

Neurological and Psychological Determinants of Depression, Anxiety, and Life Quality

Abstract

Background: This study aimed to determine the major neurological and psychological elements affecting depression, anxiety (DEPXITY), and the overall quality of life. **Methods:** This analytical descriptive study was carried out on 141 respondents with formal mood disorder diagnosis, with mental illness identity, with current depression and anxiety symptoms of at least moderate severity and people with mild symptoms. Data were analyzed using descriptive statistics, correlation test, reliability test, and separate regression models. Statistical significant level was set as 0.05.

Results: The findings showed that external control by others on one's own life (EC) is the most significant factor (0.45) related to depression and the social conflict (SC) was found to be the most influential factor (0.28) for the anxiety. Internal control over own personal life (IC) is the most significant factor to cure or regulate some of the negative symptoms of the anxiety (-0.66). Good performance in personal life (PP) is a common positive factor to regulate both depression (DEP) and anxiety (XITY). This study shows that DEPXYITY is associated with negative life quality.

Conclusions: The lack of internal control and the control by others on one's own personal life are associated with impaired cognitive, affective, and behavioral functioning. The results of this study can also be a good indicator and confirmation that the medial prefrontal cortex is able with the support of IC and PP to coordinate self-appraisal processes by regulating activity in the posterior cingulate cortex area of the brain.

Keywords: Anxiety, depression, medial prefrontal cords, neurological factors, psychological factors, social support

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Introduction

A considerable number of previous studies provide evidences on the strong relationship between depression and suicide.^[1]

Although there is a considerable number of studies which document the high prevalence of depression diagnoses in primary care clinics, the corresponding data for neurology outpatients are scarce. According to Beiskea *et al.*, the importance of both depression and anxiety (DEPXITY) is unquestionable as these symptoms are amongst the most disabling, influencing the general health and the quality of life of elderly, young, and middle-aged adults.^[2]

DEPXITY are both commonly experienced emotional states which have been extensively researched.^[3-9] DEPXYITY are frequently viewed as outcome measures that stress, perceptions of control, and social support are thought to influence.^[10]

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Depression is associated with abnormal function in the medial prefrontal cortex (MPC). This MPC is associated with self-consciousness and processes. The MPC is also able to coordinate self-appraisal processes by regulating activity in the posterior cingulate cortex area of the brain.^[11]

This study concludes that the MPC had a greater influence over the posterior cingulate cortex of the depressed patients. There are also evidences in pathophysiology sphere and clinical studies that the hippocampal (HC) volume [Figure 1a-b] of major depressive disorder (MDD) is smaller than those in the control groups.

The reduced HC volume is associated with depression disease. Studies using magnetic resonance imaging provide evidences that the HC volume is reduced in patients with MDD.^[12-13]

Kendler *et al.*^[13] argued that there is a significant relation between depression and coronary artery disease. Treatment of

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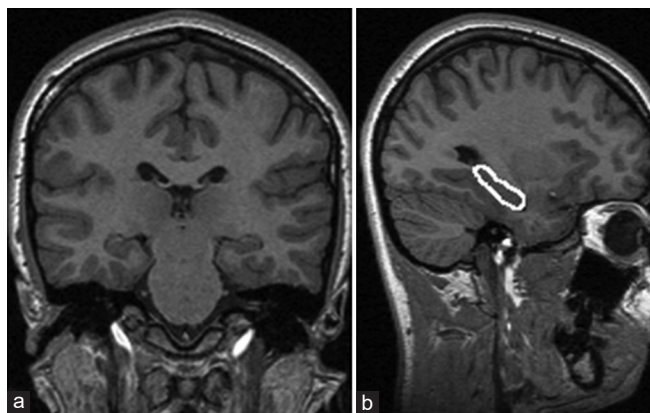


Figure 1: (a) Left hippocampus in controls and depressed groups and (b): right hippocampus in controls and depressed groups^[19]Sources: MacMaster & Kusumakar (2004)

many mental symptoms and hormone replacement therapy are recommended for preventing depression, anxiety, and even cardiovascular diseases to improve quality of life.^[14] Estrogen, for instance, might cure “menopausal depression” and it might offer an additional bonus of increased well-being and quality of life for nondepressed, healthy women.^[15] Other studies have found that many patients hold a biochemical causal model of depression and experience difficulties in exiting mental illness support groups.^[5,6,16] Zineldin found that divorce has been associated with psychological distress and an elevated lifetime risk of major depression as well as long-term mental health outcomes.^[17]

There are different antidepressant drugs, including the serotonin selective reuptake inhibitors and serotonin norepinephrine reuptake inhibitors that are widely accepted for treating the DEPXYTY because of their relative safety.^[18] Thus, it is important to find other effective ways to measure people’s sense of well-being and how various aspects of life quality correlate and interrelate. These components tie closely to what are believed to be fundamental components of all attitudes of a combining evaluations of relevant life domains—e.g., health, work, personal life, and personal performance.^[19]

Many studies found that psychosocial factors are main predictors of depression.^[20] These psychosocial factors include stressful life events, such as bereavements, and negative beliefs about the illness and diseases. Individuals with depression are part of a low self-esteem social category, which is often associated with specific normative thoughts (e.g., hopelessness, negativity) and behaviors (e.g., self-harm) that, if internalized by group members, are likely to worsen mental health.^[4] Such patients need a social support.

