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Article

Mental Health in Cypriot Citizens of the Rural Health Centre Kofinou

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Abstract: Objective: The main purpose of this study was to investigate the mental health of Cypriot citizens, living in the current difficult period of economic recession. Specific objective was to investigate the different factors (gender, age, socio-economic factors, etc.) that may affect the levels of emotional distress, anxiety and depression in visitors of the Rural Health Centre of Kofinou. **Materials and Methods**: The sample consisted of total 300 Cypriots who visited Kofinou Health Centre in the period between August and September 2015. For the middle-aged citizens the Greek version of the HADS scale (Hospital Anxiety Depression Scale) was administered to 150 persons (Michopoulos I., 2007), while for the visiting senior citizens (aged over 65 years) the Greek version of the GDS scale (Geriatric Depression Scale) was used (Fountoulakis K., et al., 1999). All analyses were performed with the social science analysis package SPSS (version 21). **Results**: *HADS:* A total of 150 people of average age 47±11,5 years (23-64), were 56% women, while the 77.3% stated they had drastic reduction of income as well as 46.7% suffered from chronic disease. The 36.6% and 28.7% of the visitors showed moderate and severe forms of anxiety and depression, accordingly. Higher emotional distress is associated with lower educational level ($p<0,001$). Moreover, patients with low income have higher levels of anxiety ($p=0,003$), depression ($p=0,036$) and total emotional distress ($p=0,007$), while those with chronic disease have a higher stress ($p<0,001$), depression ($p<0,001$) and total emotional distress symptoms ($p<0,001$) compared to non - patients. *GDS:* 150 patients out of which 77 were women (51.3%). The average age of participants was 72±5,5 years. 93(62%) participants declared a drastic reduction of income due to the financial crisis while 139 (92.7%) stated they had chronic disease. 53 participants (35.3%) think they have symptoms of depression after the economic crisis. The women showed higher level of geriatric depression symptoms than men ($p<0.001$). Higher levels of depression is associated with lower income ($p=0.001$). **Conclusions**: The study shows that stress levels, depression and emotional distress are increased in specific population groups. The main factors affecting the mental health of the participants are the presence of chronic disease, income and level of education.

Keywords: depression; anxiety; emotional distress; HADS; GDS; Health Centre

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INTRODUCTION

It is well known and commonly accepted that issues related to mental health are directly and indirectly caused by deprivation, poverty, inequality and many other social and financial factors. Therefore, economic recessions, which have been recorded are still been historically documented, have shown that the mental health of the world population had high-risk periods and even up to this date (Ng K. et al., 2011).

Economic recession occurred in 2007 in U.S.A, which then grew around the world, thus, having a continuous impact on the European Union (E.U.) and more specifically on Cyprus. Due to this negative impact has led Cyprus's economy to a crucial decline, hence, having a dramatic rise of the unemployment rates and leading a large number of people to live under poor conditions (Mousoulos S., 2014). Simultaneously, the increase of the national debt, the agreement of the country's financial assistance facility as well as the loan agreement have led Cyprus to restrictive measures and severe cuts in public spending and even within the health sector and welfare services.

The rising rates of unemployment, reduced incomes and the living conditions of the citizens, who are either at the risk of living in poverty or still live in underprivileged conditions, have inevitably affected humans, especially young people, to become very anxious and fearful for the future (Burchell B., 1994 & Stuckler et al., 2009). Unfortunately, those same conditions lead, also, the elderly people to commit suicide as an easy solution to their problems. Unemployment, poverty, stress and insecurity are, also, risk factors which constantly increase the rates of depression; therefore, negatively affecting people across all ages (Paul K., Moser K., 2009).

