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Guest-Editor

Prof. Dr. Tsobanoglou, George, University of the Aegean, Greece

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Mortality in Greece During the Covid-19 Pandemic

Abstract:

Since February 2020 the briefing on the COVID-19 pandemic became a 24-hour routine of the mass media worldwide and in Greece as well. Especially in Greece the mainstream media of all kinds (electronic and printed) kept amplifying the fear of death by emphasizing the thousands of human lives that have been perished due to the pandemic since the beginning of it. Yet, is there really an excess mortality due to sars-cov-2 during these two years in Greece and if there is, what is the magnitude of it? This paper tries to answer these questions based on data analyzed with strict demographic methods. The results show that excess mortality due to covid-19 is far lower than the general public is forced to believe, and that the ubiquitous media exposure can lead people to perceive virus threats as higher in risk than they actually are.

Keywords: Pandemic, covid19, mortality rate, deaths, Greece

Vasilis S. Gavalas¹

¹Corresponding-Address: Vasilis S. Gavalas Associate Professor, University of the Aegean, Department of Geography, 81100 Mytilene, Greece. Email: bgav@geo.aegean.gr

1. Introduction

Few studies have been made on excess mortality during the years 2020-21 in Greece and none on the excess mortality due to Covid-19 alone (Gavalas, 2021; Panagiotakos & Tsiampalis: 2021). The article by Panagiotakos and Tsiampalis records weekly excess mortality in Greece in 2020 and substantiates that there were excess deaths in the last two months of that year only. It notes that these excess deaths may not be entirely due to Covid-19, as “Lockdown itself or changes in the organization of the health system may also have an impact on the excess mortality beyond COVID-19” (Ibid, 378). Yet, this noteworthy article by Panagiotakos and Tsiampalis does not make a distinction between excess deaths from all causes and excess deaths from Covid-19 alone.

Eurostat publishes estimates on excess mortality by week and by month (Eurostat, 2022a) Yet, their methodology is not demographically proven, and their results are questionable. More specifically, Eurostat declares that ““Excess Mortality” is the rate of additional deaths in a month compared to the average number of deaths in the same month over a baseline period.” (Eurostat, 2022b) As a baseline period it considers the average weekly or monthly deaths of the period 2016-2019. (Eurostat, 2022c)

The drawback of this method is that it assumes that the size and the structure of the population remained unchanged from 2016 to 2021. However, this is not true. Even if the size of the population remains the same, small changes in the structure of the population would produce different number of deaths. Year by year the population of Greece becomes older, and this means more deaths per population unit. That is why more deaths would be recorded every year even if mortality conditions do not deteriorate.

Another drawback of the Eurostat analysis on excess mortality during the pandemic is that it implies that any excess mortality in the years 2020-21 is related to Covid-19 pandemic. Eurostat states on its site: “Statistics on excess deaths provide information about the burden of mortality potentially related to the COVID-19 pandemic, thereby covering not only deaths that are directly attributed to the virus but also those indirectly related to it”. (Eurostat, 2022c: last page). Yet, since the indicator does not make a distinction between causes of death, it would be fallacious to attribute any excess mortality to Sars-cov-2, directly or indirectly.

The site [Our World in Data](#), which is a scientific online publication whose research team is based at the University of Oxford, publishes data on excess mortality by week. Their methodology takes into account the fact that populations are not stationary. They use a regression model to project the “normally” expected number of deaths during 2020-22 (had the pandemic not occurred) based on the observed deaths in 2015-19 (Our world in Data, 2022a). However, despite the robustness of their methodology, there is no way to distinguish what part of excess mortality is due to Covid-19 and what part is bestowed to other causes of death.

This paper tries to assess the impact of Covid-19 on the mortality of the general population by employing well documented demographic indices. The research questions that the paper tries to answer are: Has the variation of deaths in Greece during 201-21 exceeded the variation during a “normal period” (2009-2019)? Is there an increase in mortality in the quinquennium (2017-21) as this is measured by the Standardized Mortality Index? Is there an excess mortality due to sars-cov-2 during 2020-21 in Greece and if there is, what is the magnitude of it?

2. Data and Methods.

The most easy and simple way to measure the mortality of a population is by dividing the number of deaths in a given year by the total population at mid-year. This measure is called Crude Death Rate (CDR) and is usually multiplied by 1000 for ease of interpretation (deaths per 1000 population). However, CDR is not suitable for comparisons. We cannot compare the CDRs of different populations or the CDR of the same population in different years. This is because CDR, like all crude rates, is affected by the age structure of the population. For example, Greece in 1961 recorded 7.6 deaths per 1000 population, while thirty years later, in 1991, she recorded 9.3 deaths per 1000. Does this mean that mortality in Greece increased between 1961 and 1991? Not necessarily. It can only mean that the population of Greece became older, and more deaths were recorded per 1000 population. Indeed, if one looks at each age group separately, one will realize that deaths per 1000 people in each age group (the age-specific death rate) were fewer in 1991 than in 1961.

The most convenient way to compare the mortality of different populations is the standardized death rate, and this measure is used in this study. The method of direct standardization, which will be used further on, takes a population as standard and applies to it the age-specific death rates of the examined populations. The result is a set of expected deaths, i.e. the deaths the standard population would have had under the mortality of the examined population. The expected deaths can be used then by the researcher, to calculate a Directly Standardized Deaths Rate (DSDR), which is similar to the CDR but it is comparable with DSDRs of other populations since the same population has been used as standard. The mathematical formula of direct standardization is:

$$DSDR = \frac{\sum n m_x \cdot n P_x^s}{\sum n P_x^s} \cdot 1000$$

Where: $n m_x$ is the age specific mortality rate in the ages x to $x+n$

$n P_x^s$ is a population that is chosen as standard (arbitrary by the researcher).

The product $n m_x \cdot n P_x^s$ is the expected number of deaths in the ages x to $x+n$ of the standard population, if the standard population experienced the age-specific mortality rates of the examined population.

The population taken as standard in this research work is the population on 1st January 2015, as this has been estimated by ELSTAT (2021). Population estimates for each year by age have been taken from ELSTAT as well (ibid). Deaths by age for each year from 2015 to 2021 have been taken from Eurostat (2022d)

Another way to compare the mortality of the same population over the years, and especially within years (weekly or monthly mortality) is the so-called excess mortality. Excess mortality is the difference between the observed number of deaths in a given period, and the expected number of deaths. The average number of deaths in the 5-year period 2015-2019 will be used in this research work as the number of expected deaths. However, it would be mistaken to compare the number of deaths of 2021 with the average number of deaths few years earlier in equal terms, because the size and the structure of the population changes over the years. Therefore, the 2015 population will be used as standard, and expected deaths will be derived for each year from 2015 to 2021 by applying the age-specific mortality rates of each year to the age structure of the population of 2015 ($n m_x \cdot n P_x^s$). Based on these annual expected deaths the monthly expected deaths will be calculated by applying the monthly proportional

distribution of deaths in each year to the expected deaths of the same year. The formula is:

$$EMD = \frac{D_k}{\sum D_k} * \sum n m_x \cdot n P_x^s$$

Where: EMD stands for Expected Monthly Deaths.

D_k is the number of deaths in month k

$\sum n m_x \cdot n P_x^s$ stands for the expected number of deaths in a given year using the age structure of 2015 as $n P_x^s$

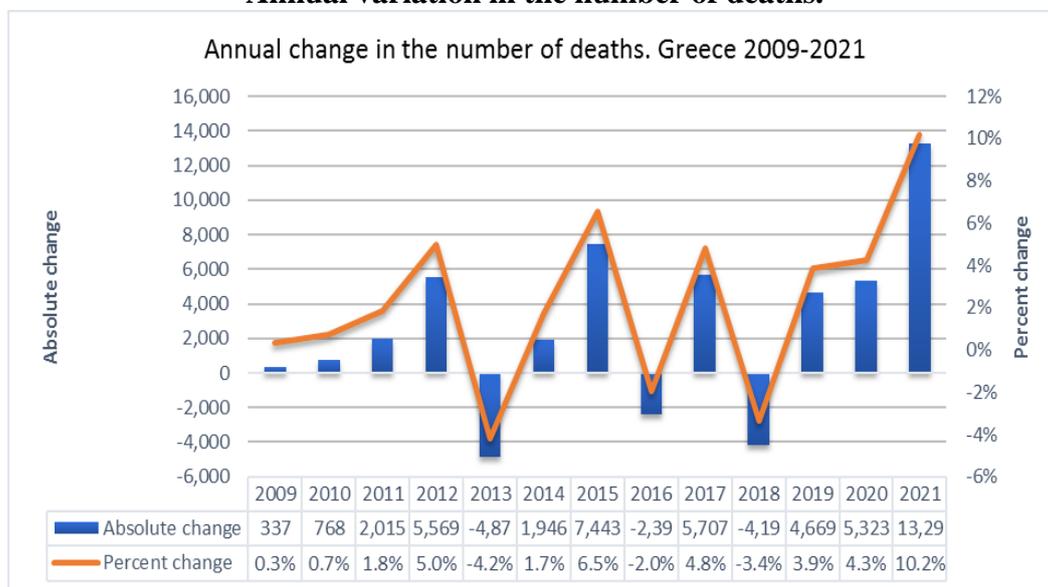
The next step in the analysis is to discern which surplus deaths are due to Covid-19 and which are due to other causes of death. To implement this, the number of covid-related deaths in each month is subtracted from the total monthly number of deaths. Based on that number (deaths from all causes other than covid) we can calculate the monthly excess mortality owed to non-covid-related deaths. Data for this part of the analysis (Covid-related deaths in a daily basis) have been taken from the site [Our World in Data](#) (2022b) and had have been arranged by week and by month.

A technical detail is the way the daily deaths are arranged into weekly and then into monthly deaths. This paper follows the ISO 8601 international standard for time-related data. According to this standard the year 2020 had 53 weeks and the year 2021 52 weeks. The dates of each week is shown in the appendix.

Apart from the above-mentioned demographic indices, a preliminary analysis of the annual change in the absolute number of deaths during the period 2009-2021 is presented by using data from ELSTAT.

3. Results

Annual variation in the number of deaths.



Source: by Eurostat (2022d). Own calculations.

Figure 1 establishes two things:

- (1). variation in the annual number of deaths in Greece during a normal period (2009-2019) is not unusual and it can oscillate in the range of $\pm 6.5\%$ from one year to another.

- (2). during the two years of the pandemic (2020-21) the annual change exceeded the variation of a normal period only in 2021 (+10.2%). In 2020 the annual change of deaths was within the expected range of a normal period (+4.3%).

4. Standardized Mortality Rate

Table 1 reveals that mortality in Greece during 2015-2021 did not undergo any statistically significant variations. In 2021, the year with the highest mortality in the time series, the standardized mortality rate (DSMR) was only marginally higher than in 2015 (11.8 in 2021 vs 11.2 in 2015). On the other hand, CDR keeps increasing over the years as a natural consequence of the population ageing.

