Original Contribution

Effect of interpersonal psychotherapy on the depression and loneliness among the elderly residing in residential homes

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ABSTRACT

Background: Depression and loneliness is the most common mental disorder among the elderly and it is the leading cause of disease burden worldwide. Mental health and well-being are basic and important elements in the life of the elderly more than in any time before.

The aim of the study: The aim of this study was to assess the effect of Interpersonal Psycho-Therapy (IPT) on depression and loneliness among the elderly residing in residential homes.

Subjects and method: A quasi experimental design was used in this study which included eighty-five (n=85) institutionalized elderly in four homes for the elderly in Dakahlia and Damietta Governorates, Egypt. Pre-tests and post–tests numbered 85 (n=85), and three months after intervention were eighty-one (n=81). A structured interview questionnaire for personal data, Geriatric Depression Scale short version (GDS), Berlin Social Support Scale (BSSS) and Katz and Akpom Activity of Daily Living scale (ADL) were used to collect data.

Results: The findings of the study indicate that depression, loneliness, social interaction, ADL and sleeping patterns were significantly improved after implementation of interpersonal psychotherapy one month and three months after. There was a statistically significant positive correlation between depression and sleeping hours, insomnia, ADL and loneliness, while social interaction and social support were a negative correlation with depression.

Conclusion: It can be concluded from the present study that depression, loneliness, social interaction, sleeping patterns, and ADL were significantly improved after implementation of interpersonal psychotherapy. This conclusion leads to accept the hypothesis of the study that interpersonal psychotherapy improves the Bio-Psycho-Social condition among the institutionalized elderly.

Recommendation: Based on the results of this study we recommend use of IPT to improve the Bio-Psycho-Social condition of the elderly and IPT should be integrated as a basic intervention as well as physical intervention to improve the mental condition and prevent mental disorders.

Key words: Interpersonal Psycho-Therapy; depression; loneliness; elderly; residential homes.

Introduction:

The world's population is ageing speedily. Between 2015 and 2050, the percentage of the world's older adults is estimated to almost double from approximately 12% to 22% and it is expected to extend from 900 million to two billion people above the age of sixty. Elderly people encounter physical and mental health challenges which need to be known and managed in a proper manner (1; 2). More than 20% of the elderly suffer from mental or neurological disorders like depression and dementia. Moreover, around 7% of tdisability (Disability Adjusted Life Years-DALYs) among the elderly are related to mental and neurological disorders (1; 3; 4).

Increasing life expectancy could also be related to good health or illness in the form of disease, disability and dependency. Depression is a main leading cause of disability and health problems among the elderly (3; 5). Older people's need for social support tends to extend with decline in capabilities (cognitive, mental, social and physical) and when environments, like social places and transport, aren't accessible(2). Psychosocial treatments are also effective for mild depression. Antidepressants can be an effective form of treatment for moderate-severe depression but are not the first line of treatment for cases of mild depression (6). Mental health and well-being of the elderly are more important than at any other time of life (1).

WHO has developed a brief manual of psychological intervention for depression like problem management to solve problems and encouraging and supporting social support, Interpersonal Therapy (IPT) for Depression and thinking healthy through use of cognitive behavior therapy(6).

Interpersonal Psycho-Therapy (IPT) was originally developed by Gerald Klerman and Myrna Weissman in the 1970s(7). Interpersonal psychotherapy (IPT) is a manual-based, short-term psychotherapy mainly developed for the treatment of depression (8). IPT is a time-limited, interpersonally focused, and concerned with the interpersonal context that predisposes and precipitates individual distress, to help the patients to enhance their interpersonal condition, assist patients to improve their social support so they can manage and relieve their symptoms of distress(9,10). IPT is a brief, time-limited treatment that was originally developed for the treatment of major depression. It is based on the linking of changes in the social surroundings to the beginning and maintenance of depression. The main aim of the IPT is to enhance the quality of the individual's current interpersonal relations and social conditions (11-13).

IPT techniques of exploration, clarification, encouragement of affect, communication analysis, and alternative coping strategies are used to induce therapeutic change (14). Also, (Stuart and Robertson, 2003) reported that IPT techniques include non-directive and directive exploration, clarification, encouragement of affect, communication analysis, role play, problem solving (or decision analysis), and the therapeutic relationship (9).