According to the World Health Organization (WHO), depression is a universal mental disorder characterised by sadness, loss of interest or pleasure, feelings of guilt or low self-esteem, sleep deprivation or lack of appetite, as well as fatigue and inability to concentrate. Furthermore, based on different research depression often appears at a young age and mostly affects women more often than men. It is significant to mention the fact that citizens, who have either lost their jobs due to economic conditions or they have been generally unemployed, belong to the group of people that are at a higher risk of exhibiting symptoms of anxiety and depression (Giotakos O., 2010).

As a consequence of the social perceptions and attitudes of Cypriot citizens many cases remain either undiagnosed or are not adequately addressed in the Cypriot community (Mousoulos S., 2014). There is a large percentage of patients that have depressive syndromes at an increasing tendency, while modern therapeutic utilities are not used even in countries with advanced development of psychiatric and psychological services. Moreover, there is a group of people who resort to traditional forms of counselling or palliative assistance, while others passively anticipate in recovering the symptoms. There are, also, lots of people visiting primary medical care services mainly for various physical symptoms; however, clinical depression is not always diagnosed (Siklafidou P., Zeleni D., Leivaditis M., 2011).

In conclusion, this current research focuses on exploring the mental health of Cypriot citizens in the area of RHC (Rural Health Centre) Kofinou along with the various

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factors affecting it. Due to the lack of research regarding this specific area of subject and mainly in Cyprus, it is desirable to carry out different investigations and studies concerning economic crisis and its effects on the Cypriot society. It is an essential and current issue, which highly and undoubtedly concerns not only the health services and welfare but also all Cypriot citizens.

MATERIALS AND METHODOLOGY

The study was cross sectional and it was carried out in the Rural Health Centre of Kofinou, using two scales for estimating the mental health of the patients visiting the Centre: the GDS and HADS. The GDS questionnaire was given to the elderly, over 65 years old, along with our constant guidance because of their advanced age and for better elaboration, whereas the HADS was given to adults over 18. All respondents were asked to self-report a percentage reduction of their income. The participation of the respondents was strictly anonymously and highly respected while giving them the option to voluntarily participate in the survey.

The study's sample consisted of 300 adults, 150 adults over 18 years old to 65 (HADS Scale) and 150 elderly people, aged over 65 (GDS Scale). Respondents were patients who visited the RHC Kofinou during the period July to September 2015. Participants were selected with a random sampling method.

Statistical analysis

Demographic characteristics and total scale scores are presented as frequency (N) and proportion (%) for categorical variables (i.e. Gender, Education level, Anxiety and Depression levels, e.t.c) and Mean $\pm$ Standard Deviation for the continuous variables (i.e. Age and Total Scale Scores). Univariate analysis involved independent sample t-tests for two-level factors (i.e. gender and presence of chronic disease), one-way analysis of variance (ANOVA) for factors with 3 or more levels (i.e. education and income level) and chi-square test for the association of Gender and presence of Depression in elderly patients (GDS 6/7 cut-off point). Multivariate analysis for the adjusted effect of the demographic factors was conducted using linear regression models on *Total Emotional distress, Level of Stress* and *Level of Depression* for the HADS scale and for the *Total Depression Score* for the GDS scale. The factor *drastic reduction of earnings* was also included in the multivariate analysis and was arbitrarily determined by the investigators at 35% (approximately 1/3 f the income).

RESULTS

Sample characteristics

The study based on the HADS scale involved 150 patients; 84 (56%) were female. The mean age of the participants was 47+11.5 years with a minimum age of 23 years and a maximum of 64. The study based on the GDS scale sampled another 150 patients. Seventy – seven (51.3%) are women. The average age of participants is 72$\pm$5.5 years old with a minimum and a maximum age of 66 and 90 years old, respectively. Fifty-three (35.3%) participants believe they show signs of depression after the economic crisis (Table 1). The demographic and clinical characteristics of the both samples are shown in the Table 1.