Table 1: Directly Standardized Mortality Rates vs Crude Death Rates. Greece 2015-2021

	2015	2016	2017	2018	2019	2020	2021
CDR	11.2	11.2	11.7	11.4	11.8	12.6	13.4
DSMR	11.2	10.7	10.9	10.4	10.5	11.0	11.8

Goodness of fit test for DSMR: d.f.=6 chi square=0.12 p-value≈1

Source: own calculations based on population estimates taken by ELSTAT (2021) and recorded deaths taken by Eurostat (2022d). See methodology section for details.

Further on, we employ more robust demographic techniques to distinguish excess mortality (during 2020-21) due to all causes of death from excess mortality due to deaths attributed to Covid-19.

5. Weekly excess mortality

Figure 2 reveals that in 2020 the only tangible excess mortality (more than 10% of the expected) was recorded from mid-November to the end of the year. In the rest of 2020 (from January to mid-November) any fluctuation of deaths was in the magnitude of ±10% of the expected, and is probably a random fluctuation due to the relatively small number of deaths in each week.

Figure 2: weekly excess mortality in 2020 and 2021



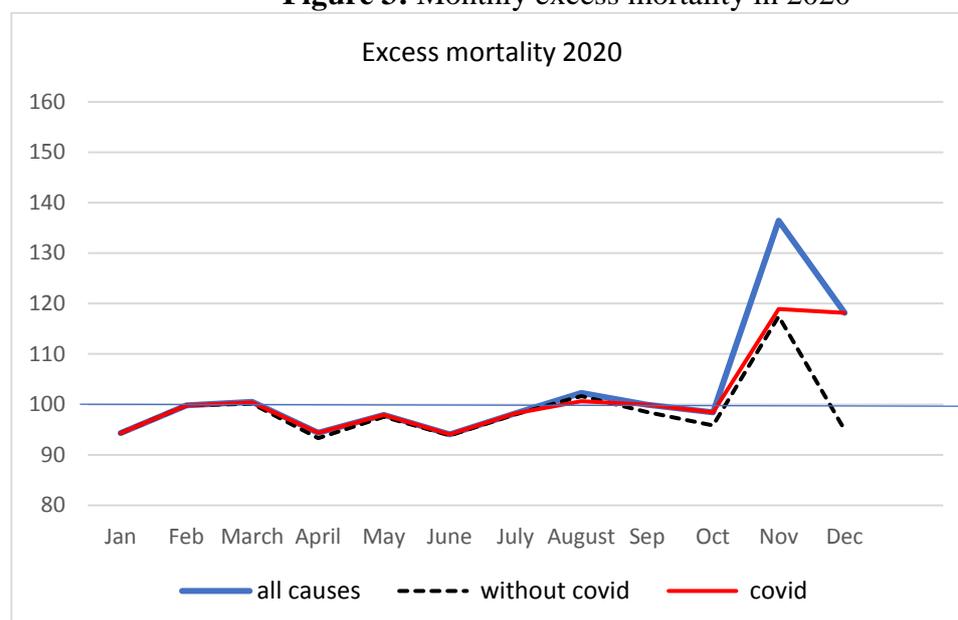
Source: own calculations based on population estimates taken by ELSTAT (2021) and recorded deaths taken by Eurostat (2022d). See methodology section for details.

On the other hand, 2021 presented greater excess mortality, especially in the end of June and in the beginning of August, when deaths due to respiratory diseases are least expected. In the first months of 2021 (January to March) there was not excess mortality apart from the first week of January, which reflects a continuation of a trend in the previous year. In fact, from the second week of January to the end of February less deaths than expected were recorded in 2021 (the baseline being the average deaths of 2015-2019). From mid-March to the end of the year excess deaths imply that 2021 was not a “normal” year, mortality wise.

Yet, weekly variations obscure a more general pattern of seasonality. That is why monthly excess mortality by cause of death is presented further on.

6. Monthly excess mortality by cause of death

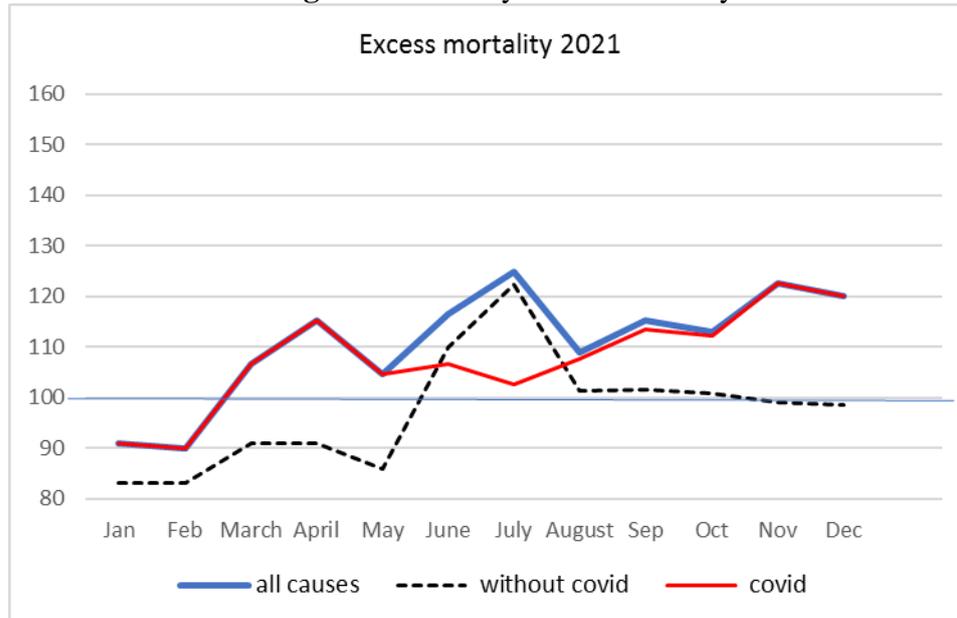
Figure 3: Monthly excess mortality in 2020



Source: own calculations based on population estimates taken by ELSTAT (2021) recorded deaths taken by Eurostat (2022d) and officially recorded number of deceased with Covid-19 taken from Our World in Data (2022b).

Excess mortality in 2020 was recorded only in the last two months of the year, that is in November and December. Especially in November, there was a 36% increase in the number of expected deaths. However, only 19% of the excess deaths are attributed to covid-19. The remaining 17% of the excess mortality is due to other causes of death. In December 2020 deaths exceeded the baseline by 18%, all of which are attributed to covid-19.

What is noteworthy in figure 3 is that there was no excess mortality during the first 10 months of the year. And even a slight excess of 2% in August is not due to covid-19. These findings come as a sharp contrast to the impression that was given by the mainstream mass media in Greece, which were presenting in a 24-hour routine every single death that was attributed to Covid-19 as an excess death. In reality, the first wave of the pandemic in the spring of 2020 did not leave any footprint in the mortality of Greece.

Figure 4. Monthly excess mortality in 2021

Source: own calculations based on population estimates taken by ELSTAT (2021) recorded deaths taken by Eurostat (2022d) and officially recorded number of deceased with Covid-19 taken from Our World in Data (2022b).

In 2021 excess mortality started in March (7%) and escalated in April (15%). From May to the beginning of August excess mortality due to deaths attributed to covid is declining, though excess mortality due to all causes of death is increasing in June and July (figure 4). It is noteworthy that in May 2021 the population of Greece was allowed to break the strict quarantine that was in action for almost seven months, from 7/11/2020 to 21/4/2021 (<https://ourworldindata.org/grapher/covid-stringency-index>). The lifting of the lockdown and the abolition of the quarantine of the general population was followed by a drop in excess covid-attributed deaths. However, excess mortality due to covid resumed its ascending trend, in August 2021, when a mutation of sars-cov-2 (the so called “Delta” variant) prevailed in Greece. What is unexplained is the excess mortality due to causes other than covid, which during June and July made up 10% to 22% of the total excess mortality respectively, while the contribution of covid to the excess mortality was 7% in June and 3% in July.

7. Discussion

This paper tries to assess the impact of a virus epidemic (Covid-19) on the mortality of the population of Greece during 2020 and 2021. In 2020 the impact of the epidemic was negligible. Only in the last two months of 2020 there was a relative surplus of deaths compared to the baseline. This surplus exceeded 30% in November 2020 but only a 20% of it can be attribute to covid-related deaths. By covid-related deaths we mean deceased persons that are officially registered as dying having been tested positive to the virus (not necessarily dying from sars-cov-2).

In the first two months of 2021 monthly excess mortality was negative, meaning that there was a deficit of deaths compared to the average of the baseline period (2015-19). From March onwards a surplus of deaths was recorded in every single month until the end of 2021. For the spring and the last trimester of the 2021, this surplus of deaths, which reached 23% in November, can be attributed mainly to covid-related deaths. Yet, for the rest of the year (June to mid-October) covid-19 is

responsible for only a fraction of the excess mortality. In the summer of 2021 excess mortality reached 25%, but only 3%-5% of it can be attributed to covid-related deaths (as these were officially recorded). The rest 22% remains unexplained excess mortality. It may be the prolonged heatwave in the summer of 2021 in combination with the disastrous wildfires in July/August, that had taken their toll on the Greek population. An association between occurrence of wildfires and mortality in the exposed population has been observed in several studies (Faustini A, Alessandrini ER, Pey J, et al, 2015), but one needs more concrete data to reach a safe conclusion.

Whatever the cause for this “unexplained” excess mortality is, the fact that this paper brings to light is that only 8% of the surplus deaths in 2021 can be attributed to covid-related deaths.