A Meta-analysis study done by (Cuijpers, et al., 2011) (15) reported that IPT is one of the best empirically confirmed psychological treatments for depression. Moreover, anti-depressants aren't effective for the treatment of depression alone but a combination with psychosocial intervention are effective for delicate depression (6). Improvement of interpersonal functioning decreases symptoms of depression (16).

IPT is a time –limited treatment with 3 phases: a beginning, middle and end (17 ; 18). Also, TheseIPT phases/stages according to different authors are; according to Markowitz, and Weissman, (2004) they are divided into 3 phases and named as "a beginning, middle and end (17 ; 18) according to (Nemade, Reiss, and Dombeck, 2018) they are divided into 3 phases and named as "formulation, middle and termination Phases" (19). Stuart & Robertson, 2003) divided it into 5 different phases in the IPT approach; assessment,/ the initial sessions,/ middle sessions,/ termination sessions or conclusion of acute treatment,/ and finally, maintenance sessions (9) according to the latest references.

Significance of the study:

Institutionalization of the elderly may lead to depression, loneliness, social withdrawal, and lack of interest in social and religious activities (20), due to physical and psychological problems in addition to the effect of relocation. A recent Egyptian study on the institutionalized elderly revealed that regarding prevalence of depression, around two thirds of the residents experience depression, and severe depression represents around one fifth (19.1%) (21). No amount of information can adequately convey the personal pain and suffering experienced by the residents with depression and loneliness (22). Moreover, to the best of our knowledge, there have not been many studies that have been conducted to look into the psychological wellbeing of the elderly population in Egypt and its intervention. Therefore, assessment of depression among the institutionalized elderly and implementation of interpersonal psychotherapy is timely and important for the future. So the present study was developed to assess the effect of interpersonal psychotherapy on depression and loneliness among the institutionalized elderly.

The aim of the study: The aim of this study was to assess the effect of interpersonal psychotherapy on depression and loneliness among the elderly residing in residential homes.

Research hypothesis: Interpersonal psychotherapy will improve depression and loneliness among the elderly residing in residential homes.

Subjects and method: The study was carried out in all residential homes for the elderly in Dakahlia and Damietta Governorates, namely Dar El-Amal in Sandoub district, Dar Thamaret El-Kalema in torial district, Dar Mar-Gergues and Dar El-Walaa in Mit Ghmer city, and Dar Kebar El-Sen in Ras El-Bar.

Research Design: It is a quasi-experimental design.

Sample: All residents of the previously mentioned settings were included in the study. Their total number was eighty five elderly (twenty six in Dar El-Amal, twenty in Dar El-Walaa, fourteen in Dar Thamaret El-Kalema, five in Dar Mar-Gergues, and twenty in Kebar El-Sen)

Inclusion criteria: The residents of this study were selected based on the following inclusion criteria:
1- All the males and females
2- Giving informed oral consent to participate in the study,
3- Able to communicate.

In accordance with the criteria for admission into these homes it included:
Ambulatory persons higher than 55 years, independence, free from infectious or mental disease, and they have permanent income except in two homes " Dar Thamaret El-Kalema in torial district, and Dar Mar-Gergues" considered as shelters for the elderly, financially supported through the church and the Minister of Social Affairs.

Tools of data collection:
Tool (1): Based on the related review of literature, we developed a Structured interview questionnaire sheet, which included:
1- Socio-demographic characteristics of the residents such as: Age, gender, religion, marital status, level of education,
2- Clinical variable of the subjects such as: duration of stay, sleeping habits, personal hygiene, and presence of chronic illness.
3- Interpersonal relationships of the residents which included: initiation and maintaining relations, social interaction and social withdrawal, social support and support system
4- Psychological condition of the residents: presence of loneliness, depression, resident's reaction toward institutionalization and their satisfaction with ageing process.
5- Participation in social and spiritual home activities.
6- Attitudes toward aging and residential homes: feelings about ageing, satisfaction about admission to residential homes.

