

## Prevalence of Depression among Elderly and Evaluation of Interventional Counseling Session in Zagazig District -Egypt

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**Abstract:** Depression is one of the most prevalent disabling and costly health problem among elderly. This work aimed to study the problem of depression among the elderly through determining the magnitude of depression among them, classifying the diseased according to the severity of depression, exploring some personal risk factors related to depression and evaluation an applied interventional counseling session for the diseased. This study is composed of two stages; the first one was a cross sectional design in which multistage random sample was applied to Zagazig District where 290 subjects were included in this study. The applied questionnaire included questions about sociodemographic status, some associated risk factors for developing depression and also Geriatric Depression Scale was applied to detect depressed patients and classify them according to the severity of the disease. The second stage was an interventional one applied to depressed elderly who were subjected to a counseling session educating them about the importance of counselling, follow up and recalling knowledge about treatment. Obtaining results revealed that the percentage of depression was 46.6 % and those with mild or moderate condition constitute 75.6%. Depression significantly increased with age, female (OR 2.56), not married (OR 4.47) and those having previous death event among the surrounding (OR 7.68). The severity increases among age group over 75 years and more (OR 4.52) and those of low socioeconomic condition (OR 8.8). The applied counseling session had a significant impact on recalling knowledge about the prescribed drugs (60.7%), how to manage the missed doses (71.4%), using drug correctly (75.0%) and recalling medication name (75.0 %) ( $p < 0.05$ ). In conclusion depression is an undiagnosed public health problem. It significantly increases with age, female sex, not married subjects, and those having history of death event in their relatives. Moreover the severity of depression increases with age and low socioeconomic condition. The applied intervention counseling session had a good effect on improving drug knowledge and probably the attitudes of the depressed patients. So increasing the role of geriatric medicine in primary health care system and introduction of counseling session at outpatient clinics to increase compliance to treatment are good recommendations from that work.

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**Key words:** depression, risk factors, geriatric medicine, counseling.

### 1. Introduction:

Depression is the most common mood disorder in later life. It may be associated with serious consequences, including; disability, functional decline, diminished quality of life, increased mortality and increased service utilization. Moreover it is undiagnosed in about 50% of cases (Charney et al ,2003) .World health organization (WHO) considered that the age of 65 is the beginning of aging, but in Egypt, the age of 60 is still considered the beginning of aging according to the retirement age for most of people (Sheriff ,2000).

World Health Organization is predicting that by the year 2020, depression will become the second leading cause of disability, so it is considered as a major public health problem (Finley et al, 2002&Ustun et al, 2004)

It is estimated that the prevalence of psychiatric disorders including depression in community-residing older adults is 25% or more

(Jeste et al, 1999). Rates of psychiatric disorders are much higher among elderly patients seen in primary care or hospitalized for medical conditions it is estimated to be 30%-50 % (Borson and Unutzer, 2000)

Specific sociodemographic characteristics are differentially associated with the prevalence and risk of depression onset in the community. Among the most striking is female gender and this can be explained by the presence of biological and psychosocial factors related to female gender (Kessler et al, 2003)

A number of measures and scales have been constructed and used to assess and diagnose depression in a wide variety of populations. The most widely used self-one is the Geriatric Depression Scale (GDS); it was developed to assess the cognitive, emotional and behavioral symptoms of depression among the elderly population (Montorio and Izal ,1996). But it has limited value in the

assessment of depression in Alzheimer's patients (Rubin et al, 2001).

Although antidepressants are effective in patients with depression, effectiveness is reduced by non-compliance (Nabeel et al, 2008). Compliance to antidepressant therapy is essential for positive patient outcomes. Some studies had shown that up to 70% of patients diagnosed with depression take their medication inappropriately (Boudreau et al, 2002). While therapy duration for treating depressive disorders should continue for periods of at least 9 months or even years (American psychiatric association, 2002). Various studies had shown that 30–68% of patients discontinue therapy only after 1 month of treatment (Wooley and Simon, 2000). In addition to medications a variety of interventions comprising of patient education, such as physician counseling, had been reported to improve compliance with antidepressants (Hoffman et al, 2002).

