

Efficacy of Online Four-step Model Group OnDepression, Anxiety and Quality of LifeinFemale Medical Students in Minia Egypt.



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Abstract— Background: Medical students are at high risk to depression and/or anxiety. Group psychotherapy using the Four-step Model is one of the treatments in Minia Egypt. Online group therapy, a relatively new modality is to be investigated for helping medical students suffering from depression and anxiety. **The aim:** To assess the efficacy of online group psychotherapy in Minia University in Egypt for depression, anxiety and quality of life in female medical students. **Subjects and Method:** The studied online psychotherapy group was arranged for adult female medical students(in different medical faculties).14 subjects were diagnosed as depression or anxiety or both according to DSM-5. The 1st group session was on October 2020 on ZOOM Cloud Meetings application for one year. Participants were assessed pre group, after 6 month and post group by Hamilton Depression Scale(HAM-D), Hamilton Anxiety Scale (HAM-A)and36-item Short Form questionnaire for quality of life(SF-36). **Results:**14 participants were included in the study. There were statistically significant results regarding effect of the used model on improving depressive and\or anxiety symptoms added to its significant effect on improving the quality of life. Also, there is positive correlation between changes in HAM-D & HAM-A with negative correlation between changes in HAM-D & HAM-A and SF-36 score. **Conclusion:** Online Four-Step Model group psychotherapy is effective for depression and anxiety in female medical students and improved their quality of life.

Keywords: Online group psychotherapy, medical students, depression, anxiety

Introduction:

Depression and anxiety has a high prevalence worldwide in both developed and developing countries with their profound effects on the quality of life of the patients(Lépine & Briley, 2011;Bandelow& Michaelis, 2015). InEgypt, the prevalence of mood disorders was estimated to be (6.43%) and for anxiety disorders (4.75%). (Ghanem et al, 2009)

University students were at high risk to develop depression and/or anxiety. According to recent review and meta-analysis the prevalence of anxiety, depression, and stress was 29%, 37% and 23% respectively (Chunyi, 2021). Arnett (2000) referred to university stage as "emerging adulthood", individuals in this age may take on many roles (e.g., university education, obtain fulltime employment) and work toward individuating from their original family.

This is clear for medical students who are always added to the above stressors, their own stressor about the nature of education and work after that. High rates of psychological problems in medical students are related to academic, social and financial demands that

college environments place on them at a time when they are also involved in issues related to lifestyle and careers (Jadoon, 2010, AlFaris, 2016; and Wahed and Hassan 2017)

Treatment of medical students using group psychotherapy was one of the main treatments, in Minia Egypt. The group was conducted using the Four-step Model, which was described as integrative as it takes its roots from various schools in psychiatry and psychotherapy such as (psychoanalysis, humanistic, existential, transactional analysis, gestalt therapy, re-decision therapy ect.....). (Mahfouz & Taha, 2011; Saleh, 2018)

In 2020, COVID 19 closed the entire world which put tele-psychiatry as the best choice during this period. The European Association for Psychotherapy (EAP) concluded that online psychotherapy has proved to be effective as face-to-face therapy with the advantage that it has made Psychotherapy much more accessible and available. (EAP, 2020)

Online group therapy was a relatively new modality for leading groups where there is not enough information about its effectiveness and no clear guidelines about how to do it well. With the outbreak of the COVID-19 pandemic it became even more crucial to provide clinicians with appropriate research review and guidelines about online group therapy. (Weinberg, 2020)

The aim of the present research is to assess the efficacy of the 1st online group psychotherapy in Minia University Hospital in Egypt for depression, anxiety and quality of life in female medical students.

Subjects and methods:

It is a prospective interventional study aiming to assess the effect of online experience of group psychotherapy using the Four-step Integrative Model on depressive and anxiety symptoms and quality of life among female medical students at Minia University. The studied online psychotherapy group was arranged for adult female medical students. The group was led by the senior professor of psychiatry, in the Neurology and Psychiatry Department of Minia University Hospital. The 1st group session started on October 2020 on ZOOM Cloud Meetings application. The sessions were held regularly every two weeks for 3 hours and continued for one year.

The clients included: female students in different medical faculties (Faculty of Medicine, Faculty of Pharmacy, Faculty of Dentistry, Faculty of Physical Therapy), aged between 18 and 25 years, were diagnosed as depression or anxiety according to DSM-5 (APA, 2013) and had no history of major physical illness. We excluded patients with history of major physical illness (such as diabetes mellitus, heart failure.. etc,) and with history of manic or psychotic symptoms

Regarding ethical consideration; the protocol of the thesis got the approval of the ethical committee at Minia University. All clients have given their consent as regard participation in the study and video recording of the group sessions after adequate information and

explanation. Each patient was given a code number in the computer sheet. So that the researcher only could have access to their names and data to protect their privacy.