Tool (II): Berlin Social Support Scale (BSSS)
Berlin Social Support Scale (BSSS) was used to assess social support among the elderly. BSSS was adopted from Schwarzer and Schulz (2000) (23). This scale is four-point Likert scale. Possible responses are strongly agrees (4), somewhat agree (3), somewhat disagree (2) and strongly disagree (1). Social support is categorized into four levels: highly adequate social support from 32 to 25, moderate adequate social support from 24 to 15; adequate social support from 14 to 9 and not adequate social support from 8 to 1.

III- Katz and Akpom Activity of daily living scale (ADL):
ADL was designed originally in 1976 by Katz and Akpom, and translated and validated on the Egyptian aged population by El-Bilsha 1999(24;25). The scale comprised six basic activities of daily living: bathing, dressing, feeding, transfers, continence and ambulation. The six different functions are measured and scored per the individuals' actual performance of these functions. 1= independent, 2= partial dependent, and 3= completely dependent. Scoring was interpreted as three levels of dependency: totally independent score 6 points, partially dependent score seven to twelve points and totally dependent score thirteen to eighteen.

IV- Geriatric Depression Scale short form (GDS-15):
This scale was originally developed by Yesavage and others in 1982(26). The long form was 30 items then revised to short form 15 items. GDS-15consists of 15 yes or no questions which were used to assess the presence of depressive symptoms among the elderly. Scoring was interpreted as: normal from 0 – 5, mild depression from 6-10 and severe depression from 11-15 (27). It was translated and validated on the Egyptian institutionalized elderly (25).

Pilot study:
A pilot study was carried out on 5 residences, to establish the simplicity, and applicability of the study tools. According to the results obtained, essential modifications were created. Some questions have been read in slang language to simplify their meanings to the patients.

Administrative design:
Ethical consideration: The study protocol was approved by the Research Ethics Committee of school of Nursing, Mansoura University and therefore the official permission to hold the study was obtained from the Vice Minister of Social Affairs and administrators of all residential homes.

The study subjects volitionally agreed to participate within the study and gave their verbal consent and every participant was allowed to withdraw at any time throughout the study. Before the interview, residents were informed regarding the aim of the study and were assured regarding confidentiality of data.

- Each resident was interviewed individually at different times throughout the day (morning and afternoon) to establish a trusting relationship and gain their cooperation in responding to the interview sheet. For most of them more than one session was needed to avoid exhaustion and to gain their cooperation and confidence. The interview took around thirty to fifty five minutes per respondent. The data collection took around 9 months (from January to September 2015). The resident's record (admission record) was reviewed to ascertain biosocial information obtained from the resident.

The researcher interacted with the elderly on an individual level (one-on-one interaction), then interacted with them in small and large groups; the number of participants varied from 6 to 8 individuals for each group. The interpersonal therapy was done for 12 sessions with 2-3 sessions a week. IPT mainly focuses on the present – the 'here and now' rather than the past.

Actual work:
Implementation of interpersonal Psychotherapy:
The main aims of the IPT are to improve interpersonal relationships among residents or change their expectations about them, and to help residents to improve their social support network. This can be achieved through: Establish trusting relationship, express feelings, enhance self-esteem, and enhance social interaction and interpersonal relationships, enhance problem solving technique, enhance independence of ADL, improve sleeping and eating patterns. Decrease feeling of loneliness and depression among the residents (9 ; 28).
- Orientation Phase (initial phase): Establish rapport and therapeutic relationship between the researcher and residents for gathering information about the elderly.
- Assessment phase: Assess Activities of daily living, sleeping and eating patterns, social interaction, support system, presence of depression and loneliness among the residents.

- Designing phase: An interpersonal therapy was designed for 12 sessions for 2-3 sessions / week. Firstly, it starts on the individual level, small groups and on large groups (from 6- 8 residents). The residents were divided into ten groups, which ranged from 6 to 8 residents in each group; each group attended 12 sessions.

-Implementation Phase: Implementation of the interpersonal therapy through use of IPT techniques according to Mark et al., 2001; Stuart and Robertson, 2003 (9; 14).

1- Therapeutic relationship: An ability to identify and provide constructive feedback on recurring interpersonal patterns, "to establish trusting relationship".