Depression nowadays is a major health problem particularly among elderly and engaging them in the medical process by providing them counseling sessions which has a significant positive effect on their compliance to medications, so the current study was aimed to study that problem through the following objectives: to determine the magnitude of depression among elderly and to classify the diseased among them according to the severity of depression by using the Geriatric Depression Scale, to explore some personal risk factors related to depression and to apply intervention counseling session and evaluate it.

## 2. Subjects And Methods

This study was carried out through two phases:

### Phase I:

#### 1-Technical Design:

##### - Study design and sampling technique:

A cross-sectional study that was carried out on a suitable sample of elderly people who were above 60 years of age, the sample was collected using multistage random sampling technique. Zagazig District was divided by Moes Sea (one of the derivatives of Nile River) into two sectors; west and east. The west sector was chosen randomly (1st stage) then the west was divided into urban and rural areas. Two urban regions and two villages were selected randomly (2nd stage). Each selected village and urban region were divided into four sectors and one sector was selected randomly from each one (3rd stage)

Then each house in the selected areas was given a code and recorded. The sample included all

houses within each of the two selected areas (rural and urban)

##### - Sample size:

The sample size was calculated by assuming that the estimated prevalence of depression in elderly is 20% (Yount and Sibi, 2009), confidence level was 95% and the total number of elderly in Zagazig District according to Central and General Package Statistics System in 2006 was 60035 central and general package statistics system 2006, the calculated sample size was 245 subjects, accounting for non-response rate 20% the study sample size will be 290 subject

##### Time of the first phase:

This phase was carried out during the period from January 2009 to March 2009.

##### -Tools used:

##### Data collection tools:

Data for this study were collected by a pre-constructed and pre-tested questionnaire that was designed to include the following:

- 1- Socio-demographic data: age, sex, marital status, education level, occupation, income, and with whom he/she lives.
- 2- Some Risk factors for depression: losing a close person, leaving family home, living alone.
- 3- Geriatric Depression Scale (GDS): This scale was developed as a basic screening measure for depression in older adults. It is composed of 30 questions. Each question may be answered yes or no. One point is assigned to each answer and corresponds to a scoring grid. Total Score: 0-9 = normal; 10-19 = mild depression; 20-30 = severe depression (Sheikh et al, 1991). This scale was translated into Arabic and tested for its validity.

## 2- Operational design

It included two stages, namely pilot study, and field work stage.

##### -Pilot study:

A pilot study was conducted to assess the feasibility of the translated GDS and the time needed to fill out the questionnaire. It was conducted on 30 elderly subjects. They were excluded from the main study sample. Data obtained from the pilot study were analyzed, and accordingly necessary modifications in the questionnaire were done.

##### - Work Field:

All study members were interviewed by the researcher in front of their houses. A verbal consent was obtained from the study subjects after explaining the purpose of the study and reassuring them about the strict confidentiality of any obtained information and that the study results would be used only for the purpose of research, then the designed questionnaire sheet was filled by the study subjects and by the researcher for illiterate subjects

## Phase II:

### Design, sample size, study population and time:

An intervention (non randomized controlled trial) was conducted and applied on depressed elderly who were diagnosed according to the used Geriatric Depression Scale. Sample size was calculated in this stage by assuming that the response to counseling session about is 30%, the calculated sample to this stage was 28 subjects who will take counseling session and 28 subjects as a comparative control group. The researcher contacted subjects either by phone or personally and asked them to participate in the second part of the study. Those who agreed to participate were divided randomly into 2 equal groups (control and intervention) and they all take an appointment at Zagazig University Hospital Psychiatry Outpatient Clinic after being promised to take medications free from charge from researchers. All the contacted and diagnosed patients were asked if they previously asked for medical care or not and their points of views for the need for additional information about their medications was also collected based on agree and disagree scoring. This phase of the study was carried out during the period from April 2009 to July 2009.

## Work Field

### 1- The first visit

The intervention group subjects were given antidepressant drugs from the specialist physician and subjected to a counseling session that took between 20 and 25 minutes in length. The counseling sessions was intended to help patients to understand the nature of depressive illness and to reinforce that taking medications in the way as prescribed. Advice was also provided on the side effects of medications. Emphasis was also placed on the need to continue taking medication unless otherwise advised by doctor. Advice was taken to patient so as not to take personal decision to modify their therapy, insist to know the medicine name, reason for medication, using medication correctly, dosage and how to manage missed doses. The control group subjects were given antidepressant drugs only. Both groups were asked to come to Psychiatry Outpatient Clinic

outpatient clinic again in a second visit 6-8 week after the first visit.

