interest:** None.

**Authors' Contribution**

IN: Conceived idea, designed methodology, statistical analysis, manuscript writing, editing, review and final approval of manuscript, LA:, AI: Literature search, statistical analysis, manuscript review, MA: Conceived idea, designed methadology, data collection.

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