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Appendix

International Standard of dates (ISO 8601) for the years 2020 and 2021

Week	2020	2021
1	30/12/2019 - 5/1/2020	4/1/2021 - 10/1/2021
2	6/1/2020 - 12/1/2020	11/1/2021 - 17/1/2021
3	13/1/2020 - 19/1/2020	18/1/2021 - 24/1/2021
4	20/1/2020 - 26/1/2020	25/1/2021 - 31/1/2021
5	27/1/2020 - 2/2/2020	1/2/2021 - 7/2/2021
6	3/2/2020 - 9/2/2020	8/2/2021 - 14/2/2021
7	10/2/2020 - 16/2/2020	15/2/2021 - 21/2/2021
8	17/2/2020 - 23/2/2020	22/2/2021 - 28/2/2021
9	24/2/2020 - 1/3/2020	1/3/2021 - 7/3/2021
10	2/3/2020 - 8/3/2020	8/3/2021 - 14/3/2021
11	9/3/2020 - 15/3/2020	15/3/2021 - 21/3/2021
12	16/3/2020 - 22/3/2020	22/3/2021 - 28/3/2021
13	23/3/2020 - 29/3/2020	29/3/2021 - 4/4/2021
14	30/3/2020 - 5/4/2020	5/4/2021 - 11/4/2021
15	6/4/2020 - 12/4/2020	12/4/2021 - 18/4/2021
16	13/4/2020 - 19/4/2020	19/4/2021 - 25/4/2021
17	20/4/2020 - 26/4/2020	26/4/2021 - 2/5/2021
18	27/4/2020 - 3/5/2020	3/5/2021 - 9/5/2021
19	4/5/2020 - 10/5/2020	10/5/2021 - 16/5/2021
20	11/5/2020 - 17/5/2020	17/5/2021 - 23/5/2021
21	18/5/2020 - 24/5/2020	24/5/2021 - 30/5/2021
22	25/5/2020 - 31/5/2020	31/5/2021 - 6/6/2021
23	1/6/2020 - 7/6/2020	7/6/2021 - 13/6/2021
24	8/6/2020 - 14/6/2020	14/6/2021 - 20/6/2021
25	15/6/2020 - 21/6/2020	21/6/2021 - 27/6/2021
26	22/6/2020 - 28/6/2020	28/6/2021 - 4/7/2021
27	29/6/2020 - 5/7/2020	5/7/2021 - 11/7/2021
28	6/7/2020 - 12/7/2020	12/7/2021 - 18/7/2021
29	13/7/2020 - 19/7/2020	19/7/2021 - 25/7/2021
30	20/7/2020 - 26/7/2020	26/7/2021 - 1/8/2021
31	27/7/2020 - 2/8/2020	2/8/2021 - 8/8/2021
32	3/8/2020 - 9/8/2020	9/8/2021 - 15/8/2021
33	10/8/2020 - 16/8/2020	16/8/2021 - 22/8/2021
34	17/8/2020 - 23/8/2020	23/8/2021 - 29/8/2021
35	24/8/2020 - 30/8/2020	30/8/2021 - 5/9/2021
36	31/8/2020 - 6/9/2020	6/9/2021 - 12/9/2021
37	7/9/2020 - 13/9/2020	13/9/2021 - 19/9/2021
38	14/9/2020 - 20/9/2020	20/9/2021 - 26/9/2021
39	21/9/2020 - 27/9/2020	27/9/2021 - 3/10/2021
40	28/9/2020 - 4/10/2020	4/10/2021 - 10/10/2021
41	5/10/2020 - 11/10/2020	11/10/2021 - 17/10/2021
42	12/10/2020 -	18/10/2021 -

	18/10/2020	24/10/2021
43	19/10/2020 - 25/10/2020	25/10/2021 - 31/10/2021
44	26/10/2020 - 1/11/2020	1/11/2021 - 7/11/2021
45	2/11/2020 - 8/11/2020	8/11/2021 -14/11/2021
46	9/11/2020 - 15/11/2020	15/11/2021 - 21/11/2021
47	16/11/2020 - 22/11/2020	22/11/2021 - 28/11/2021
48	23/11/2020 - 29/11/2020	29/11/2021 - 5/12/2021
49	30/11/2020 - 6/12/2020	6/12/2021 - 12/12/2021
50	7/12/2020 - 13/12/2020	13/12/2021 - 19/12/2021
51	14/12/2020 - 20/12/2020	20/12/2021 - 26/12/2021
52	21/12/2020 - 27/12/2020	27/12/2021 - 2/1/2022
53	28/12/2020 - 3/1/2021	

Source: ELSTAT 2022

The Effects of the Refugee Issue to the Tourism Development of Chios Island

Abstract:

The refugee issue is timeless and has a multifaceted impact on historical developments both in the international and the Greek spheres. This is a major issue that affects country relations and raises concerns about prevention, management, and response measures. It is a fact that the continuous flows from Turkey in connection with the closure of the borders from Central and Northern European countries are increasing in terms of the number of refugees who remain entangled both in the Aegean islands and in the mainland. The consequences of the concentration of refugees on the islands of the North Aegean Region are evident in the economic field, mainly in the tourism sector, as well as in social relations and even in the educational process. In addition, issues related to managing the workforce of migrant refugees, by incorporating them into local societies, religion and culture are created. All these factors, as it is expected, are a brake on the tourist development of the affected Aegean islands and, of course, Chios. The purpose of this paper is to illustrate the impact of the refugee issue on the tourist development of the island of Chios. For this reason, quantitative research is being carried out aiming at presentin- the views of experts on issues related to this theme and its impact on the tourism development of Chios. This will allow the adoption of appropriate policy measures that will highlight tourism as a key component of the development of Chios Island, successfully addressing the problems arising from the refugee crisis.

Key words: Refugee issue, Greece, North Aegean, Chios Island, tourism development

Dr. Panoraia N. Poulaki¹, Paraskevas F. Tsorvas², Dr. Dimitrios G. Lagos³

¹Corresponding-Address: Dr. Panoraia N. Poulaki, Academic Teaching Staff , Department of Economic and Management of Tourism, University of the Aegean, Email: panoraia@aegean.gr

² Corresponding-Address: Paraskevas F. Tsorvas, University of the Aegean, PhD Student, Email: isidoros.pater@gmail.com

³ Corresponding-Address: Paraskevas F. Tsorvas, University of the Aegean, PhD Student, Email: isidoros.pater@gmail.com

1. Introduction

In recent years, Greece has been severely affected by the phenomenon of immigration and the refugee crisis as many people are forced to leave their homelands due to war and authoritarian regimes. This is an international phenomenon/issue of major importance with priority of immediate treatment and management. Undoubtedly, it is influenced by many external factors and especially by the international social and political changes that take place in third world countries. The refugee-immigration issue is of interest to all the Member States of the European Union, as they suffer from the many social, humanitarian, and economic problems that have arisen. The effects on the tourism sector are particularly important.

A refugee is any person outside his or her country of origin or residence who has a legitimate fear of persecution on the grounds of race, religion, nationality, membership in a particular social group or political belief and who, because of this fear, does not wish to enjoy the protection of that country or his return to it. The refugee and the immigrant have in common the movement. These are two different categories of mobile populations and are subject to different legal regimes. The distinction between an economic immigrant and a refugee is sometimes blurred. (UNCHR, 1993). Migration is the natural transition of an individual or group of individuals from one society to another and is done voluntarily or involuntarily for the purpose of their temporary or permanent settlement (Lianos, Benos, 2003). Many cultures have been affected by this phenomenon and its complexity is since it concerns many fields such as politics, economics, psychology and sociology.

Immigration is a complex process on a global scale, but also a modern phenomenon (Bagavos, Papadopoulou, 2006). The types of migration are a) voluntary, b) forced and c) violent. A typical example of this type are deportations and expulsions. The 20th century has been characterized as the century of immigration with great historical events. The largest refugee flows occurred in Russia during World War I and during the October Revolution, which reached 2.5 million (Goldin, Cameron, Balarajan, 2013). Europe in recent years has experienced the largest mass movement of people since World War II. During the period 1985-1995, Greece accepted about 64,000 refugees, who came from the Pontus region with the main cause of the collapse of the Soviet Union (Sakellaropoulos, 2003). Since the 1990s, Greece has accepted refugee-immigrants from Albania, Bulgaria, Georgia, Romania, Russia and Ukraine (Papastergiou & Takou, 2013: 89-92).

There are two types of illegal immigration in Europe: a) the "western", which is faced by Spain and Malta and is characterized by long sea distances between the country of origin and the country of destination, and b) the "eastern-Greek", which is characterized by small sea distances traveled by vessels of various types, which can transport many illegal immigrants (Ministry of Shipping, 2019). In the face of large refugee flows, European countries and Greece found themselves facing the responsibility and moral obligation to welcome and help these people (Rontos, Nagopoulos, Panagos, 2017: 3). Most of these host countries are poor and unable to provide adequate assistance to refugees, while many of the richer nations host the fewest and do the least (UNHCR, 2016).

The refugee crisis and its management have not been properly shared, ten countries (Jordan, Lebanon, Turkey, Pakistan, Iran, Chad, Ethiopia, Kenya, Uganda, DR Congo) accept 85% of refugees (UNHCR, 2016). In matters of reception, strong feelings of solidarity were found, which were accompanied by corresponding acts of support to these people on the part of local and various organizations (Rontos, Nagopoulos, Panagos, 2017: 5).

Thousands of refugees and migrants have entered Greece by sea in the islands of the North Aegean and in the Dodecanese. The management of these inputs is one of the most important issues that our country must face. Greece cannot deal with it alone, it is imperative to properly manage the issue with the help of others involved, to reduce the negative impact on the tourism economy.

2. Theoretical framework of the refugee-immigration issue

The intensity of refugee / migration flows has been increasing in recent years in Greece and this is mainly due to the social, economic and political changes that are taking place in Asian and African countries. Also, the war in Syria has played a decisive role in combination with the special geophysical structure of Greece with the number of its islands (Baldwin-Edwards, 2004: 3). After a period of uncertainty, efforts were intensified to build appropriate reception conditions for new arrivals, to strengthen the registration procedures, as well as the effectiveness of the coordination of all stakeholders (Rontos, Nagopoulos, Panagos, 2017: 5).

Illegal migrants in the Mediterranean come mainly from African countries (Morocco-Algeria-Tunisia) to Spain, Malta, Italy and from Egypt-Turkey to Greece. After 2000 most immigrants coming to Greece come from Asia and Africa. From 2006 to 2015, more than 1.8 million people entered Greece illegally (Ministry of Interior, Directorate for Border Protection, 2016). Europe had pursued an open border policy, facilitating the movement of these people from countries such as Syria, Iraq and Afghanistan to its territories. From 2006 to 2011, people from another European country, mainly Albania, make up 50% of those entering illegally and are economic migrants. From 2012 to 2015, citizens of three countries, Syria, Iraq and Afghanistan, make up 80% of the total (Ministry of Interior, Directorate of Border Protection, 2016).

According to the United Nations High Commissioner for Refugees (UNHCR, 2016), there are 22.5 million refugees, 40.3 million displaced, 2.8 million asylum seekers, a total of 65.6 million tortured seeking better living conditions, and half of them are children. Today, immigration and illegal immigration are a single phenomenon. Asylum seekers in the European Union in 2015 were 1.32 million and in 2016 were 1.25 million (Eurostat, 2017). Most new entrants continue to come from countries of origin, which are at war or in a state of generalized violence. Specifically, 27.7% come from Afghanistan, 24.4% from Syria and 18% from Iraq (Hellenic Refugee Council, 2019). Asylum seekers in the European Union are from: Syria, Afghanistan, Iraq, Kosovo, Albania, Eritrea, Pakistan, Nigeria, Iran and Ukraine (Ministry of Citizen Protection, Eurostat, 2017). Also, asylum seekers in 2012 were 2.12% of those entering, in 2013 it was 21.76%, in 2014 it was 44.64% and in 2015 it was 93.03% (UNHCR, 2016).