### 2- Second visit:

Patients of both groups interview was done to investigate the effect of counseling session by asking each patient to recall specific knowledge regarding the prescribed medicine: medication name, reason for its prescription, dosage, how to manage missed doses

### Data management:

Data were computed and analyzed using the statistical package for social science (SPSS) for windows version 10.

## 3. Results

More than one half of our sample was females (51.4 %) and the majorities were between 60-70 years. Most of them were married 69.0 % and the majority of middle or high level of education (33.1 %, 36.9%). About 90.0 % of them were not working and living with someone in their house and more than one half of our sample were of moderate socioeconomic level (52.1%). Moreover 76.2% of them had history of deaths among their surroundings. (Table 1)

According to Geriatric Depression Scale, this study showed that 46.6 % of the study sample had depression and 75.6% of them had mild to moderate degree of depression (Figure 1&2)

Depression was found to be significantly higher among those above 70 and 75 age groups (OR 2.67, 5.08 respectively), females (OR 2.56), non married (OR 4.47) and those who have deaths among the surroundings (OR 7.68) (Table 2)

Severe depression was significantly about four times more among age group above 70 and 75 years (OR 4.50, 4.52) and those of low socioeconomic level (OR 8,8) (Table 3)

Logistic regression analysis of significant risk factors indicated that depression was more predicted among those above 70 years, not married and female. (Table 4)

Most of our sample 83.0 % preferred to get explanation about the prescribed drug. More than half of them (57.0%) had previously asked for medical care but the majority of them did not get any information about the prescribed drug (48.1%). Information was obtained mostly from medication label (25.9 %) and from physicians (20.8 %). (Table 5&6).

After applying intervention in the form of counseling session, 60.7 % of intervention group recalled their specific knowledge about the prescribed

drug and also 57.1 % of them recalled the reason for prescribed drug, moreover 78.6 % of intervention group recalled doses compared to 67.8% of the control group (Table 7).

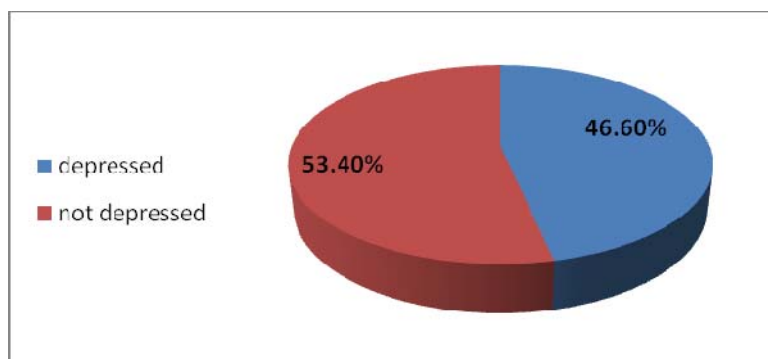
There is a great significant difference between both groups regarding getting knowledge

about the prescribed drug, managing the missed doses, also the percentage of those using medication correctly and recalled the medication name was higher among the intervention group compared to control group (  $p < 0.005$ ).

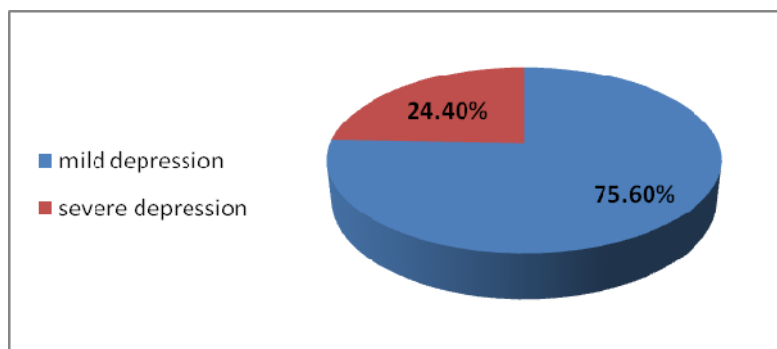
**Table (1): Frequency Distribution of the Studied Group according to Sociodemographic Characteristics.**