2- Encouragement of affect: to help the residents to express, understand and manage their feelings (28). To help the residents to recognize their immediate affect and to communicate their affect to the others effectively (9).

3- Communication analysis: This technique was used to identify communication problems, encourage the residents to communicate more effectively and learn new and more effective skills "problem solving skills" (9).

- Termination phase: to discuss feelings about termination, planning for future interpersonal issues.

- Evaluation phase: evaluate the effect of the implementation of interpersonal therapy on the Bio-psychosocial condition of the residents. Through re-assessment of the ADL, sleeping patterns, social interaction, and presence of depression and loneliness, this showed differences in their response to the questions before and after the application of the interpersonal psychotherapy.

Analysis of the results: Data were analyzed using SPSS (Statistical Package for Social Sciences) version 20. Qualitative data were presented as a number and percent. Comparison between groups was done by Chi-Square test. $P \leq 0.05$ was considered to be statistically significant.

Results

Part I: Socio-demographic characteristic of the study sample (Table 1)

Table 1: Socio-demographic characteristics of the residents in the study sample

Socio-demographic characteristics	No 85	% 100
Age in years:		
60- less than 65	21	24.7
65 to less than 70	22	25.9
70 to less than 80	25	29.4
80+	17	20.0
X± SD =70.8000 ±7.28959		
Gender:		
Male	38	44.7
Female	47	55.3
Religion:		
Muslim	66	77.6
Christian	19	22.4
Level of education:		
Illiterate	30	35.3
Read and write	26	30.6
End formal education	15	17.6
End university education	14	16.8
Marital status:		
Single	24	28.2
Widow	46	54.1
Divorced/ separated.	15	17.6
Duration of stay:		
Less than 1 year	27	31.8
1year-less than 5 years	27	31.8
5years - less than 10 years	16	18.8
10 years and more.	15	17.6
Total	85	100

Table 1 shows that the study sample age ranged from 60 up to 80 years and more with mean ±SD 70.800 ±7.28959 year; more than half of the sample (55.3%) were females, more than half of the sample (54%) were widows. More than one third (35.3%) were illiterate and more than three quarters (77.6%) were Muslim.

Part II: Bio-Psycho-Social condition of the elderly (Tables 2-3).

Table 2: Clinical data as assessed among residents in the study sample (n= 85)

Variables	No 85	% 100
Depression (GDS)		
Normal	20	23.5
Mild /moderate	50	58.9
Severe	15	17.6
Feeling of loneliness:		
No	13	36.5
Feeling lonely	54	63.5
Berlin Social Support Scale (BSSS)		
Not adequate	29	34.1
Adequate	56	65.9
Social interaction		
No	54	63.5
Yes	31	36.5
Receive support		
No	29	34.1
Yes	56	65.9
Support satisfaction		
No	67	78.8
Yes	18	21.2
Attitude toward aging process		
Negative	31	36.5
Positive	54	63.5
Practice religious activity		
Sometimes	1	1.2
All the time	84	98.8
Participation in home activities		
No	41	48.2
Yes	44	51.8
Total	85	100

a- Psychological condition of the elderly:
As regards psychological conditions of the residents in the study sample Table 2 shows that the presence of depression among the residents: more than half of the residents (58.9%) suffer from mild or moderate depression and (17.6%) suffer from severe depression while the rest of them 23.5% were non-depressed. In relation to feelings of loneliness, around two thirds of the residents (63.5) suffer from feelings of loneliness. Regarding attitudes of the residents toward the aging process, more than one third (36.5 %) had a negative attitude toward the aging process.

b- Social condition of the residents:
Regarding support system, Table 2 shows that around two thirds of the residents (65.9%) have a support system; out of these 42% receive their support from outside the home while 78.8% of the residents are not satisfied with their support system. And according to Berlin Social Support Scale (BSSS) more than one third of the residents (34.1%) did not receive adequate social support and around two thirds receive adequate support (65.9%); out of this 2.8% of the residents received highly adequate social support. Regarding social interaction among the residents, less than two thirds of the residents (63.5%) suffer from social isolation, in relation to participation in home activities like birthdays, party and religious meetings; less than half of the residents (48.2%) did not accept participating in home activity. In the same Table 2 it reveals that participation in religious activities such

as prayer, going to the mosques or churches, 100% of the residents practice religious activities of which 98.8% practice religious activities on a regular basis.

c- Physical conditions of the residents:
Table 3 illustrates the clinical data of the residents. It shows that, more than two thirds of the residents (76.5%) were dependent or need help in performance of the ADL. Of 85 residents, 17 (20 %) sleep less than 4 hours, more than half of the residents had late or early insomnia representing 55.5% and 51.8% respectively, moreover, recurrent insomnia represents 37.6%.