From 2006 to 2011, the nationalities of asylum seekers in the European Union were mainly Pakistanis, Iraqis, Afghans and Syrians. From 2012 to 2015 they were Pakistanis, Afghans, Syrians and Iraqis (Eurostat, 2017). Asylum seekers in 2013 were 4,814, in 2014 were 9,451, in 2015 were 13,188, in 2016 were 51,061 and in 2017 were 58,661 (Ministry of Citizen Protection, 2018). The number of asylum applications recorded in 2018 amounts to 66,970 people, while in 2017 it was 58,642 (Hellenic Refugee Council, 2019). From October 2015 to January 2018, the Asylum Service had received 27,457 relocation applications and sent 24,908 requests to other countries. The number of relocations that have taken place is 22,817. Germany has received the largest number of asylum applications and 5,373 people have been relocated. Also, in France 4,394 people were relocated, in Sweden 1,656 and in the

Netherlands 1,754 people. Austria, Hungary and Poland have not accepted any application (Asylum Service, 2018). The estimated number of unaccompanied minors in 2017 was 3,350 in Greece, 39% from Pakistan, 21% from Afghanistan, 14% from Syria, 6% from Algeria, 5% from Iraq, 4% from Bangladesh and 11% from other countries (National Center for Social Solidarity, 2017).

The number of asylum seekers in 2018 was 71,000. Of these, 14,600 were on the Greek islands. Also, people in rented apartments: 22,700, people in the emergency housing program: 2,500, people in accommodation structures: 20,000, unaccompanied minors: 3,741, asylum seekers in detention: 18,204 (Hellenic Refugee Council, 2019). 2016 has been designated as the year with the most losses recorded in the Mediterranean (UNHCR, 2018). The arrivals of refugees in 2017 were 36,310 and in 2018 were 50,511. Arrivals to the islands in 2017 were 29,718 and in 2018 were 32,497. Also, the arrivals through Evros river were 6,592 in 2017 and 18,014 in 2018 (Hellenic Refugee Council, 2019). The Hellenic Refugee Council in the year 2018 served at least 13,611 people, providing legal services to at least 11,468 people and social services to 7,249 people. Since its establishment in 1989, until today, it has served more than 110,000 people (Hellenic Refugee Council, 2019).

The refugee and migration wave to Greece is intense, as the country is the main entry point to Europe. It is considered "Europe's gateway for illegal immigration" (Chletsos, Dokos, Gavroglou, 2001). Immigrants who are third-country nationals need to go through a pre-approval process to enter and stay in the host country, while those from a European Union member state are entitled to free residence.

3. Refugee-migration flows in the aegean sea

Several of the islands of the Eastern Aegean received a very large wave of refugees and migrants. There is an increase in refugee flows from September 2015 to February 2016 onwards, in search of a better life. In Greece, most refugee-migrants come mainly from Turkey with plastic boats and old ships to the islands of Lesbos, Chios, Samos, Kos and Leros. By October 2015, 613,179 refugees and migrants had entered the European Union from the sea and 472,754 of them from Greece. In addition, by October 2015, 3,117 deaths were recorded in the Mediterranean, of which 278 in the Aegean (International Organization for Migration, 2015). By 2016, fewer than 5,000 asylum seekers had relocated from Greece (3,791) and Italy (1,156). Percentage corresponding to 3% of their original target (UNHCR, 2016). Médecins Sans Frontières reports that it has treated 55,000 refugees, provided humanitarian assistance to 88,000 and rescued 17,800 in the Aegean (Medecins sans frontieres, 2017). The German financial newspaper Handelsblatt, (2017), highlights the extremely difficult situation in the Aegean islands, where a total of 15,000 people live and specifically for Moria on Lesbos where 6,500 people were living, while the places for humane living conditions are only 2,300.

It is worth mentioning that 75% of the refugee-immigrants who arrived in Europe in August 2019, passed through Greece. This is a 9% increase compared to July 2019 in the islands of the Eastern Aegean. 12,900 refugee-migrants crossed into Europe in August 2019, of which 9,300 arrived in the islands of the Eastern Aegean and the total number amounts to 38,300 people. Regarding the country of origin, it is pointed out that 2 out of 5 were from Afghanistan (Frontex, 2019). The large flow of refugees from Turkey to Greece has resulted in several negative social and political consequences, such as the destabilization of social cohesion through demographic

change, as well as the encouragement of the spread of organized crime and terrorist networks (Amitsis & Lazaridis, 2001, Saitis, 2008: 64).

According to data from the Hellenic Police, (2018), the illegal entry of refugee-immigrants in our country is as follows: 95,239 (2006), 112,364 (2007), 146,337 (2008), 126,145 (2009), 132,524 (2010), 99,368 (2011), 76,878 (2012), 43,002 (2013), 77,163 (2014), 911,471 (2015), 204,820 (2016), 83,223 (2017). Immigrant arrivals in Greece are about 48% from Syria, 25% from Afghanistan, 15% from Iraq, 4% from Pakistan, 3% from Iran and 5% from other countries such as Morocco, Sudan, Ivory Coast and others.

The arrivals of refugees-immigrants in the islands of the Eastern Aegean in 2015 were 856,723. It was 107,843 in August, 147,123 in September and 211,663 in October. Regarding the gender of refugee-immigrants who entered the Greek islands were 45% men, 20% women and 35% children (UNHCR, 2016). The arrivals of illegal foreigners in the islands of the Eastern Aegean in 2016 and 2017 are as follows: 106,713 in Lesvos, 47,007 in Chios, 20,083 in Samos, 23,972 in the Dodecanese and 1,356 in the Cyclades (Hellenic Police, 2018). Arrivals in Lesvos in 2016 were 26,081, in Chios 9,394, in Samos 2,936, in Leros 2,863, in Kos 1,491 and in Agathonisi 400. In terms of nationality, 56% came from Syria (International Organization for Migration, 2017).

High percentages of Syrians are observed from mid-2015 to early 2016 on the island of Chios. The same is true of Afghan refugees, with a very large increase in January 2016. They are followed by Iraqis, Iranians and Moroccans. Many of the foreigners entering Greece (refugees, immigrants), do not intend to settle in our country, but to move in a short time to other countries of the European Union. This occurs in the very small percentage of those who apply for asylum in our country (UNHCR, 2016). In the first five months of 2017, 6,142 refugees and immigrants entered in the islands of the North Aegean, 1,859 in Lesvos, 2,876 in Chios and 1,407 in Samos. 9,170 refugees and migrants came to the islands of the North Aegean in June 2017, while in January of the same year it was 11,078.

From the total of 66,970 asylum applications, a total of 27,426 applications were submitted to the islands as follows per island: Lesvos: 11,949, Samos: 6,743, Chios: 4,082, Kos: 2,141, Leros: 1,784, Rhodes: 727 (Hellenic Refugee Council, 2019). Through various programs and funding (OXFAM, UNHCR, MSF, Dutch Council for Refugees, etc.), the Hellenic Refugee Council managed to maintain a presence, almost throughout the year, in all the islands, Lesvos, Samos, Chios, Kos, Leros and Rhodes (Hellenic Refugee Council, 2019).

One of the policy measures taken by the European Union to manage the refugee-migration crisis is the installation of hot spots. These are registration, accreditation or settlement centers where migrant refugees have settled both in Greece and in Italy. These centers work with the European Border and Coast Guard (Frontex), the European Asylum Support Office (EASO), and Europol (UNHCR, 2016).

It is a fact that the hospitality structures, hot spots, present many shortcomings both in Chios and in the other Aegean islands. In May 2016, the refugee-immigrants in structures and places of accommodation were in Lesvos 4,287, in Chios 2,419 and in Samos 1,114. In June 2017, the number of hosted refugee-migrants in structures in Lesvos was 3,708, in Chios 1,949 and in Samos 2,091 (International Organization for Migration, 2018).

According to UNHCR data (2021), refugee / immigrant arrivals in Greece in September 2019 were 96,500. In particular 30,700 on the islands and 65,800 inland.

From January to September 2018 the arrivals were 37,300, the 23,400 were sea arrivals and the 13,900 were land. From January to September 2019 the arrivals were 46,100, the 36,100 were sea arrivals and the 10,000 were by land. In September 2020 the number of refugees / immigrants in Greece was 121,100, 22,900 on the islands and 98,200 inland. From January to September 2020 the arrivals were 13,000, 3,900 were by land arrivals and 9,100 sea arrivals.

It is worth noting the 81% decrease in the number of residents on the islands, as recorded in August 2021 compared to August 2020. The largest decrease is recorded in the residents of Chios, which is of the order of 89%, followed by Kos and Samos with 88%, Leros with 87% and Lesbos with 75%. The total number of residents in the territory in August 2021 is reduced by 49% compared to August 2020. Flows in arrivals in the first eight months of 2021 are reduced by 53% compared to the first eight months of 2020.

On the islands in particular, arrivals are reduced by 78%. In the first eight months of 2021, 7,841 people left for either Europe or third countries through the mechanisms of deportation, return and relocation of third-country nationals. In August 2020, a total of 82,119 asylum seekers resided in all structures managed or supervised by the Ministry of Immigration and Asylum, while in August 2021, 42,181 reside (Hellenic Ministry of Migration and Asylum, 2021).

Special assistance to the refugee-migrants of the Aegean islands was offered by the UN High Commissioner for Refugees, Frontex, Europol, the Commission, the Greek Police, the Municipalities, the army, the Coast Guard, the Hospitals, the voluntary organizations and the population. In addition, many humanitarian organizations and individual volunteers came to help the refugee-migrants arriving in the Aegean islands.

The role of the Non-Governmental Organizations that try to provide the necessities in food, water and medical services to the refugee-immigrants is very basic. NGOs have been accused several times of opacity and managing huge cash grants to serve selfish interests. In Chios, 14 NGOs have been active and have actively undertaken the management of the issues faced by the refugee-immigrants. Specifically, the following are: Hellenic Red Cross, Spanish Red Cross, MDM Greece, MDM Holland, Save the Children, Praxis, Metaction, Samaritans Purse, Apostoli, NRC, UNHCR, Drop in the Ocean, WAHA, IFRC (<https://www.politischios.gr/>).

Frontex is also the cornerstone of the EU's efforts to ensure the area of freedom, security and justice, helping to ensure an area of free movement without internal border controls that many of us already take for granted. The collection and processing of personal data of persons crossing the external border illegally for use by Europol and national law enforcement authorities is just one example of these activities (Frontex, 2019). The International Organization for Migration (IOM), as the largest international organization for migration in the world, acts with its partners in the international community based on the safety and dignity of migrants to a) Address the growing operational challenges of managing the migration, b) Early understanding of migration issues, and c) Encouraging social and economic development through migration. The main actions of this Organization are: 1) Voluntary returns and reintegration, 2) Relocation to other Member States of the European Union, 3) Coordination of open accommodation structures, 4) Integration of the migrant population in cooperation with municipalities of the country, 5) Primary Medicine Care with collaborating stakeholders, 6) Safe zones for unaccompanied minors, and 7) Education of refugee and immigrant children (IOM, 2019).