Variables	Frequency	%
Age		
60-	97	33.5
65-	104	35.9
70-	41	14.1
≥75	48	16.5
Sex:		
Female	149	51.4
Male	141	48.6
Marital status		
Not married	90	31.0
Married	200	69.0
Education		
Illiterate	24	8.3
Read& write	63	21.7
Middle education	96	33.1
High education	107	36.9
Living Condition		
Alone	39	13.4
With someone	251	86.6
Working status		
Not working	260	89.7
Working	30	10.3
Socioeconomic status		
Low	18	6.2
Moderate	151	52.1
High	121	41.7
Relative deaths	221	76.2
Total	290	100.00

**Figure (1) shows the prevalence of depression among the studied group**



**Figure (2) shows classification of depression among the studied group**

**Table (2): Association between some characteristics of the study sample and occurrence of depression.**

Variable	Not depressed (155)		Depressed (135)		OR 95%CI
	Freq.	%	Freq.	%	
Age					
No					1
60- (97)	61	62.9	36	37.1	0.98(0.4-1.5)
65- (104)	66	63.5	38	36.5	2.65(1.14-6.02)
70- (41)	16	39.0	25	61.0	5.08(2.21-11.89)
≥75 (48)	12	25.0	36	75.0	
Sex					
Female (149)	63	42.3	86	57.7	2.56 (1.55-4.24)
Male (141)	92	65.2	49	34.8	
Marital status					
Not married (90)	26	28.9	64	71.1	4.47 (2.52-7.97)
Married (200)	129	64.5	71	35.5	
Education					
Illiterate (24)	17	70.8	7	29.2	1.0
Read & Write(63)	32	51.0	31	49.0	1.79(0.60-5.47)
Middle edu. (96)	55	57.3	41	42.7	1.81(0.63-5.35)
High edu. (107)	51	47.7	56	52.3	2.67(0.94-7.75)
Living condition					
Alone (39)	15	38.5	24	61.5	2.02 (0.96-4.26)
With someone(251)	140	55.8	111	44.2	
Working status					
Not working (260)	134	51.5	126	48.5	2.19 (0.91-5.39)
Working (30)	21	70.0	9	30.0	
Socio-economic status					
Low (18)	6	33.3	12	66.7	2.75(0.88-8.88)
Moderate (151)	79	52.3	72	47.7	1.25(0.75-2.09)
High (121)	70	57.8	51	42.2	1.0
Death events					
Yes (221)	96	43.4	125	56.6	7.68 (3.57-16.93)
No (69)	59	85.5	10	14.5	

**Table (3): Association between some characteristics of the study sample and severity of depression.**

Variable	Mild-Moderate depression		Severe depression		OR (95%CI)
	Freq.	%	Freq.	%	
Age					
No					
60- (36)	32	88.9	4	11.1	1.0
65- (38)	31	81.6	7	18.4	1.8(0.4- 8.29)
70- (25)	16	64.0	9	36.0	4.5(1.03-20.9)
≥75 (36)	23	63.9	13	36.1	4.52(1.16-19.0)
Sex:					-
Female (86)	62	72.1	24	27.9	1.72(0.67-4.47)
Male (49)	40	81.6	9	18.4	
Marital status					
Not married (64)	49	76.6	15	23.4	1.11(0.47-2.62)
Married (71)	53	74.6	18	25.4	
Education					
Illiterate (7)	5	71.4	2	28.6	1.47(0.17-10.42)
Read & write(31)	22	70.9	9	29.1	1.50(0.49-4.58)
Middle edu.(41)	31	75.6	10	24.4	1.18(0.41-3.41)
High edu. (56)	44	78.6	12	21.4	1
Living conditions					
Alone (24)	14	58.3	10	41.7	
With someone(111)	88	79.3	23	20.7	2.73(0.97-7.64)
Working Status					
Working (9)	5	55.6	4	44.4	2.68 (0.56-12.55)
Not working(126)	97	77.0	29	23.0	
Socioeconomic status					
Low (12)	5	41.7	7	58.3	8.80(1.8-45.8)
Moderate (72)	53	73.6	19	26.4	2.25(0.80-6.55)
High (51)	44	86.3	7	13.7	1
Death events					
Yes (125)	94	75.2	31	24.8	1.32(0.24-9.53)
No (10)	8	80.0	2	20.0	