Table 3: Activity of daily living and sleeping and sleep problems as assessed among the residents in the study sample

Variables	Frequency	Percent
Activity of Daily living (ADL)		
Independent	20	23.5
Need help	53	62.4
Completely dependent	12	14.1
Number of sleeping hours / day		
Less than 4 hours	17	20
6 hours –	48	56.5
8 hours +	20	23.5
Sleeping difficulties:*		
Falling asleep (late insomnia)	47	55.3
Frequent wake up (recurrent insomnia)	32	37.6
Early insomnia	44	51.8
Total	85	100

* Some residents reported more than one type of insomnia

Part III: Bio-psychosocial conditions of the residents pre and post implementation of the interpersonal psychotherapy one month and three months after (Table 4).
Table 4 describes the Bio-psychosocial conditions as assessed among the residents in the study sample. Regarding activity of daily living, more than two thirds of the residents (76.5%) were dependent or partially dependent in relation to performance of ADL. While one month after implementation of IPT, dependent and partially dependent represented 1.2% and 16.5% respectively. This percentage changed to dependent (6.2%) and partially dependent (25.9%) three months after implementation of IPT. The differences are statistically significant P<0.000. In relation to sleeping hours among the residents, of the eighty five, 17 (20%) who slept less than 4 hours, and more than half of the residents 56.5% who slept from 4 to less than 6 hours, one month after implementation of IPT 85.9% slept from 6 to 8 hours and more and three months later this percentage changed to 75.3%. The differences are statistically significant P<0.000. Concerning sleeping problems among the residents, more than half of the study sample (55.3%) experienced late insomnia, one month after only 5.9% and three months later the percentage became 25.9 %. Similarly with early insomnia, more than half of the residents (51.8%) experienced early insomnia, one month after, 7.1% suffered from early insomnia. This percentage slightly increased to reach 21% three months after implementation of IPT. The differences are statistically significant P<0.000.

The same Table 4: illustrates that more than one third of the residents (34.1%) had inadequate social support and only 2.4% had high social support according to Berlin Social Support Scale (BSSS), one month after implementation less than one third (29.4%) had high social support. Meanwhile, this percentage changed to (39.5%) three months after implementation of IPT. Regarding social interaction among the residents, more than one third of the residents (36.5%) suffering from social withdrawal changed to (5.9%) one month after and increased to reach (34.6%) three months after implementation of IPT. Concerning experience of depression among the residents, more than two thirds of the residents (76.5%) suffer from feelings of depression, which changed to (14.1%) one month after and slightly increased to reach (19.8%) three months after implementation of IPT. Studying the presence of loneliness among the residences, around two thirds (63.5%) suffer from feelings of loneliness; this percentage changed by only 3.5% one month after and increased to become 33.3% three months after implementation of IPT.

Table 4: Bio-Psychosocial conditions of the elderly pre and post implementation of the Interpersonal psychotherapy immediately and three months after