As is known, Chios is in the early stages of tourism development. Various efforts have been made by both the North Aegean Region and the Municipality, to develop tourism, but they are quite fragmentary. The traditional tourists of the islands are mainly Dutch, British, Germans, Austrians and Scandinavians. Tourists from Western Europe are more interested in special and alternative forms of tourism and the Turkish market has contributed significantly to the extension of the tourism season, offering many benefits to Chios.

In terms of air arrivals in Chios in July 2016 there was a decrease of 72% compared to July 2015 and flights decreased by 64% (Chios State Airport, 2017), while in terms of employment there is no significant decrease in years 2015 and 2016 in the Aegean islands (Ministry of Labor and Social Affairs, 2017). Also, tourist arrivals and reservations decreased significantly in 2016 and 2017 (Chios Hoteliers Association, 2018).

According to data from the CAA of Chios, (2018), it is worth noting that before the crisis, Chios received 10,000 to 12,000 European tourists a year on charter flights. Tourists came to Chios mainly from England, Germany, Denmark, Norway, Belgium and the Czech Republic. In 2017, with the one and only company from Slovenia, the island received 771 tourists from abroad, while domestic flights arrived 103,684, 12,207 more than in 2016.

The growing tourism movement of the middle-class Turks in our country in recent years had been strongly observed. Many people consider Chios a suitable destination for a short vacation. This development has cultivated several expectations in professional associations and trade associations (Poulaki, 2018: 252-261). In 2017, there were many Turkish tourists on the island of Chios, in contrast to the decrease in tourists from Europe and America. In the first half of 2017, 55,447 Turks arrived in Chios, Samos and Lesvos, an increase of 50% compared to 2016. Of these, 28,000 tourists visited Chios and 13,624 visited Lesvos (North Aegean Region, 2018).

Turkey was the first tourism market for all the islands of the North Aegean region, with a total of 117,706 Turkish tourists visiting Chios, Lesvos and Samos in the period January-September 2019. This was emphasized by the official data of the North Aegean Region. For this reason, the preparation of the tourism promotion program of the Region for 2020 ranked the neighboring country at the top of the pyramid of strategic goals of promotion and attracting visitors (North Aegean Region, 2020).

In particular, the arrivals of visitors through customs from Turkey until September 2019 in Lesvos amounted to 35,991, increased by 4.46% compared to 2018. In Chios 50,608 tourists passed through the sea gates while 31,107 people came to Samos from Turkey. The number of domestic arrivals of flights for the years 2018 and 2019 was 108,064 and 116,277 respectively. In terms of international air arrivals for the year 2018 there were 2,466 arrivals while for 2019 there were 804 arrivals. International air arrivals in 2020 were zero.

Respectively, for domestic air arrivals, a large decrease in arrivals was observed compared to the two previous years (Chios CAA, 2020). According to ELSTAT data, (2020), arrivals on the island of Chios including arrivals at the port of Volissos and Mesta for the years 2018 and 2019 were 181,242 and 161,419 respectively, where there is a decrease in arrivals on the island for the year 2019. The rapid decline in arrivals is due, of course, to the spread of the Covid-19 pandemic.

Clearly, the infrastructure and capabilities of Chios are limited enough to deal with such a massive refugee-migration phenomenon. Also, the creation of the hot spot

causes intense concern in the local community of Chios, because in this way a situation is consolidated, and the refugee-immigrants remain trapped on the island.

4. Methodological framework of the research

In this paper, qualitative research was conducted using structured interviewing, as it is one of the main methods for collecting qualitative data. The structured interview urges the informant to answer some open-ended questions. There is flexibility to explore in depth the issues to be researched. The interviews asked for the views of the informants on the following areas: 1) Current situation of the refugee-immigration issue and the effects of this issue on the tourism development of Chios, and 2) Proposed policy measures to address the refugee-immigration issue.

Meetings were held with each informant from July 25 to September 15, 2019. The key informants of the qualitative research are the following:

- Chios Police (2)
- General Secretariat for the Aegean and Island Policy (1)
- Administrative Services and Competent Departments of Chios Regional Unit (4)
- Administrative Services and Competent Departments of the Municipality of Chios (3)
- Chios Trade Association (3)
- Chios Hoteliers Association (1)
- Chios Chamber of Commerce (3)
- Chios Private Tourism Agency (1)
- Chios Port Authority (3)
- Members and employees of Non-Governmental Organizations (6)
- Frontex Members (3)
- Association of Owners of Rooms, Apartments and Holiday Homes (1)
- Travel Agents of Chios (5)
- Employees of Chios Accommodation Structures (7)

This was followed by analysis and interpretation of the collected information and the drawing of conclusions.

5. Results of the research

Regarding the 1st axis of questions concerning the current situation of the refugee-immigration issue and the effects of this issue on the tourism development of Chios, the following results emerged:

✓ Most tourism entrepreneurs have responded that the large wave of refugee-migration flows has negatively affected their economic activity, as many economic problems have been created. This view is also supported by the competent services from the Regional Unit of Chios and the Municipality of Chios. While, the representatives of the Non-Governmental Organizations emphasize the financial benefits that the hosting entrepreneurs have from the members of the NGOs, the Greek and foreign journalists and the members of Frontex.

✓ A bad image has prevailed for the island that acts as a deterrent to the arrival of tourists. The effects of the refugee issue are visible in the cancellations of reservations both in hotels and rooms for rent, as well as by tour operators. The Travel Agencies and the Municipality of Chios stressed the cancellations of reservations that occurred, as well as the reduction of cruise ship approaches in Chios. It was observed that the tourism season in Chios was more limited in the years 2015, 2016 and 2017. This is

confirmed by the quantitative data of the secondary survey based on data from the Chios CAA and the Chios Hoteliers Association.

✓ The bad image of the island that is directly related to the refugee and migration flows has strongly influenced the choices of students, as they do not choose the islands of the North Aegean for their studies. This was mostly supported by the interviewed local authorities and the businessmen of the island.

✓ The respondents from the Regional Unit of Chios, the Municipality of Chios and the Greek Police conveyed the complaints of many locals who are adjacent to the accommodation structure for delinquent behavior of refugee-immigrants. They also stressed that there has been a strong environmental pollution, as well as several health issues, as the action of voluntary health and welfare organizations is not enough for the growing needs of refugee-immigrants. There have been some issues of crime, violence and terrorism, as a result of which the feeling of xenophobia and racism is cultivated in Chios. The refugee-immigration issue, if remains an unresolved problem, is considered a threat to the locals, local authorities said.

✓ When asked if they want the refugee-immigrants to stay on the island, competent services and businessmen stressed their desire to relocate them, expressing the fear of developing a different culture and perceptions that could cause alteration of the population. It was also reported that their stay on the island generally carries many risks.

✓ Apart from the negative effects of the refugee-migration phenomenon, the positive ones were also pointed out by many respondents. Emphasis was placed on the development of volunteerism and social solidarity. There have been many actions of offering and support to the suffering refugee-migrants, not only by the local authorities, NGOs and Frontex but also by many residents of the island who have embraced the refugee-migrants offering material goods and humanity. Most informants stressed the solidarity and social contribution cultivated in Chian society.

✓ Most entrepreneurs mentioned the financial support of the local market from the stay of the refugee-immigrants. The same applies to the stay of NGOs, as they are a stimulus for tourism businesses (hotels, restaurants, car rental, etc.). There was also an increase in the revenues of shipping and airline companies from transporting migrants, NGO members, employees in hospitality structures and news agencies.

✓ Another positive consequence of the large wave of refugee-migration flows is the recruitment made by the UN High Commissioner for Refugees, the state and NGOs in order to meet various operational needs.

Regarding the 2nd axis of questions referred to the proposed policy measures to address the refugee-immigration issue, the following results emerged:

✓ It is worth noting that all participants express their agreement that the refugee-immigration issue has not been dealt efficiently by both the state mechanism and local stakeholders. Of course, the important contribution of the Greek Police, the Army and the Coast Guard and the members of the NGOs in the immediate resolution of many situations was emphasized.

✓ Most respondents expressed the view that they are not satisfied with the whole treatment and management of this issue and suggested policy actions and measures. It was stressed that the need for government measures to reduce the negative effects of the refugee-immigration issue is urgent.

✓ It was reported that prompt processing of identification and asylum applications is required. Refugees / migrants stay in detention centers and tents for a long time,

their living conditions are difficult, as they are trapped in accommodation structures. It is needed a dynamic approach and special handling of the refugee-immigrant issue.

✓ Most respondents supported the view that they were not satisfied with the European Union's attitude and actions towards the refugee-immigration issue. On the contrary, all the informants expressed their satisfaction with the treatment of the refugee-migrants by the Coast Guard, the NGOs and Frontex on the island.

✓ Insufficient support of the issue by the state mechanism at national level and lack of relevant legislative framework has been observed. The state mechanism is considered unprepared to address these issues and the efforts and initiatives of volunteers are not sufficient to manage the refugee issue. It was suggested that it is necessary to have an organized plan at national and international level, to improve the existing hospitality structures and to make more recruitments.

✓ Regarding the development of tourism, most organizations believe that Chios is in a primary stage of tourism development. Mass tourism has developed more in July and August and several efforts are being made to switch to special and alternative forms of tourism. The lack of proper infrastructure and tourism promotion of the island has acted as a deterrent to tourism development.

✓ There is a convergence of views of the respondents that the actions of promotion and advertising of the island are necessary inside and outside with the utilization of the modern means of technology. Also, local products and special and alternative forms of tourism should be promoted with emphasis on agritourism, walking tourism, wine tourism, gastronomic tourism, spa and religious tourism.

✓ It was stressed that there is a lack of coordination of work on tourism development, as mastic cultivation and shipping played a leading role and that in recent years there has been a particular shift towards tourism. It was suggested that the island should acquire a strong identity and a more distinct presence with the opening of new markets to Europe, the USA and Russia and at the same time to take advantage of the existing tourist flow from Turkey.

6. Concluding Remarks

The refugee-immigration issue has been of particular concern to the Greek and international community in recent years. Hundreds of thousands of people have sought better living conditions in the Aegean islands. The situation is dramatic, as thousands of trapped refugees try to find a way out to countries of their choice. Their stay creates many problems, and it is definitely a political issue that is difficult to manage and deal with.

Several actions were proposed to address the problem, emphasizing the activism of local agencies and locals but also the readiness of the state mechanism. Clearly, there was a lack of organization and a low capacity to respond to crisis management. Several actions have been taken by the North Aegean Region, the Municipality of Chios and the Chamber of Commerce, but it is imperative that all stakeholders, public and private, cooperate in order to manage the major issue of refugee-migration flows.

In addition, asylum procedures are very time consuming and, clearly, the management of this issue is a serious problem and cannot be dealt effectively by local authorities and volunteer groups alone. It is necessary to manage the refugee issue at national and European level. The North Aegean Region, realizing the major issue, appointed a Deputy Regional Head of Immigration for better management and treatment.