**Table (4) logistic regression analysis of factors associated with depression among the studied group**

Variables	B	Wald	OR	P
Age (above 70 y)	3.65	6.68	38.5	0.009
Marital status(not married)	1.51	5.43	4.5	0.019
Sex (female)	4.56	6.58	96.4	0.01

**Table (5): Preferences to get explanation about prescribed medication among depressed:**

	Frequency(135)	Percentage
Agree	112	83.0
Disagree	11	8.1
Not Sure	12	8.9

**Table (6): Previous Seeking Medical Care and Sources Of Information Among Depressed Group.**

Variable	Frequency(135)	%
Previous asking medical care about depression	77	57.0%
Patient source of information about the prescribed medication(77):		
Nothing	37	48.1

Medicine label	20	25.9
Physician	16	20.8
Pharmacist	2	2.6
Friends, relative and media	2	2.6

**Table (7): Difference between intervention and control group after applying intervention session**

	Intervention group (28 )		Control (28 )		X <sup>2</sup>	P
	No	%	No	%		
Patient recall specific knowledge regarding the prescribed medicine	17	60.7	9	32.1	4.59	0.03
Recall of reason for medication	16	57.1	10	35.7	2.58	0.10
Recall of dosage	22	78.6	19	67.8	0.8	0.36
Recall how to manage missed doses	20	71.4	12	42.9	4.7	0.03
Using medication correctly	21	75.0	11	39.3	7.29	0.006
Recall the medication name	21	75.0	10	35.7	8.7	0.003

#### 4. Discussion

Depression is a common and serious mental health problem faced by many elderly persons worldwide .This problem is undiagnosed in about 50% of cases.

Although effective treatment is available, case finding among elderly persons and adequate treatment is generally poor so the present study was carried out to determine the prevalence of depression in elderly and the possible risk factors associated with the disease and to assess the impact of intervention counseling session on patients.

The current study revealed that the prevalence of depression among elderly in Zagazig District was 46.6%. This finding is similar to that reported among Tunisian elderly (Yount and Sibi, 2009).however it is higher than that reported by many studies among Asian (5-30%), North American (10-15%), Saudi Arabian (38.9%) and Jordan elderly (24.3%) (Yount and Sibi ,2009&Boey and Chi ,1998 &Parker et al ,2001).The difference in the reported depression rates may be attributed to many factors including; Variations in socio-cultural and economic factors, variation in the study design and sampling technique and variation in the scales that used for assessing depression.

Mild to moderate depression was observed in 75.6% of the depressed group, while 24.4% of them had severe depression , this agrees with (Shin et al., 2008) who reported that the percentage of mild to moderate depression among their study subjects was 76.3% and about 23.7% of them had severe depression.

In consistence with other studies, we found that elderly persons belonging to age group more than 70 had a significant risk more than two times of developing depression and this risk increases more

with increasing age more than 75 to reach more than five times. A significant differences regarding to the severity of the disease was observed only with later age groups. This result may be attributed to feeling of worthlessness and lower income in comparison to high cost of health care needs in this age. We also found that, those exposed to death events among their relatives showed a significant risk of about eight times of developing depression higher than those not exposed to such situation, but there was no noted significant difference regarding the severity of the disease. This finding is due to the presence of many factors that may occur as a consequence to death of one of the relatives including; bereavement and grief, loss of independence, declining health, retirement and lack of social support (Clayton ,2000)&Schoevers et al ,2000& Cole and Dendukuri ,2003&Hur and Yoo, 2002& Lee and Lee ,2002)

Previous studies on depression in elderly populations have shown that socio-demographics are often significant in this respect. Female gender, marital status, education level, financial status, and social support are the commonly identified correlates of depression (Gottfries & Karlsson ,2008 ) ,so in the current study we explored these risk factors

Regarding gender effect on depression, our study showed that females had significantly higher depression percentage (57.7%) than males (34.8%); moreover they had more than two times risk for developing depression in comparison with males. This finding is in agreement with (Gottfries & Karlsson, 2008 and Lai & Tong, 2009), this can be attributed to long life expectancy in females so they are exposed more to stressful life events and health problems.