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Table 1: Demographic and clinical characteristics of the sample that completed the scale HADS (n=150) & GDS (N=150)

		HADS SCALE		GDS SCALE	
		n	%	N	%
Gender	Woman	84	56,0%	77	51,3%
	Man	66	44,0%	73	48,7%
Age		47±11.5 years / MIN=23, MAX=64		72.9±5.5 years / MIN=66,MAX=90	
Education level	None	0	0,0%	11	7,3%
	Primary School	32	21,3%	99	66,0%
	Secondary	12	8,0%	17	11,3%
	Lyceum	63	42,0%	19	12,7%
	Higher Education	35	23,3%	4	2,7%
	Master/PhD	8	5,3%	0	0,0%
Annual income	Unemployed	15	10,0%	0	0,0%
	Until 8,000	46	30,7%	100	66,7%
	8,001-12,000	21	14,0%	30	20,0%
	12,001-18,000	25	16,7%	13	8,7%
	18,001-30,000	26	17,3%	6	4,0%
	30,001 and over	17	11,3%	1	0,7%
Reduction of the annual income due to economic crisis in the last year		116	77,3%	93	62,0%
Presence of chronic disease		70	46,7%	139	92,7%
Blood hypertension		42	60,0%	100	66,7%
Diabetes		22	31,4%	58	38,7%
Lipid disorder		28	40,0%	73	48,7%
Autoimmune disease		0	0,0%	1	0,7%
Heart disease		7	10,0%	32	21,3%
Other		12	8,0%	4	2,7%
Do you generally get anxious after the economic recession?		108	72,0%	-	-
Do you believe you have symptoms of depression after the economic recession?		-	-	53	35,3%

HADS Scale

The overall HADS scale (total emotional distress) and sub-factors Anxiety and Depression, showed excellent internal consistency index (Cronbach's alpha = 0.921, 0.821, 0.813 respectively).

The average total HADS scale was 16.8±8.9, with a possible maximum of 42. The average level in the subscale Anxiety and subscale Depression was 9±4.8 and 7.8±4.5, respectively, with a possible maximum of 21. As shown in Table 2, 43.3% of the research's respondents have normal stress levels and 50% normal depression levels.

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Table 2: Level of Anxiety and Depression - HADS (N = 150)

	Anxiety Level		Depression Level	
	N	%	N	%
Normal level	65	43,3%	75	50,0%
Mild level	30	20,0%	32	21,3%
Moderate level	35	23,3%	31	20,7%
Severe level	20	13,3%	12	8,0%
Total	150	100%	150	100,0%

**Normal levels (total score 0-7), Mild ((8-10), Moderate (11-14), Severe (15-21)*

Univariate analysis of the influential factors on the average score of HADS scale