Variables	Baseline No(85)	%	Post 1 m. NO (85)	%	Post 3 m No (81)	%	Test of significance
Activity of Daily living							Friedman Test
Independent	20	23.5	70	82.4	55	67.9	Chi-Square
Need help	53	62.4	14	16.5	21	25.9	=90.700
Completely dependent	12	14.1	1	1.2	5	6.2	P= 0.000**
Sleeping patterns							Friedman Test
Less than 4 hours	17	20	0	0	0	0	Chi-Square
4 hours – less than 6	48	56.5	12	14.1	20	24.7	=90.604
6 hours – 8 hours +	20	23.5	73	85.9	61	75.3	P= 0.000**
Late insomnia :							Friedman Test
No	38	44.7	80	94.1	60	74.1	Chi-Square
Yes	47	55.3	5	5.9	21	25.9	=51.95
							P= 0.000**
Early insomnia :							Friedman Test
No	41	48.2	79	92.9	64	79	Chi-Square
Yes	44	51.8	6	7.1	17	21	=46.372
							P= 0.000**
Berlin Social Support Scale							
Not adequate	29	34.1	0	0	1	0.9	Friedman Test
Adequate	30	35.3	25	29.4	15	18.5	Chi-Square
Moderate adequate	24	28.2	35	41.2	33	40.7	=126.38
Highly adequate.	2	2.4	25	29.4	32	39.5	P= 0.000**
Social interaction							Friedman Test
No	54	63.5	80	94.1	53	65.4	Chi-Square
Yes	31	36.5	5	5.9	28	34.6	=61.44
							P= 0.000**
Presence of depression							Friedman Test
Non depressed	20	23.5	73	85.9	65	80.2	Chi-Square
Depressed (mild, moderate and severe	65	76.5	12	14.1	16	19.8	=85.321
							P= 0.000**
Presence of loneliness							Friedman Test
No	31	36.5	82	96.5	54	66.7	Chi-Square
Yes	54	63.5	3	3.5	27	33.3	=68.03
							P= 0.000**
Total	85	100	85	100	81	100	

Table 5 displays the correlation matrix of depression with clinical data pre, one month and three months after implementation of IPT. It shows statistically significant positive correlation among depression and sleeping hours, insomnia, ADL and loneliness. The strongest of these correlations was between depression and ADL and sleeping hours three months after (r=0. 769 and r=0. 723) respectively. Conversely, there was a statistically significant negative correlation among depression and social interaction and social support. The strongest of these correlations was between depression and social support pre intervention (r=0.-.797-). Moreover, the same Table 5 presents the correlations between depression, receive support, support satisfaction and practice religious activities. It shows statistically significant negative correlation among all these parameters.

Table 5: Correlation between depression, Sleeping hours, ADL, social interaction, BSSS and felling of loneliness pre and post intervention

Parameters	Sig.	Depression Baseline	Depression immediately	Depression 3 months
Sleeping hours (base line)	r p	.054 .620		
Sleeping hours (1month)			.321** .003	
Sleeping hours (3 months)				.723** .000
Late insomnia (base line)	r p	.003 .976		
Late insomnia (1month)			.186 .089	
Late insomnia (3months)				.626** .000
ADL (base line)	r p	.737** .000		
ADL (1month)			.623** .000	
ADL ((3months)				.769** .000
Social interaction (baseline)	r p	-.674-** .000		
Social interaction (1month)			-.617-** .000	
Social interaction (3months)				-. 422-** .000
Loneliness (baseline)	r p	.674** .000		
Loneliness (1month)			.472** .000	
Loneliness (3months)				.439** .000
Berlin Social Support Scale (baseline)	r p	-.797-** .000		
Berlin Social Support Scale (1 month)			-.176- .107	
Berlin Social Support Scale (3 months)				-.400** .000
Receive support	r p	-.399-** .000		
Support Satisfaction	r p	-.459-** .000		
Practice religious activities.	r p	-.336-** .002		

*.Correlation is significant at the 0.05 level (2-tailed).
* Pearson Correlation
**.Correlation is significant at the 0.01 level (2-tailed).

Discussion

Interpersonal psychotherapy (IPT) is usually suggested in most depression treatment guidelines, however very little is known regarding its effectiveness in real-life practice. Therefore, the intent of this study is to assess the bio-psycho-social conditions of the residents residing in residential homes, then to evaluate the effect of IPT on the feeling of loneliness and depression among the elderly living in residential homes. It was hypothesized that IPT will decrease feelings of depression and loneliness among the elderly. Depression is one of the foremost frequent enervating mental disorders with a worldwide prevalence of ten to fifteen percent. Further adding to this problem, depression among the elderly is usually undiagnosed or untreated (29) (Blazer, 2009).