Moreover elderly subjects who are not married showed about 4 times risk for developing

depression more than married. This finding is consistent with many studies which stated that non married subjects are more liable to develop depression and this is attributed to the perceived loneliness sensation and loss of social support (Lai, 2004) & Bae et al, (2005). However, there was no significant difference between marital status, gender and the severity of the condition. This is consistent with (Kessler et al, 2003, Shin et al, 2000, Cole and Dendukuri, 2003 and Hur and Yoo, 2002)

The current study showed that the risk of depression increases with increasing educational level but without significant difference. This finding is contrast to a number of studies findings (Bae et al, 2005 & Fleisher et al, 2007) that showed low educational attainment have been reported to manifest the symptoms of depression but without statistically significant.

Although, elderly subjects with low socioeconomic status showed a higher percentage (66.7%) of depression but no significant difference was found, however low socioeconomic level subjects had been associated with significant eight times risk for developing severe depression. This result is in accordance with other researches which concluded that there is a strong association between low socioeconomic status and depression occurrence and this related to bad living conditions resulting in worsening of general health status, in addition economic independence is considered as an important factor contributing to maintenance of mental health (Bae et al, 2005 & Fleisher et al, 2007).

Elderly individuals who were exposed to death events among their relatives had more than seven times risk for acquiring depression than those not exposed to the same events. This is consistent with (Lavretsky & Kumar, 2002) findings; however the risk of developing severe depression was not significantly associated with death events.

In the current study we applied a counseling session for depressed elderly who were diagnosed by the Geriatric Depression Scale and by the help of the psychiatrist. Patients looked at the counseling session in a very positive way, while literature overview showed that the effect of educational intervention offered by clinicians on clinical follow up is controversial, other studies showed that patients have good response to the received educational intervention (Van et al, 2005 & Capoccia et al, 2004)

Evidence from examining data showed that drug counseling intervention was highly effective in conveying elementary drug information to the patient. The counseling sessions were intended to help patients to understand the nature of depressive illness and to reinforce taking medications in the way that they were prescribed would be of benefit to

them. Advice was also provided on the side effects and their management. Emphasis was also placed on the need to continue taking medication unless otherwise advised by doctor. Also, advice was given to the patients so as not to take personal decision to modify their therapy, in addition the session stressed on the value of knowing the medicine name, reason for medication, doses of drugs, using medication correctly and how to manage missed doses.

In the next visit that was carried out after 6-8 weeks of intervention session (during follow up), the patient interview was done to investigate the effect of counseling session where we found a significant increase in the response among the intervention group compared to control group regarding to recall specific knowledge about prescribed drug (60.7%), know how to manage missed doses (71.4%), using medication correctly (75.0%) and recalling the medication name (75.0%).

Although, recalling reasons for medications and dosage of drugs were high among intervention group compared to control group (57.1%, 35.7%), (78.6% 67.8%) respectively but the differences were statistically insignificant.

As regard to patient preference to get information about the prescribed drug we found that the highest percentage of them (83.0%) preferred to get information while 8.9 of them were not sure from this point as they did not have previous experience in this situation. This result is in agreement with another study conducted in Kuwait where the researchers found that the percentage of those who preferred to get explanation about prescribed drug was about 90.4% (Nabeel et al, 2008)

Among 77 depressed patients who previously had asked medical advice about antidepressant drugs, 48.1% of them did not have any information about the prescribed drug, 25.9% of them had information from medication label followed by the physician advice (20.8%). This finding is in contrast with (Nabeel et al, 2008) who found that most of their patients receive information from physician 77%. This difference may be attributed to the difference in the health system between different countries.

In conclusion, depression is an undiagnosed public health problem as it was high among the studied group. It was significantly predicted with increasing age (above 70), not married subjects, and female. Moreover the severity of depression increases with age, low socioeconomic condition. In addition ;lack of getting information about prescribed drug was found among the majority who previously received medical advise and among those who having information, the main sources of it was the



medication labels which reflect the defect in the role of physician during taking medical advice..

Also, Physician can play an important role in patient treatment cycle by providing high quality and easy to understood information during counseling. It is an effective way to improve drug knowledge and probably the attitudes of depressed patients.

### Recommendations

Increasing the role of geriatric medicine in primary health care system or at least extending training the physician on diagnosis of psychiatric health problem mainly depression due to its high prevalence nowadays.

Introduction of counseling session at outpatient clinic concise to diagnostic process to increase the compliance to treatment

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