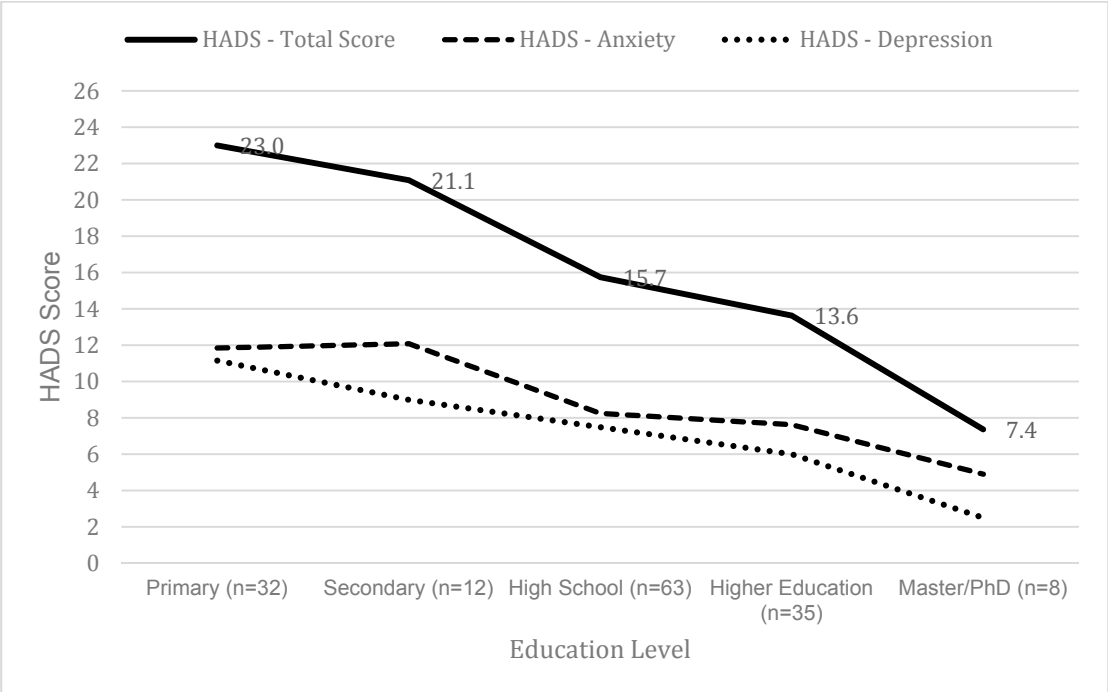
Gender

Women tend to exhibit higher levels of anxiety (9.6±4.8), depression (8±4.2) and generally symptoms of emotional distress (17.5±8.6) than men (8.3±4.8, 7.5±4.9 and 15.8±9.3 respectively). This gender effect did not reach a higher peak of statistical significance (p=0.10, 0.58, 0.24 respectively). (Table 3)

Education Level

The ANOVA examination revealed a significant difference in the mean of HADS level for Total Emotional Distress (p<0.001), Depression (p<0.001) and Anxiety (p<0.001) across the various levels of education (Table 3). The greater level of education a patient has, the lower HADS scores will be recorded (Figure 1). This indicates that the more educated the patient is, the less anxiety, depression and emotional distress he/she experiences.

Figure 1: Effect of education on the average level of HADS total scale and subscales



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Annual Income

The ANOVA test revealed an important dissimilarity in the mean of HADS level for Total Emotional Distress (p=0.003), Depression (p=0.036) and Anxiety (p=0.007) across the various levels of the Annual Income (Table 3). The higher Annual Income a patient receives, the lower HADS scores will be documented. This demonstrates that the more financially well a patient is, the lower levels of anxiety, depression and Emotional Distress he/she has.

Chronic Disease

People with chronic disease tend to have higher levels of Total Emotional Distress (p<0.001), Depression (p<0.001) and Anxiety (p<0.001) than non–sufferers. (Table 3).

Drastic reduction of earnings

One-hundred and sixteen respondents, reported a reduction in their earnings. Patients who reported more than 35% as their earning reduction, exhibit higher anxiety levels (p=0.87), depression (p=0.45) and emotional distress levels (p=0.77) than those who reported that they have not experienced radical income cuts (n=34).

Table 3: Univariate analysis for the effect of demographic characteristics and income reduction on HADS scale

	HADS – Anxiety	HADS – Depression	HADS – Total Score (Emotional Distress)
Gender			
Female(n=84)	9,6±4,8	8±4,2	17,5±8,6
Male (n=66)	8,3±4,8	7,5±4,9	15,8±9,3
T-test results	t=1.65, p<0.101	t=0.56, p<0.0575	t=1.17, p<0.244
Education			
Primary (n=32)	11,8±4,8	11,2±4,2	23±8,6
Secondary (n=12)	12,1±5,5	9±4,3	21,1±9,4
High school (n=63)	8,3±4,2	7,5±3,8	15,7±7,6
Higher education (n=35)	7,6±4,5	6±4,4	13,6±8,5
Master/ PhD (n=8_	4,9±1,4	2,5±1,9	7,4±2,3
ANOVA Results	F=7,868 p<0,001	F=11,258 p<0,001	F=10,049 p<0,001
Annual Income			
Unemployed (n=15)	10.3±5.8	9.5±5.8	19.8±11.2
Up to 8,000 (n=46)	10.6±4.9	9±4.2	19.6±8.6
8,001-12,000 (n=21)	10.1±5.3	7.8±5.1	17.9±10.1
12,001-18,000 (n=25)	8.3±4.4	7.5±4.8	15.8±8.9
18,001-30,000 (n=26)	7±3	6±3.1	13±5.6