The strong effects that occurred on the island during the years 2015, 2016 and 2017 in matters of economy and society were highlighted. This issue has also affected the country's tourism with multiplier consequences. Cancellations of bookings, conferences and cruise ship approaches were canceled. It is obvious that the ugly and dissuasive image of the islands of the North and East Aegean is of particular concern to tour operators during the period of negotiations and the signing of contracts.

As is well known, the main tourists on the island of Chios are Greeks and Turks, while the number of Europeans is small. The negative image of our island has greatly affected European tourists by acting as a deterrent. The respondents stressed that the issue and its problems should be made public and that the positive actions, acts of humanity and sensitivity should be made more public by the media.

Some fragmentary efforts have been made for the development of tourism in Chios, but targeted actions are required, such as: preparation of a business action plan, approach to new markets, appropriate tourism planning in this island, strengthening coordinated stakeholders, synergies, collaborations and proposals for changes in institutional and organized regulations and development / diversification of the tourism product.

Concern was expressed by many respondents about security issues and diversity in religion and culture. Emphasis was placed on the increase of diseases and the intense traffic at the Chios Hospital, with the consequence that the locals are not served. Also, the tourism entrepreneurs stressed that there was a special promotion of the refugee-immigration issue by the authorities of the island for the purpose of political benefits.

On the other hand, the many benefits of the island's professionals from the settlement of refugee-immigrants on the island were emphasized, such as the increase of overnight stays in the urban hotels of Chios, the rental of many apartments for the accommodation of refugee-immigrants, the increase of itineraries in urban transport and the undertaking of the feeding of refugees by local businessmen.

Many jobs were also created, both in the hospitality structures and in the services involved in this issue. It is obvious that many professionals and businessmen of the island worked hard and contributed a lot to the refugee issue in the years 2015 and 2016, expressing their humanity and compassion for the unhappy people. In conclusion, the effects of the refugee-migration wave are negative and positive.

This is a major issue that has greatly affected the professional and tourism activity, as well as the daily life of the inhabitants of Chios. Issues have emerged that focus mainly on the safety and health of Chian society. There are also concerns about social, religious and cultural cohesion. The immediate and effective treatment and management of the issue at national, regional and local level was strongly proposed. Clearly, solidarity and the provision of protection to refugee-migrants is a top priority both by the North Aegean Region and by all the authorities of the island.

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Charismatic Children and their Education

Abstract:

The following article refers to charismatic children and the most effective ways to educate them as presented in international related researches. Charisma and charismatic children have been given numerous definitions (e.g. special education, functional, explanatory) whereas particular significance has been given during the last few years in our country on their education. In particular, the methods of differentiated teaching and flexible curriculum have been criticized for the difficulty to evaluate their effectiveness in educating charismatic children. Highly skilled gifted students are in need of special cross curricular education adapted to their particular needs and interests, with enriched syllabus, followed by any adaptation of the curriculum.

Key-words: charismatic children, charisma, education, differentiated teaching.

Efstratios Papanis¹, Aikaterini Strataki² and Maria Gioumouki³

¹ Corresponding-Address: Efstratios Papanis, Assistant Professor – University of the Aegean, Department of Sociology, Email: E.Papanis@aegean.gr

² Corresponding-Address: Aikaterini Strataki, Director of Primary Education of the Prefecture of Lesbos.

³ Corresponding-Address: Maria Gioumouki, PhD Candidate – University of the Aegean Department of Sociology, Email: mariayioumouki@hotmail.com

1. Introduction

Teachers, tend to frequently overlook or ignore the special educational needs of charismatic students thinking that they are capable of “finding their own way” easily and succeed in school (Koshy & Robinson, 2006). Doubtlessly, there are many occasions where gifted students excel significantly in specific fields compared to their peers. In a conventional classroom the teacher might have a hard time dealing with their differentiation and excellence while attempting at the same time to assist gifted students develop their full potential.

During the last few decades there has been an intense research interest about the educational needs of charismatic students and ways of fulfilling them. Nowadays, in our country, according to law 3699/2008, ar.3, prg.3 (F.E.K. 199/A/2-10-2008) for Special Education there is special reference for charismatic students, making it clear that they comprise a student category with special educational needs and as a result their education must be adapted accordingly. Other advanced world countries apply various practices, regarding the education of charismatic children. This article is intended to list a number of different teaching approaches that could be implemented in typical classroom situations.

2. The definition of charisma

International Bibliography worldwide presents numerous definitions of charismatic students usually differing from state to state. However, the majority of states are based on the following definition of 1978 (Stephens & Karnes, 2000 *ibid* in Mc Callum et al., 2013, p. 210).

"Charismatic and talented children" are defined as children... who, from pre-school, primary or secondary education, are distinguished by the existence or the potential development of skills and high performance in the intellectual, creative, academic or leadership fields or in the various art fields, which are usually not provided in schools due to the demands and the specific requirements needed. "

Despite the fact that the definition above consists of terms such as creativity, leadership and other skills, the child's mental abilities are traditionally prioritized as determined after the international approved IQ tests evaluation. In fact, a few decades ago a high IQ score was the sole indicator for detecting charismatic students (Crepeau-Hobson & Bianco, 2011). Charismatic children are students with highly developed cognitive and creative abilities capable of assimilating the syllabus faster in a more abstract and complex level compared to the majority of their peers. Generally speaking, these students display significantly advanced skills and abilities in areas which distinguish them from their peers (Koshy & Robinson, 2006).

ECHA president defines charisma as the “capability of an individual for high and prominent achievements in one or multiple fields” whereas pointing out that this predisposition potentially foretells high performances. Those exceptional achievements require on the one hand, the student's loyalty and internal motives and on the other the existence of a supportive environment, in case one of the requirements is missing, thus resulting that the student will not demonstrate that charismatic behavior (Mönks, 2008). It becomes clear therefore that it is rather difficult for a common definition to exist and be accepted by all states. This is amplified as well by the assumption that charisma - at least to a certain extend - is subject to social influences (Crepeau-Hobson & Bianco, 2011). Thus, certain cultural environments may or may not describe individuals as charismatic since different skills and strategies are prioritized for different cultures (Sternberg, 2007). In conclusion,

charismatic children constitute a partially eclectic group, due to the differentiation of criteria used to detecting them (Košir, Horvat, Aram, & Jurinec, 2015).

Sternberg, Jarvin and Grigorenko (2011) have suggested a five criteria theory for the detection of charismatic children.

Moreover, they focused on the following criteria:

- The criterion of supremacy, according to which a child compared to his peers excels by far in a certain field.
- The criterion of rarity, according to which a child develops an extremely high level of behavior rather rare amongst his peers.
- The criterion of performance, according to which the field in which the child displays that prominent behavior must allow further productivity.
- The criterion of ability, according to which ability can be proven through certain valid tests.
- The criterion of value, according to which charisma must develop in fields whose value has already been proven in the child's social environment.

That being said, due to the fact that high intelligence might be the only factor commonly accepted amongst a number of different perceptions of charisma, (Sternberg et al., 2011) IQ tests are as expected the widely used method for detecting such children (Kornmann, Zettler, Kammerer, Gerjets, & Trautwein, 2015). According to the above mentioned method, charismatic students are divided into two categories: the one involving approximately 10% of the student population, including students with a score above 120 in Wechsler Intelligence Scale for Children (WISC). The previous percentage includes a second category (2% of the children), with an intelligence rate much higher than 120. Amongst that category a rather small percentage of students coexist (perhaps one student in ten thousand) exhibiting an extremely high intelligence rate, above 150. That process, however widespread might display certain disadvantages: a) ignore creativity and talent in expression and in fine arts, b) overlook talents constricted in certain fields, c) discriminate students originating from different cultural backgrounds or lower social and economic status, d) be rather rigid to the category of students closer to the designated IQ score, without taking into account the potential of creativity or other higher motives to participate in a program for charismatic and talented students (Pedagogical Institute, 2004).

3. Characteristics of charismatic children

Even at an early stage charismatic children show indications that make their charisma apparent. Koshy and Robinson (2006) pointed out some characteristics that charismatic kids might demonstrate even from infancy, although it is not possible for all the characteristics listed below to coexist in a gifted child.

Such characteristics are the following:

- Impressive short term and long term memory.
- High-level vigilance and attention, in activities outside the spectrum of the child's main interests.
- Charismatic children are likely to obtain speech at an early age and usually develop a rich vocabulary.
- Curiosity and queries at an early age compared to other children.
- Development of phobias similar to those met with elder children, which usually cause frustration to the child.
- Ability to appreciate humor and word games early on.
- Tension to correlate.

- Acquisition of keen interests at an early age. Moreover, charismatic children look into “everything” related to their interests.
- Vivid imagination while narrating a story.
- Designing complex pictures.
- When taking part in a symbolic or role play type of game they often cause confusion to their peers. For example, while portraying family members for a role play game they might impersonate the family’s neighbor or their mother’s employer.
- Premature learning of writing the alphabet or mathematic symbols and numbers.
- Trouble sleeping. In addition, charismatic children are likely to sleep less.
- Associating themselves with older children.
- Confusion and lack of patience with their peers who fall behind and do not learn as quickly as they do.
- Seeking maturity, stability and loyalty in friendships.
- Early development of gross or fine motor skills is not necessarily observed. Although, a premature possession of complex motor skills can be observed.
- In areas where the child excels it appears as though he/she enjoys challenges whilst facing difficulties with confidence. That being said the child tends to avoid any circumstances where he might feel mentally inferior.
- Development differentiations. Those differentiations might refer to a child’s abilities in a number of fields (e.g. higher linguistic than opto-spatial abilities or vice versa, enthusiasm for reading but not for mathematics or vice versa), to distinctions between the child’s cognitive and emotional growth, or to frustration that might be caused when being unable to articulate his envisions or keep up with his older friends in sports.

4. The education of charismatic children

The occurring time that charismatic children enter the field of education, signifies at the same time a social change, since they are cut off from their family environment and step into a whole new one, in which they might not be perceived as being as special amongst their peers. Transition to elementary education is not a simple procedure (Gur, 2011). In this new environment they come to realize the extent of their “diversity” and they struggle to comprehend why they have different ways of thinking and different interests than other children of their age. At the same time, they might be socially rejected due to the fact that their diversity is not easily accepted by the rest of the children (Al-Dhamit & Kreishan, 2013).

Charismatic children undergo physiological and social pressure in elementary education, which, if failed to be dealt with appropriately, it might interfere with their adjustment in school as well as in their academic performance (Garn, Matthews, & Jolly, 2012). In many circumstances, charismatic students socially isolate themselves from their classmates whilst undergoing great emotional pressure caused by the feeling of rejection thus leading to a negative self-perception of themselves. It ought to be noted that the main responsible for negative social behaviors is not their high intelligence or talent but the fact that the rest of their classmates view their behavior as abnormal, compared to their own (Gur, 2011).