Full psychiatric history and mental state examination were done for the included clients.

The subjects were assessed using:

The Hamilton Depression Rating Scale (HDRS) which is the most widely used depression severity rating scale. The scale has two common versions with either 17 or 21 items and is scored between 0 and 4 points (Sharp, 2015). A validated Arabic version of 17 item-HDRS is used in this study (Fateem, 1998a). The first 17 items measure the severity of depressive symptoms and on which scoring is based. Scores of 0–7 are considered as being normal, 8–16 suggest mild depression, 17–23 moderate depression and scores over 24 are indicative of severe depression. The maximum score being 52 (Sharp, 2015).

The Hamilton Anxiety Rating Scale (HAM-A) is one of the most widely used rating scales for anxiety symptoms. It consists of 14 symptom-defined elements, for both psychological and somatic symptoms. Each item is scored on a basic numeric scoring of 0 (not present) to 4 (severe) (Thompson, 2015). The optimal cutoff of HAM-A score ranges are: mild anxiety = 8-14; moderate = 15-23; severe ≥ 24 ; scores ≤ 7 were considered to represent no/minimal anxiety (Matza et al., 2010). A validated Arabic version of HAM-A was used in the study (Fateem, 1998b)

The 36-Item Short Form Health Survey questionnaire (SF-36) is a very popular instrument for evaluating Health-Related Quality of Life (Lins & Carvalho, 2016). The questionnaire was constructed for self-administration by persons 14 years of age and older (Ware & Sherbourne, 1992). There are two dimensions measured by the SF-36: a physical dimension, represented by the Physical Component Summary (PCS), and a mental dimension, represented by the Mental Component Summary (MCS). All scales do contribute in different proportions to the scoring of both PCS and MCS measures. (Lins & Carvalho, 2016)

Each client has been interviewed separately to apply the three used questionnaires. It was done at three times before, at the middle and at the end of the group.

Statistical analysis; the data were coded and verified prior to data entry. Data were analyzed by the Statistical Package of Social Sciences (SPSS) Version 25.0 (Statistical Package for the Social Sciences, IBM Inc., Chicago, Illinois, USA). Qualitative data were expressed as proportions, while quantitative data were expressed as mean + standard deviation (SD). Unpaired Student's t-test was used to compare data between 2 groups. ANOVA was used to compare data between groups. Pearson correlation was used to measure the relationships between various numerical variables. Statistical significance was defined as p values less than 0.05.

Results:

29 participants were chosen to join our group among whom 14 participants were chosen to be included in the sample of the study (13 participants were excluded due to their absence for

more than 50% of group sessions and one participant was excluded because she had manic episode during the course of the group). The socio-demographic criteria of the sample was as shown in table (1) The mean age of the sample was 22.43 ± 1.016 years, ranging from 21 to 24 years. Rural residents (57.1%) were more common than urban (42.9 %). The most common faculty was pharmacy (57.1 %) followed by medicine (28.6%)(Table1).

The majority of members (64.30%) were diagnosed as major depression while (28.60%) of them were diagnosed as comorbid depression and anxiety with only one member (7.1%) had anxiety disorder. Among all participants, only (28.60%) were diagnosed as having premorbid personality disorder and half of them (50%) have received pharmacotherapy along with group psychotherapy(Table1).

Table (1) : Socio-demographic characteristics of the sample, Diagnoses, Personality and Use of Medications

Age (years)	Mean \pm SD	22.43 \pm 1.016
	Range	21 – 24
Residence	Urban	6 (42.90%)
	Rural	8 (57.10)
Faculty	Pharmacy	8 (57.1 %)
	Medicine	4 (28.6 %)
	Dentistry	1 (7.1 %)
	Physical therapy	1 (7.1 %)
Diagnosis according to DSM 5	Depressive disorder	9 (64.30%)
	Anxiety disorder	1 (7.10%)
	Comorbid	4 (28.60%)
Personality Disorder according to DSM 5	Have	4 (28.60%)
	Don not have	10 (71.40%)
Pharmacotherapy	Received	7 (50 %)
	Not	7 (50 %)
Number of sessions	Range	14 – 23
	Mean \pm SD	17.86 \pm 3.035

Table (2) shows the changes in depressive symptoms using 1s (HAM-D). There is statistically significant difference between pre-HAM-D and mid-HAM-D ($p=0.001$) and between mid-HAM-D and post-HAM-D ($p=0.004$). The difference between pre-HAM-D and post-HAM-D is highly statistically significant ($p<0.001$).

Table (2) Changes in depressive symptoms (HAM –D) in pre-, mid- and post-group assessments and comparisons between them.