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30,001 and over (n=17)	6.3±4	6.1±3.8	12.4±7.3
ANOVA Results	F=3.9 p=0.003	F=2.5 p=0.036	F=3.3 p=0.007
Presence of chronic disease			
No (n=80)	7,5+4,2	6,1+4	13,6+7,7
Yes (n=70)	10,7+4,9	9,7+4,4	20,4+8,9
T-test results	t=-4.31, p<0.001	t=-5.19, p<0.001	t=-4.98, p<0.001
Reduction in earnings			
more than 35% (n=32)	11±5,3	9,6±5	20,6±9,8
less than 35% (n=84)	8,2±4,5	7,3±4,1	15,5±8,2
T-test results	t=2.89, p<0.001	t=2.56, p<0.012	t=2.86, p<0.001

Multivariate Analysis

There were three linear regression models (demographic adjusted) on the following dependent variables: Emotional distress (Total Scale Score), Level of Stress and Level of Depression.

The regression analysis showed that patients with chronic disease have higher stress levels (b=2.82 p=0.001), depression (b=2.63 p=0.001) and emotional distress (b=5.45 p<0.001). Moreover, higher annual income reduces the levels of anxiety (b=-0.64 p=0.01), depression (b=-1.44 p<0.001) and emotional distress (b=-2.63 p<0.001). Finally, the drastic decline of income in excess of 35% increases the depression levels (b=1.74 p=0.028).

GDS Scale

The overall GDS scale showed adequate internal consistency index (Cronbach's alpha=0.691). The average geriatric depression of the 150 participants was 5.77±4 with an observed minimum and maximum 0 and 15, correspondingly.

Univariate analysis of the influential factors on the average GDS score

Gender

The t-test showed that women (6.9±4.1) have higher level symptoms of geriatric depression than men (4.6±3.4) (t=3.7 p<0.0001). According to the GDS scale, 52% of women are depressed (Total GDS≥7) as opposed to the 30% of men (X^2=7.352 p=0.005).

Education Level

Higher level of education is associated with the lower level of geriatric depression (Figure 2). ANOVA did not reach statistical significance (F=2.2 p=0.071).

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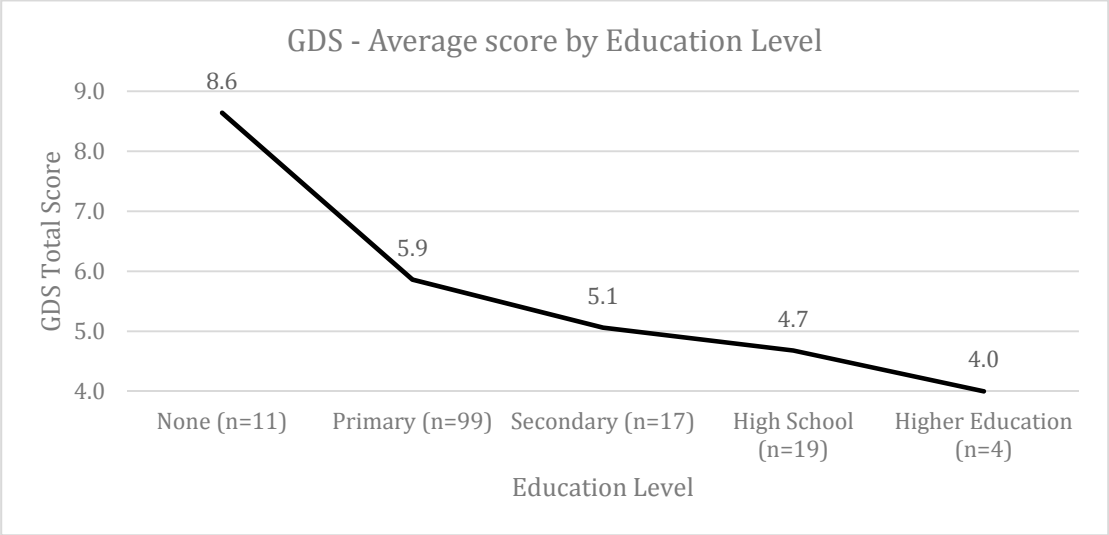
Figure 2: Effect of education on the average level GDS