Social support refers to the extent to which significant others express positive regard, affection, and encouragement, and validate an individual’s feelings. There is positive correlation between social support and

well-being. Individuals experiencing a variety of life crises including bereavement, rape, job loss, and illness have all been found to cope better when they receive social support.^[21] Social support has also been related to decreased DEPXYTY and improved life quality. There are social support strategies and collective actions that are used to manage low self-confidence among people.^[22-23] There is a negative relationship between identification and self-esteem.^[24] Kirkegaard *et al.* found that DEPXYTY are also significantly related to dementia.^[25]

Personal control on one’s own personal life can be defined as the individual’s belief that she/he would behave in a manner that maximizes good outcomes and/or minimizes bad outcomes which impact the individual’s well-being in a variety of domains, hence the life quality.^[25] The extent to which individuals believe that there is external control by other people over their own personal life determine what happens in their lives reflects their sense of being controlled by others.^[26-27] Perceptions of internal control are associated with well-being.^[22,23] Prolonged experience with a lack of internal control has been associated with impaired cognitive, affective, and behavioral functioning.^[28]

Performance in personal life can be referred as the individuals’ perceptions of how successfully they are fulfilling role demands. Performance is usually conceptualized as an outcome measure. Stress, perceptions of control, and social support have all been hypothesized to affect performance in personal life.^[28-29]

Conceptual model and hypotheses

The essence of our proposed conceptual model is simple. To some extent, we have similar assumptions as the study of Abbey and Andrews.^[10] We assume that people’s interactions with their social world will affect a number of neurological, mental, and social psychological factors, which will in turn affect their own internal states of each of the depression and the anxiety as well as both as one disease with different symptoms (DEPXITY), which will in turn affect their sense of well-being, hence quality of life. Based on the introduction of this study, the key elements of the model are illustrated in Figure 2.

As shown, there are five social psychological concepts that will be linked analytically to two neurological and psychological concepts and overall life quality concept. These concepts are as follows:

Social psychological concepts

1. (SS) Social support
2. (SC) Social conflict
3. (IC) Control over one’s own life (internal control of own emotion)
4. (EC) Control others have over one’s life (one’s personal life)
5. (PP) Performance in personal life.

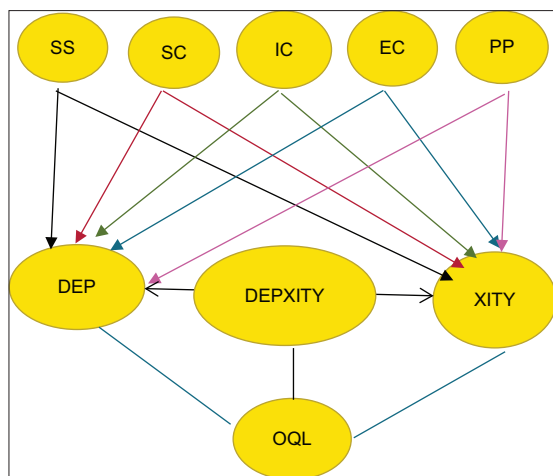


Figure 2: Schematic form of causal linkages among social psychological, psychological, and life quality concepts

Psychological concepts

1. Depression (DEP)
2. Anxiety (XITY)

Overall life quality concept

1. Overall quality of life

Hypotheses

- H1 Social support is negatively related to DEPXITY
- H2 Social conflict is positively related to DEPXITY
- H3 Internal control over own personal life is negatively related to DEPXITY
- H4 The control by others on one's personal life would relate positively to depression
- H5 The control by others on one's personal life would relate positively to anxiety
- H6 Individuals' performance on own personal life would relate negatively to depression
- H7 Individuals' performance on own personal life would relate negatively to anxiety
- H8 DEPXITY have negative effects on life overall quality.

Methods

Study design and participants

The research population of this study includes 3200 outpatients who were widely recruited from psychology clinics, health centers, colleagues at medical and health science departments, research networks, psychiatry department at different hospitals, and online anxiety depression forums. The respondents were encouraged to login on a survey web portal with the specific password to submit online reply or to return the answered survey to the researchers' e-mail. The study was presented to respondents as a study of the effects of DEPXITY on health, work, and everyday life. Through the use of a structured questionnaire, respondents were asked questions

regarding all the concepts described in this article as well as questions about their health, their work life, and their medication for antianxiety and depression medications in the same family.

People were invited to participate if they fulfill the following criteria: "experiencing persistent and intense feelings of anxiety and/or sadness, people who feel depressed, and people who have been formally diagnosed with anxiety and/or depression by a health practitioner. The final sample included 141 persons, 43% of which reported that they had received a formal mood disorder diagnosis from a health professional, 7% people with mental illness identity, 29% participants reported current DEPXITY symptoms of at least moderate severity, and 21% of the participants were with mild symptoms. Participants were 57% female and recruited from across the world. A Likert's five points scale (1 = strongly disagree to 5 = strongly agree) was used. The received data were analyzed using regression analysis via the Statistical Package for Social Sciences program version 25.0.