The fear of being socially rejected due to their diversity often leads charismatic children in an attempt to blend in with the rest, as well as act eccentrically in class, in order to be accepted. There are students who, in order to display their similarity with the rest and avoid standing out, occasionally develop inappropriate behaviors (Garn, Matthews, & Jolly, 2012).

Apart from the social aspect, charismatic children are faced with the harsh educational reality, for which they are not prepared, to say the least. Educational systems are designed to provide basic knowledge and skills, discouraging their own special curiosity and search, resulting in disappointment and frustration (Kaufmann, Plucker, & Russer, 2012). The compliance required during the educational process, as well as the lack of challenge and interest stimulation, often lead to an educational process that is boring and unpleasant for charismatic children. Additionally, teachers are far from well trained and educated to cope with charismatic children (Al-Dhamit & Kreishan, 2013).

The prevailing tendency is an increasingly amount of charismatic students being educated in conventional classrooms. Nonetheless, significant concerns and reactions are voiced by researchers who state the injustice for charismatic students being educated in conventional classrooms where educators do minimum or no alterations in the curriculum in order to accommodate their needs. The lack of differentiated or personalized teaching proves the inclusion of charismatic students inadequate (Kaufmann, Plucker, & Russer, 2012). He proceeds arguing that in order for them to be part of a mixed ability classroom, all teaching personnel ought to be educated in the corresponding teaching methods. In a conventional classroom charismatic students should be under the supervision of a specialized teacher, willing to collaborate with students of that category (Gur, 2011).

A study of contemporary bibliography ascertains the development of methods contributing to a higher and more meaningful education as well as to the adaptation of charismatic children in a typical classroom.

4.1 Acceleration

Academic acceleration includes charismatic student's attendance in classrooms traditionally oriented towards older students or requires a higher attendance rate from charismatic students compared to their peers (Steenbergen-Hu & Moon, 2011).

This refers to practices that have been used long ago to combine appropriate learning opportunities according to the student's skills. Acceleration aspires to adjust the teaching pace to the charismatic student's skills in order to provide a sufficient level of challenge while reducing the time necessary to complete their general education (National Association for Gifted Children Acceleration Position Statement, 1992 *ibid* in Gallagher, 2004). Moreover, in a typical school acceleration may apply in various ways, such as:

Early admission in school

The typical suggestion is early admission in kindergarten or the first class of elementary school (Fisher & Muller, 2014. Koshy & Robinson, 2006). It is common knowledge that each country determines the age limit appropriate for a student to enroll in kindergarten or elementary school. However, some countries enable charismatic children to enroll sooner (Southern & Jones, 2004). At the same time, there are countries allowing the registration of charismatic children just out of kindergarten in the second grade of elementary school (Kaufmann, Plucker, & Russer, 2012). For instance, students who have fully attained their literacy and arithmetic skills during their attendance in kindergarten along with the necessary psychological and social maturity may advance in the second grade of elementary school (Antoniou, 2008).

Skipping/advancing classes

A charismatic student who was not early admitted in school is allowed to skip a grade later on, meaning that he/she is placed in the next grade with classmates not at the same age as him/her. That grade advancement may occur in the beginning or during the new school year (Siegle, Moore, Mann, & Wilson, 2010). In that case, the school is responsible of filling in the gaps that might occur from implementing that type of practice (Hebert, 2006).

Partial acceleration

This practice enables charismatic students to attend higher grades for merely a part of the day and for one or more specific subjects. (Southern & Jones, 2004). This method applies to students with performance history above 90% on the subjects mentioned and an IQ rate of 120 minimum. The concept of partial acceleration applies beyond the curriculum, for example in summer schools or at extracurricular activities (Al-Dhamit & Kreishan, 2013. Mahoney, 2006).

Acceleration of the curriculum

Here, the charismatic student is provided with the appropriate personalized education, allowing him to complete the curriculum faster than usual. Thus, a gifted student could complete high school in two rather than three years or as a college student he/she could condense a whole academic year in one semester (Garn, Matthews, & Jolly, 2012. Southern & Jones, 2004). This would result in the student's faster graduation from high school or university, a method implemented in many countries (Neihart, 2006).

Early admission in Junior High school, High school or University

As a direct consequence of the methods mentioned above the students completing Elementary school, Junior High school or High school sooner than expected, commence their studies for the next educational level at a younger age. For instance, several countries enable charismatic students of the latter High school grades to attend classes of the first year of University for the subjects they excel at (Gulzhan et al., 2014. Peterson, 2008).

Advantages of acceleration

The various practices of acceleration can be proven beneficial to charismatic children. The early school registration of charismatic students has significant advantages. First of all, there is minimal cost, meaning that it does not disorganize the student's friendships or the curriculum. Yet, it provides charismatic children greater challenges and the appropriate stimuli nonexistent if attended a minor grade (Gur, 2011. Koshy & Robinson, 2006). Koshy and Robinson (2006) have gathered numerous examples, through research of relevant bibliography, of carefully selected students who excelled in their new academic environment having been early registered in schools.

Nonetheless, the importance of diligent selection has been pointed out and students must feature the required cognitive, emotional and social development to achieve an earlier registration in school based on their age, otherwise that kind of decision is difficult to revoke and can be proven harmful for the child – have the necessary requirements not being met (Rimm, 2007). Besides the practice of early registration, various researches have dealt with the study of the advantages of acceleration in charismatic student's development and performance (Ignat, 2011).

Moreover, the study of Duan, Shi and Zhou (2010) has shown that charismatic children attending an acceleration program manifested a higher processing speed compared to charismatic children attending the conventional grade based on their age. It is an undeniable fact that the kind of education a child receives, affects his cognitive development. The advantages of an accelerated education are evident in the academic performance of charismatic students as they might benefit from acceleration both in the short and in the long term (Rimm, 2008). In particular, charismatic students attending an acceleration program tend to be superior (over those not attending one) in their performance at weighted tests, their grades, their degrees, their success in university or their professional advancement (Steenbergen – Hu & Moon, 2011).

In addition, acceleration assists charismatic students to outclass (or at least not fall short) regarding their self-perception, self-esteem and confidence as well as their social relations, participating in extracurricular activities and having an overall satisfaction for their life (Steenbergen-Hu & Moon, 2011). Despite what is mentioned above about acceleration and its benefits, some researchers point out that attending an advanced grade may prove to be insufficient, if not accompanied by the required adjustment of the curriculum (Koshy & Robinson, 2006).

Adjusting the curriculum

Undoubtedly, the curriculum designed for a typical school grade will not suffice the special educational needs of charismatic students. Furthermore, several activities taking place in a conventional classroom might not accommodate the needs of a charismatic student and condensing the curriculum could be a potential solution (Antoniou, 2008). For instance, while tutoring a charismatic student introductory activities, extensive instructions or practice and training activities could be compressed (Southern & Jones, 2004).

The time saved by acceleration of studies can result in enriching the syllabus (French, Walker, & Shore, 2011). While in the subject of enrichment, charismatic students are capable of studying more complex aspects in subjects of the conventional curriculum. They can generalize through cross-curricular studies and explore their interests going through a certain unit of a subject not included in the common curriculum, for example Statistics in Mathematics or Microcosm in Physics (Hebert, 2006). Such practices require close attention in planning the learning objectives and selecting the activities directed to charismatic students (Southern & Jones, 2004) since they must fully cover, if possible, their special educational needs and by no means be accidental or defective (Mahoney, 2006).

4.2 Homogeneous grouping in a heterogeneous class (Cluster grouping)

Throughout international bibliography the term cluster grouping refers to a grouping method in which small numbers of students with similar educational needs assemble and form a group in a heterogeneous class. In that case, four to eight charismatic students are placed as a team in a heterogeneous classroom with an educator experienced in differentiated teaching for gifted students (Fiedler, Lange, & Winebrenner, 2002). This practice answers to the need of charismatic students to associate themselves with individuals of equivalent mental abilities in order to challenge themselves during class and acquire a realistic idea of their capabilities (Fiedler et al., 2002).

Doubtlessly, charismatic students may benefit from homogeneous grouping practices in various fields. Moreover, the advantages are related both with the student's attitude towards school and their classmates as well as with their academic

performances (Fiedleretal., 2002). The study of Brulles, Saunders and Cohn (2010) verifies all the above while recording a significantly greater progress in mathematics of charismatic students following that type of grouping, with special trained educators, compared to charismatic students who remained in a heterogeneous class with unqualified educators (Rimm, 2008). Lastly, advantages have been noted in charismatic student's social and emotional growth after formulating programs including such homogeneous grouping (Bangel, Moon, & Capobianco, 2010. Reis & Renzulli, 2004).

5. Conclusion

It might be challenging to come up with a definition of charisma accepted by every country, however, it is non-negotiable that charismatic students are in need of special education which requires special educational methods. Thus, in more "flexible" countries regarding the attendance age for each grade, various acceleration methods with established benefits for charismatic students have been implemented. Besides acceleration and the various forms of its application in a typical school, adjusting the curriculum at times by condensing or enriching it, is deemed necessary. In conclusion, significant advantages have been pointed out from homogeneous grouping of charismatic students in a heterogeneous class (cluster grouping) when being held under the supervision of an experienced educator in differentiated teaching and tuition of charismatic students (Antoniou, 2008).

The encouraging results from implementing those types of methods are associated on the one hand with the cognitive function and the student's academic performance (Brulles et al., 2010. Duanetal., 2010. Steenbergen-Hu & Moon, 2011) and, on the other, with their social and emotional development (Reis & Renzulli, 2004. Steenbergen-Hu & Moon, 2011). Additionally, similar practices provide greater challenges and the appropriate stimuli to charismatic students, with long term benefits not just for themselves but also for science and society as a whole (Koshy & Robinson, 2006).

Although international related research has thoroughly analyzed the effects of educational methods specifically designed for charismatic students, yet with regard to the Greek educational reality equivalent studies are nonexistent. Consequently, the planning, implementation and evaluation of educational practices for charismatic students are considered enforced within the framework of the existing legislation. Despite the benefits mentioned above, the importance of rigorous implementation with the appropriate organization and systematic design of those practices has been strongly pointed out.

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Developing Cultural Capital Assets at the Local Level: The MAMMUT Municipal Natural History Museum of Milia, Grevena, Greece

Abstract:

The development and promotion of cultural and natural monuments, traditions, local gastronomy and other local heritage institutions, helps not only the visibility and advancement of a place, but also its economic prosperity and growth. During the last decades, there is a culture-centered approach regarding local development. Until recently, in the industrially developed countries of the West, the prevailing idea was that development is a concept of purely economic nature, in which culture has to have a secondary role. This perception changed after the end of World War II and mostly during the 1990s with the progress of the information technology with culture becoming one of the main means of development. This paper aims to present the contribution of the cultural capital to local development focusing on a unique case of world importance. The discovery of a Mammut remnant in W. Macedonia, Greece and the subsequent efforts to build a Paleontological Site/Museum in Milia, Grevena, will be presented as a case serving local cultural development with high potential for global to local impact as a potential for World Heritage Site.