Annual Income

The ANOVA examination showed that the annual income affects significantly the respondents' average level of GDS ($F = 5.595$ $p = 0.001$). Specifically, a patient at the lowest income category (up to €8,000 n=100) will likely show higher levels of geriatric depression (6.7±4) compared to the average GDS in the rest of the income categories (€8,000-€12,000 GDS= 4±3.4/ €12,000-€18,000 GDS= 4±3/ More than €18.000 3,8±3,1). This result is in agreement with the result of the highest depression levels in women, since women of this age usually have lower incomes.

Reference to Depression Symptoms

Based on the questionnaires, 35.3% (n=53/150) of the participants said that he/she believes that develops depressive symptoms after the economic crisis.

It was also shown that 71% of people, who stated they did not have depression, do not present symptoms of depression according to the GDS scale. In contrast to the 29%, which represents people that do not believe they have depression, has GDS score beyond 7.

According to the GDS, a similar phenomenon occurs in people who initially reported having symptoms of depression while 36% of these individuals ultimately are not depressed.

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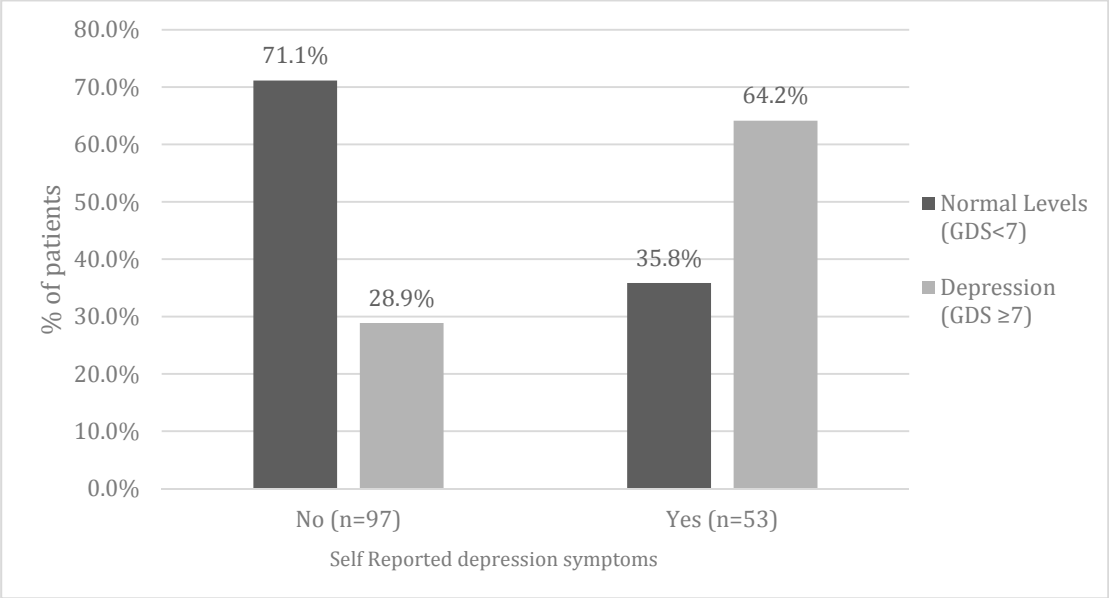
Figure 3: Self-reported depression symptoms VS Depression by GDS Scale (>=7)