Reliability and validity

The reliability and validity of the questionnaire has been validated by many previous studies and the reliability of the questionnaire has also been obtained equal to 0.84 with the use of Cronbach's alpha test, which indicates a proper reliability for the questionnaire. The values for all items range from 0.78 to 0.85.

The results of computation show that depression (DEP) and internal control on own emotions obtained the highest value (0.85) following by performance in personal life (PP) and overall quality of life (OQL) with (0.84). Diagnoses obtained the lowest value (0.78).

Correlation analysis

The table of zero-order correlation shows that the majority of the correlations between the dependent and independent concepts are statistically significant. The DEP variable is positively related to XITY ($r = 0.435$, $P < 0.01$) and negatively related to OQL ($r = -0.340$, $P < 0.01$). The ANX variable is positively related to SC, EC and OQL. DEPXITY are negatively related to OQL ($r = -0.340$ and -0.421).

Results

Regression findings

Separate regression models were conducted to assess the research hypotheses. The model as illustrated in Table 1 shows that the dependent variable DEP shows positively association with external control by others over one's own personal life (EC) and negatively association with performance in personal life. The model only involves statistically significant variables.

External control by others over one's own personal life (EC) makes the strongest unique contribution (0.45) followed

by the weak contribution of PP (-0.17) to explaining the dependent variable depression (DEP). Hypotheses 1-7 were partially verified and accepted. Result infers that $R^2 = 45\%$ of the variation in EC is explained participants DEP. The result is also consistent with the investigation conducted by Abbey and Andrews.^[10]

Table 2 shows the result of the regression with the anxiety (XITY) as dependent variables. The result reveals that social conflict (SC) is significantly positive contribution to anxiety. The model shows that TC generates the most significant outcome in relation to the XITY ($\beta = -0.66$ and $P < 0.0$) followed by SC ($\beta = 0.28$ and $P < 0.0$), and the weak PP ($\beta = 0.12$ and $P < 0.0$).

Table 3 shows the result of the regression model with overall quality of life (OQL) as dependent variable and DEPXITY as independent variable.

The study shows that there is a negative and significant association between these factors, i.e., DEP, XITY, and OQL. XITY makes the strongest unique contribution (-0.34) followed by DEP (-0.19). Hypotheses 8 is verified and accepted.

Discussion

External control by others on one's own life (EC) is the most significant factor (0.45) related to depression and social conflict (SC) was found to be the most influential (0.28) for the anxiety. On the other hand, internal control over own personal life (IC) is the most significant factor to cure or regulate some of the negative symptoms and diseases of the anxiety (-0.66). Good performance in personal life (PP) is a common positive factor to regulate both depression (DEP) and anxiety (XITY) and they

could be used as antidepressants and antianxiety agents. This study as well as other research studies has found a clear and consistent correlation between the perception of internal control and well-being.^[28,29] Our study as well as previous studies shows that DEPXITY is associated with negative life quality. The lack of internal control and the control by others on one's own personal life have also been associated with impaired cognitive, affective, and behavioral functioning. Thus, the perceptions of internal control and good personal performance in life would relate positively to life quality, whereas perceptions of control by others found to be related negatively to life quality. The results of this study can also be a good indicator and confirmation that the MPC is able with the support of IC and PP to coordinate self-appraisal processes by regulating activity in the posterior cingulate cortex area of the brain as identified by Davey *et al.*^[11]

This study also confirmed that mental diseases related to depression are positive and statistically significant for EC with ($r = 0.581$, $P < 0.00$) and for SC with ($r = 0.385$, $P < 0.00$). There is also significant positive correlation between the anxiety and SC ($r = 0.687$, $P < 0.00$), EC ($r = 0.448$, $P < 0.00$), and DEP ($r = 0.435$, $P < 0.00$).

Conclusions

As the reduced HC volume is associated with depression disease according to Sheline,^[12] this study suggest that the HC volume is less in patients with MDD and anxiety. The study suggests also that, in confirmation with Hunter *et al.*,^[14] there is a significant relation between patient with depression and their probability to be subject to coronary artery disease.

However, feeling of the patients that they have good and strong ability to control over their own life (IC) is found to be the strongest significant negative contributor to the anxiety ($r = -0.788$, $P < 0.00$) followed by the effective and positive performance in own personal life (PP) ($r = -0.483$, $P < 0.00$) and PP (-0.396 , $P < 0.00$) followed by the weakest correlation, i.e., the social support (SS) (-0.212 , $P < 0.01$), are also found to be most significant negative contributor to the depression.^[30]

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Conflicts of interest

There are no conflicts of interest.

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	β	R^2	P
(Constant)		43	00
EC	45		00
PP	-17		03

	β	R^2	P
1			
(Constant)		69	00
SC	28		00
IC	-66		00
PP	-12		04

	β	R^2	P
1			
(Constant)		21	00
DEP	-19		02
XITY	-34		0.00

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