According to the present study, more than two thirds of the residents experience depression, either moderate or severe levels according to GDS. This may be due to many reasons: physiological changes such as hearing and vision impairments without use of hearing and vision aids, and impairments in ADL. Social changes such as loss of social status, lack of social support and interaction. Psychological changes like feelings of loneliness, lack of interest in social and recreational activities. Furthermore, the effect of relocation, "transference of the elderly from their homes to residential homes". This high prevalence rate, which is consistent with the findings of other studies in Turka by Mine (2000) (30), Colombo by Wijeratne et al., (2000) and Brasília by (Silva et al., 2012) (31;32) whoindicated that the prevalence of depression among the institutionalized elderly was 58.3% , 56% and 49% respectively. A similar finding of high prevalence of depression among institutionalized elderly has been reported by (Sarin et al., 2016) (33).

More than two thirds of the residents had depression, which changed to less than one fifth one month and slightly increased to one fifth three months after implementation of IPT in the present study The differences are statistically significant. This may be related to the effect of IPT techniques like therapeutic relationship technique which helps to establish a trusting relationship with the residents and encouragement of affect technique which encourages the residences to express their feelings and decrease their feelings of anxiety and enhance social interaction between the residents which leads to improved feelings of self-esteem and decreased feelings of hopelessness, helplessness, loneliness and depression. This is supported by (Weissman et al., 2007) (28) who mentioned that encouragement of affect technique is used to help the patients express, understand and manage affect. In line with the foregoing, (Lenze, et al., 2002) (34) highlighted that treatment of late-life depression is better with a combination of antidepressant and IPT than treatment or psychotherapy alone. Moreover, the combination of IPT with pharmacotherapy improves the quality of wellness. Similarly, (Toth et al., 2013) (35) found that depressive symptoms significantly decrease after IPT intervention for depression among women with major depressive disorder. This is in agreement with (Bernhard et al., 2006) and (Perlick et al., 2010) (36; 37) who concluded that psycho-educational interventions significantly reduce depressive symptoms. Moreover, (Bolton et al., 2007) (38) found that depressive symptoms significantly improve after implementation of IPT for girls with depression. (Van Schaik., et al., 2006) (39) reported that IPT was valuable and more effective in reducing the proportion of patients with a diagnosis of depression. Also, in congruence with these present study findings, a report of (Stuart, and Koleva, 2014) (40) mentioned that IPT and Cognitive Behavior Therapy (CBT) are shown to be more effective for the treatment of mild and severe prenatal depression. Also they mentioned IPT may be thought of as a first line treatment choice particularly for pregnant and lactating women with depression, furthermore, it is considered better than antidepressant medication.

Importantly, about two thirds of the residents suffer from feelings of loneliness. This high prevalence rate of loneliness among institutionalized elderly in the present study could be attributed to a number of factors. Firstly, institutionalized elderly are more susceptible to the risk of loneliness than elderly in the community due to lack of social interaction and support, either within the home or outside the home. Secondly, the elderly experience social changes and losses such as loss of status, friends and relatives, loss of income. Thirdly, due to physiological changes like hearing and visual impairment without using aids and dependence in performance of ADL. Fourthly, the majority of Egyptian elderly especially women have fewer hobbies and less outdoor activities. Add to this, there are no suitable services in the community that help the elderly integrate into society and some institutional homes are in front ofgraves.

After implementation of IPT the number of elderly experiencing feelings of loneliness significantly decreased one month after and further increased to reach around one third, three months after implementation of IPT. This may be explained by the effect of IPT techniques which encourage the residents to establish trusting relationships, help the residents to express their feelings, enhance social interaction and interpersonal relationship among the elderly, enhances and encourages support systems within the homes and encourages the elderly to participate in social and recreation activities within the homes. This high prevalence rate, which is consistent with the findings of the study carried out by (Runcan 2012) (20) reported that institutionalization leads to loneliness. Loneliness, in many cases, can be considered a disease of old age. Unfortunately, more and more residents are suffering from this scourge of loneliness.