HAM-D Test		
Pre-group (Mean \pm SD)	Mid-group (Mean \pm SD)	P value
26.07 \pm 8.306	19.29 \pm 8.965	0.001*
Mid-group (Mean \pm SD)	Post-group (Mean \pm SD)	

19.29 ± 8.965	11.79 ± 7.245	0.004*
Pre-group (Mean ± SD)	Post-group (Mean ± SD)	
26.07 ± 8.306	11.79 ± 7.245	<0.001*

Table (3) shows the changes in anxiety symptoms (HAM –A) There is statistically significant difference between pre-HAM-A and mid-HAM-A ($p=0.005$) and between mid-HAM-A and post-HAM-A ($p=0.024$). The difference between pre-HAM-A and post-HAM-A is highly statistically significant($p<0.001$).

Table (3) Changes in anxiety symptoms (HAM –A) in pre-, mid- and post-group assessments and comparisons between them.

HAM-A Test		
Pre-group (Mean ± SD)	Mid-group (Mean ± SD)	P value
24.36 ± 7.929	17.57 ± 9.002	0.005*
Mid-group (Mean ± SD)	Post-group (Mean ± SD)	
17.57 ± 9.002	12.57 ± 8.916	0.024*
Pre-group (Mean ± SD)	Post-group (Mean ± SD)	
24.36 ± 7.929	12.57 ± 8.916	<0.001*

Table (4) shows an increase in the score of SF-36 test through the course of the group which was statistically significant in all comparisons (pre-group vs. mid-group, mid-group vs. post-group & pre-group vs. post-group) ($P=0.014$, 0.001 and 0.035 respectively).

Table (4) Changes in quality of life using SF-36 test in pre-, mid- and post-group assessments and comparisons between them.

SF-36 Test		
Pre-group (Mean ± SD)	Mid-group (Mean ± SD)	P value
52.24 ± 9.553	60.7 ± 14.779	0.014*
Mid-group (Mean ± SD)	Post-group (Mean ± SD)	
60.7 ± 14.779	68.5 ± 14.291	0.001*
Pre-group (Mean ± SD)	Post-group (Mean ± SD)	
52.24 ± 9.553	68.5 ± 14.291	0.035*

Table (5) shows that there is a statistically significant positive correlation between improvement in depression and improvement in anxiety ($r=0.764$, $p=0.001$). Moreover, there is statistically significant negative correlation between scores of HAM-D in depression and SF=36 of quality of life ($r=-0.795$, $p=0.001$). This means with decrease in HAM-D score (the improvement in depression) there is increase of SF=36 score which signifies improvement in quality of life. Also, there is significant negative correlation between scores of HAM-A and SF=36 test ($r= -0.599$, $p=0.03$). This indicates that improvement in anxiety with decrease of HAM-A score is associated with improvement in quality of life with increase in SF-36 score.

Table (5) Correlation between improvement of depression and anxiety symptoms and quality of life measured by HAM-D, HAM-A and SF-36.

	r	P
HAM-D improvement vs. HAM-A improvement	0.764	0.001*
HAM-D improvement vs. SF-36 improvement	-0.795	0.001*
HAM-A improvement vs. SF-36 improvement	-0.599	0.03*

Table (6) shows comparison between changes in various tools with the presence or absence of personality disorder, medications or diagnosis. Members with premorbid personality disorders reported statistically significant improvement in depressive symptoms measured by HAM-D than those without premorbid disorder (p=0.014). In addition members receiving medications have reported statistically significant improvement in depressive symptoms measured by HAM-D than those not receiving medications (p=0.021). Otherwise, no other significant results were detected.

Table (6): Comparison between HAM-D, HAM-A & SF-36 improvement in relation to personality, medication use, and diagnosis

HAM-D		
	Mean ± SD	P value
Personality disorder		
With	17.5 ± 15.885	0.014*
Without	13 ± 7.888	
Medication use		
Receiving	15.43 ± 13.551	0.021*
Not receiving	13.14 ± 6.517	
Diagnosis		
Depression	16.54 ± 9.54	0.525
Anxiety	6	
Comorbid	11.25 ± 12.84	
HAM-A		
	Mean ± SD	P value
Personality disorder		
With	14.5 ± 13.23	0.242
Without	10.7 ± 8	
Medication use		
Receiving	12.286 ± 11.91	0.068
Not receiving	11.286 ± 6.921	
Diagnosis		
Depression	12.22 ± 8.105	0.925
Anxiety	8	
Comorbid	11.75 ± 14.151	
SF-36		
	Mean ± SD	P value

Personality disorder		
With	18.4 ± 19.817	0.127
Without	16.5 ± 11.94	
Medication use		
Receiving	19.186 ± 15.026	0.632
Not receiving	14.9 ± 13.25	
Diagnosis		
Depression	17.844 ± 14.26	0.728
Anxiety	5.7	
Comorbid	18.08 ± 15.348	

Discussion:

The present study is a prospective interventional study aiming to assess the effect of online group psychotherapy using the Four Step Integrative Model on depressive and anxiety symptoms and quality of life among female medical students at Minia University.