Multivariate Analysis

A linear regression model was applied to adjust the effect of the demographic characteristics in the participants' total GDS score.
The regression analysis recorded that men have lower levels of geriatric depressive symptoms (b = -1.935, p = 0.005) compared to women while the elderly patients have higher depressive symptoms (b = 0.16, p = 0.008). Education, annual income, presence of chronic disease and the drastic reduction of the people's salaries beyond 35% do not seem to affect substantially the level of geriatric depressive symptoms.

DISCUSSION

According to the study of Spyropoulos et al. (2010), gender affects the mental human health differently and specifically is considered that women are more prone than men. This finding is in accordance to the study of Kartantzis (2013). Consequently, our findings agree with their data, since it justifies the important relationship between gender and mental health.

In addition, Marmot (2004) points out that people who are at a lower level on the social scale are likely to have a double possibility of possessing mental disorder. This finding agrees with the results of this study, as demonstrated by the educational level factor. Precisely, it was illustrated that the more educated the citizen is, the less anxiety, depression and general emotional distress may he/she experiences (Blane D., 2003).

Additionally, the key factor of the economic recession is the annual income of each individual. Giotakos (2010) believes that the reduced income, reduced labour specialization and social alienation have shown to be associated with the negative effects on the physical, emotional and psychological health as well as the increased risk of low life expectancy. His views, also, reinforce the investigations carried out by

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Economou et al. (2008), which correlated the unemployment rates and causes of death (studied six causes of death) with a very high percentage (83.33%). Evidence obtained, which is the same with the survey, indicates that when the patient is financially well, then he/she would feel less anxious, depressed and emotionally distressed.

Also, there was a significant relationship between chronic disease and mental health (Falagas et al., 2009). The patients, who suffer from chronic disease, tend to have higher levels of anxiety, depression and general symptoms of Emotional Distress compared with non-patients. Regarding the methodological weaknesses that emerged during the course of this investigation, it concerned only part of completing and understanding of the questionnaires. Specifically, upon completion of GDS questionnaires addressed to senior citizens, it was necessary to guide them throughout the process, either because of low educational level or because of a physical disability pension.

FUTURE RECOMMENDATIONS

Several researchers within the health sector have recognised the importance of the human's mental health and well-being. The last few years a lot of people were getting mentally ill, which was a very frequent phenomenon in the Cypriot community; however, a few or even not any studies have dealt with this crucial issue.

- **Political Authority**

The health sector for each country is undoubtedly the foremost issue which we need to exceptionally pay attention to. Politicians must come up against the whole situation with further interest by setting future goals, hence, dealing and solving problems that may arise. Unfortunately, the health system in Cyprus has many weaknesses, which come at the expense of the country's citizens. An important function of the state is the lack of political will. The state ought to set laws in order to better address such distressing situations by carrying out administrative procedures as soon as possible with the aim to better resolve arising issues.

- **Health Practitioners**

In an effort to fight the citizens' mental illness, health professionals need to form a group which will be responsible for the prevention of mental disease and public information. They can, also, organise seminars to sensitise the Cypriot community and raise their awareness regarding the severity of this situation, thus, diminishing the instances of various prejudices and stereotypes. This seems to be the only way to prevent the expansion of this phenomenon.

- **Citizens**

As European citizens, who look out for our country's welfare, we should become more sensitised in relation to this crucial area of mental health. It should be understood by all of us that mental health is considered to be a momentous factor for the right functioning of the human body and the sooner we seek for specialists, the less painful effects we will have on our health. Finally, the relationship between

patient and ministrant should be further enhanced within the circle of trust and mutual understanding.

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