Functional aging refers to the ability of people to perform activities of their life experience (Laidlaw, 2003) (41). Regarding Activity of daily living (ADL), more than two thirds of the residents were dependent or partially dependent in relation to performance of ADL, which changed to less than one fifth one month after and to around one third three months after implementation of IPT. This may be related to the physiological changes and problems associated with ageing process and the major effect of depression which is characterized by loss of interest and loss of energy. While after implementation of IPT among residents the present study reported that there is a statistically significant improvement of ADL. This may be explained by the fact that improvement of social and psychological conditions improves the physical condition. In agreement with these findings, (Roach, 2001) (42) stated that frail residents refer to those older than sixty five years who have some type of functional impairment. Elderly persons with functional dependence they need help with ADL, or in making decisions. Moreover, (Eran et al., 2012) (43) highlighted that early and effective intervention of the psychological condition of the depressed patients may have a positive improvement in performance of ADL.

Concerning sleeping patterns of the residents, the present study showed that there is a significant improvement of sleeping hours and sleeping problems like early and late insomnia after implementation of IPT. This may be related to the effect of IPT techniques which improve social and psychological conditions of the residents such as decreased anxiety and depression, improvement of social interaction and decreased feelings of loneliness, which reflect on the physical condition in the form of sleeping pattern. In congruence with the present study, Pigeon et al, (2009) (44) reported that, in terms of insomnia subtype, 51% had severe sleep initiation insomnia, 57% had severe middle of the night insomnia, and 30% had severe complaints of early morning awakening (some individuals reported more than one type of severe insomnia); the distribution of these subtypes did not change appreciably following treatment. Moreover, IPT helped the individuals to improve low mood, feeling of hopelessness, poor concentration, low energy and poor sleep patterns (45).

Social isolation was significantly higher among the residents and significantly improved after implementation of IPT. This may be related to circumstance around the residences in residential homes which reflect the lack of social and recreational activities, and lack of support system, in addition to the lack of stimulating environment which encourages social interaction among the elderly and presence of sensory impairment among the residents without use of aids. Moreover, there was a statistically significant negative correlation between depression and social interaction and social support. The strongest of these correlations was between depression and social support pre intervention (r=0.-.797-). This may be related to the strong interrelation between depression and support system. Moreover most of the residents suffer from social isolation, sensory impairments and loneliness. So if we improve these circumstances among the residents through improvement and enhancement of support system we can prevent and eliminate the occurrence of depression and loneliness among the residents.

Regarding social interaction, there is a significant relation between depression and social interaction. This is expected and clarifies the strong correlation between social interaction and depression. Also, most of the residents, suffer from loneliness, are dependent in performance of ADL, have lack of activity therapy, and have hearing and visual impairment without using aids; all of these factors facilitate the occurrence of depression. In this regard, (Lenze et al., 2002) (34) indicated that combination of pharmacotherapy and psychotherapy in the form of interpersonal psychotherapy in the treatment of late-life depression is more likely to maintain social adjustment than treatment with either alone. Moreover, (Palompon, Ente, and Bantugan, 2010) (46) determined that social support is an essential element for the prevention of depression among institutionalized elderly. Similar results reported by several studies were reported by (Wijeratne et al., 2000 and Florida et al., 2011) (31; 47) who reported that social and psychological support among the institutionalized elderly is a basic element to prevent late life depression.

Conclusion

It can be concluded from this study that the bio-psychosocial condition of the elderly in form of ADL, sleeping pattern, social interaction, and feeling of depression and loneliness of the elderly residing in residential homes improved after implementation of interpersonal psychotherapy. This conclusion leads to accept the hypothesis of the study that interpersonal psychotherapy improves depression, loneliness, sleeping pattern, ADL and social interaction among the elderly residing in residential homes.

Recommendation

Based on the results of this study we recommend use of interpersonal psycho-therapy to improve the psycho-social condition of the elderly residing in residential homes. Give attention to supportive psychological environment as well physical environment. Encourage and facilitate access to appropriate assistive devices. Further research is needed to follow the effect of IPT after 6 months and 12 months.

Limitation

Limitations of the study include the absence of longer term outcomes, some elderly (4 residents) dropped out of the study during follow up three months after. Additional research is needed to evaluate the efficacy of IPT and/or pharmacotherapy for treating depression, loneliness among the elderly in residential homes for long term outcomes. A slightly significant difference between one month and three months after implementation of the IPT shows need for continuity and sustainability of IPT.

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