Choosing medical students –among all university students- was based on the reports of many studies from different countries that prevalence of psychiatric illnesses (especially depression and anxiety) among medical students is high in comparison to general population (Rotenstein, et al. 2016 and Wörfel, et al. 2016). Furthermore, choosing females is also due to both disorders are more prevalent in females, usually begin early in adolescence and young adulthood (Luppa et al, 2012),

In our study, there is a statistically significant improvement in depressive and anxiety symptoms as declared by comparison of HAM-D measures and HAM-A measures in three occasions (pre-group or mid-group or post-group) as showed in table (2, 3).

This is partially congruent with the results of Mejías's et al.(2018)who reported that there was a statistically significant change in depressive and anxiety symptoms in college students after group psychotherapy when comparing pre-group results with either mid-group or post group results but there wasn't statistical significance when comparing mid-group with post-group despite he reported that changes in self-esteem and other aspects of patient's well-being, are enhanced to a higher level until 12 months. These differences from our results give some strength to our newly used model. The Four Step Integrative Model is described as integrative as it takes its roots from various schools in psychiatry and psychotherapy such as (psychoanalysis, humanistic, existential, transactional analysis, gestalt therapy, re-decision therapy ect.....). (Mahfouz & Taha, 2011; Saleh, 2018). This model provides an example of how group psychotherapy can be tailored to a certain society/culture (Mahfouz et al, 2015) to provide continuous and longstanding changes in clients. Further, these differences can be explained by using different tools from ours as he used The Patient Health Questionnaire (PHQ9) and State –Trait Anxiety Inventory (STAI) with different sensitivity(Ma et al. 2021; Bech, 2011)..

There is strong positive correlation between improvement in depressive symptoms measured by HAM-D and improvement in anxiety symptoms measured by HAM-A ($r=0.764$, $P=0.001$). That correlation could be explained by strong relation between depression and anxiety that includes shared etiologies, symptoms and lines of treatment (Axelson and Birmaher, 2001; Shankman and Klein, 2003).

SF-36 scale was used as predictor of quality of life for participants before, after 6 months and at the end of the group. Results revealed statistically significant improvement SF-36 values in pre group setting and mid group setting ($p = 0.014$), mid-group and post group values ($p=0.035$) and in pre group and post group setting ($P= 0.001$). There is strong negative correlation between improvement in quality of life and decline of depressive ($r= -0.795$, $P = 0.001$) and anxiety symptoms ($r= -0.599$, $P = 0.003$). Improvement of quality of life could be explained by improvement in depressive and anxiety symptomatology. Many studies from different countries and variable settings have proved the direct relation and impact of depression and anxiety on quality of life (Brown et al, 2010 ; Gan and Yuen Ling, 2019; Bermudezet al. 2020).

Our results shows that group members with premorbid personality disorders have reported statistically significant more improvement in depressive symptoms than those without premorbid personality. This difference was ($P = 0.014$). On the other hand, there is non significant difference between members with premorbid personality disorder and those without premorbid personality disorder in relation to improvement in anxiety and quality of life ($p = 0.242$ and 0.127) respectively. This is in line with a recent study also found that teenagers with comorbid major depressive disorder and cluster B personality disorder respond to group therapy more that those without such premorbid pathology (Korsgaard, 2022). That improvement in depressive symptoms can be related to change in the personality mood symptoms and not related to the persistent depressive disorder. Konvalin etal, (2021) reported that improvement in borderline trait symptoms is strongly correlated with improvement in depressive symptoms in patients with persistent depressive disorder who underwent short term group therapy.

In the present study, group members who received additional pharmacotherapy have reported statistically significant ($P= 0.021$) improvement in depressive symptoms than those without additional medications. Also, they have reported improvement in anxiety symptoms but improvement did not reach statistical significance ($p= 0.068$). The improvement in depressive symptoms could be more foreseeable as the additional pharmacological treatment for all members was in the form of antidepressants with or without other psychopharmacological classes. Similar studies have reported non statistically significant difference between both groups in relation to improvement in both depression and anxiety (Mejías et al, 2018 & 2020).

Conclusion:

Online Four-Step Model for is effective in treatment of depression and anxiety in female medical students and improve their quality of life.

Limitations of the study:

Small number of clients and its application for female students are the main limitation. Long duration of group psychotherapy for one year can be a limitation as shorter duration can reduce costs and facilitate application.

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Conflicts of interest

There are no conflicts of interest.

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