Key-Words: cultural capital, Milia Paleontological Site/Museum, local development, social cohesion

Giannakou Efthymia¹, and Tsobanoglou, George²

¹ Corresponding-Address: Giannakou Efthymia, M.A. Researcher

² Corresponding-Address: Tsobanoglou, George, Professor, Department of Sociology, University of the Aegean, Greece, Email: G.Tsobanoglou@aegean.gr

1. Introduction

In European Union, regional economic and social inequalities are visible at the different levels of socio-economic development. Through this paper the importance of a culture oriented regional policy, a policy that highlights local heritage, the culture and civilization in a broader sense will be presented. The Municipal Natural History Museum of Milia, located within the Prefecture of Grevena, Greece, will be presented as a Museum which has the potential to catapult the region to development placing it into the world heritage map and thus benefiting the region and the general society and economy.

The role of a Museum is multifaceted as it promotes related learning, knowledge and amusement for the visitors. Culture can create a common sense of local development and keep places, where people choose to live and visit, thriving and alive. It can assist the implementation of the ambitions of the local communities as to improve the quality of life and feeling of one's own place (Arvanitaki, 2007:8).

2. Culture and Local Development

The concept of culture appeared rather late in history and was related to several meanings, such as education, ethical and behavioral standards, the everyday life of a country's people such as religion, language, customs and traditions.

With respect to cultural issues, up until the early 1990s, when the Maastricht Treaty was signed, there was no common European cultural policy. There were few existing activities that did not constitute a part of a single European strategy. Changes came along with the Maastricht Treaty, where Europe got a common policy in the fields of the economy, society, politics and culture.

The Council of Europe, UNESCO and the European Union have all a key role in preserving European Heritage and promoting cultural diversity in each Member-State

2.1 Greek Cultural Policy

In Greece, generally, most cultural policies are regulated by the Ministry of Culture. There is an overconcentration which leads to bureaucratization that hinders local cultural development in many regions and localities of Greece. However, at local level, the Deputy Mayors are responsible for cultural policy. The Ministry of Culture although it has a very wide mandate for a country as rich in cultural heritage as Greece, it has a rather low budget and a difficult coordinating mechanism for cooperative actions with the other state local agencies and the private sector. To top it all up there is a lack of properly trained officers to engage in managing and organizing museums, as archeologists seem to be the dominant profession in place. For all the above-mentioned reasons, cultural decentralization and a better design process that considers local issues is important. Regions are the most appropriate entities to promote their own cultural assets and develop their cultural capital. Regions are considered as *"the most suitable spatial size for the implementation of cultural policy"* (Konsola, 1990:28). A region can promote its cultural identity and at the same time, it can become an open reception field for international trends in all the cultural areas (Konsola, 1990:28).

In many European countries, such as the Netherlands, Sweden, Germany, the United Kingdom etc., successful decentralized administration models have been implemented. Whereas, in the past, it was a timely process to launch and implement a cultural plan for one region, provided that launching cultural strategies and a cultural policy would have to be approved and implemented by the Ministry of Culture, now the region becomes the basis for all these. Thus, local cultural capital, its promotion and preservation, concerns each region.

It must be mentioned that sustainable development is based upon the local formation of cultural capital expressed in institutions such as museums, libraries, galleries, theaters (Konsola, 1990:32). The promotion of regional cultural heritage, namely of all assets (archaeological, historical and natural monuments) represent an important way to improve the

standard of living and develop new skills in the area thus enhancing local assets for community capacity building.

2.2. Local Cultural Capital and Development Infrastructures

Cultural capital certainly includes physical structures such as the archaeological and other sites, but it includes also immaterial aspects such as gastronomy, music, local products, folk customs, local ways of life, such a rural life e.t.c. (Bianchini, 2004:7).

The development of an area's cultural capital, by the proper use of its productive resources, requires a comprehensive policy to activate local community resources by supporting knowledge alliances at both local, regional, national and global levels. A strategy that will aim at the sustainable development of employment must be based on the direct and indirect state aid, the development of human resources and the reinforcement of cultural infrastructures (Tsobanoglou, 2007:466).

Thus, investment in cultural infrastructures, may lead to a significant boost of the economy, of a region's social and cultural level, to job growth, and it may also become a solution to the problem of depopulation and abandonment of rural areas that are away from the urban centers. According to G. Petrakos and G. Psycharis, in terms of development, many Greek regions have achieved satisfactory growth rates for being able to take advantage of tourist assets and resources (Petrakos & Psycharis, 2004: 118). Furthermore, globalization led to new trends in terms of work organization. When global, is also supranational, there is high need to operate in a regional and communal level. Many regions in the EU have broken the grounds and took the lead by developing local democracy, social cohesion, and growth (Tsobanoglou, 2007: 52). In other words, European pioneers in terms of cultural development were able to implement and grow the well-known 'Think globally, act locally'.

3. The Paleontological Museum of Milia, Grevena.

Grevena is part of the Region of W. Macedonia, Greece. It is an area with 30.000 inhabitants (2011 Census). The small village of Milia, is 15 kms away from Grevena. It is there that a unique paleontological specimen was discovered by a Dutch Mammut searcher and paleontologist, Dr Dick Mol research associate of the Rotterdam Natural History Museum (nicknamed "Sir Mammoth").

Picture 1: The small village of Milia, Grevena

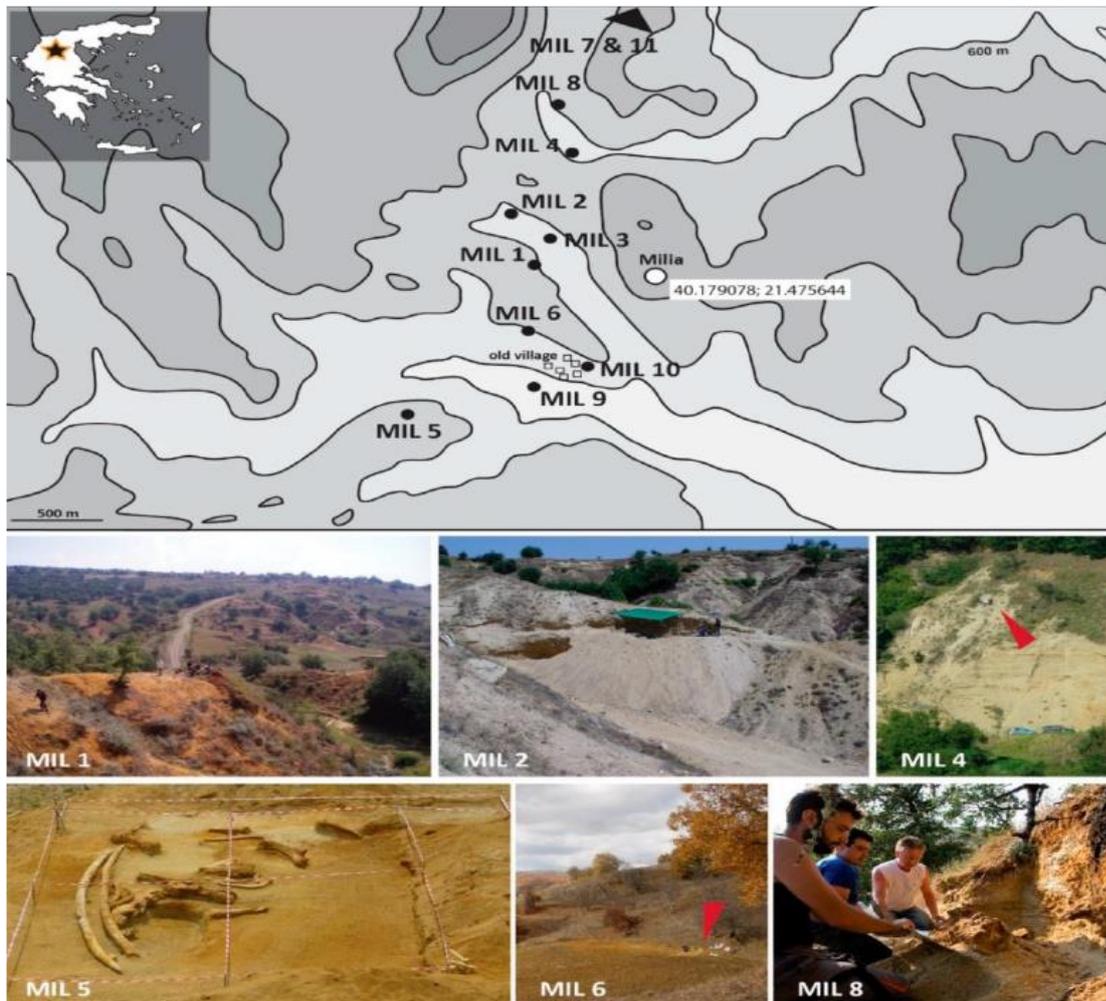


Source: http://ellinika-xwria.blogspot.com/2015/09/blog-post_889.html

Picture 2: Another view of the village of Milia

Source: http://ellinika-xwria.blogspot.com/2015/09/blog-post_889.html

Picture 3: Map with the various localities around the village of Milia, in the Grevena municipality, N Greece, including photographs of the most important localities. Photograph credits: MIL 1, MIL 2, MIL 6: E. Tsoukala; MIL 4, MIL 5: W. van Logchem; MIL 8: H. Wildschut.

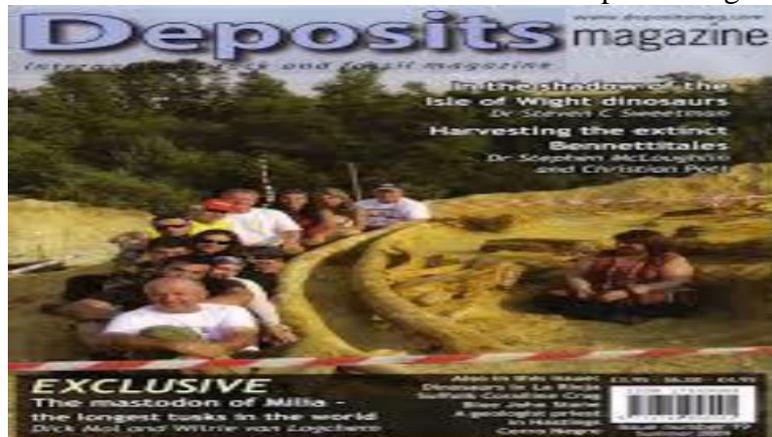


Source: <https://www.mdpi.com/2571-550X/1/2/13/htm>

The research for the paleontological findings, housed today in the Museum of Milia, began in 1990 in the area of Grevena. The paleontological excavations were prompted by the accidental discovery of fossilized bones in the district of Ampelia (Grevena) by a local resident. In 1996, the paleontological excavations in Ampelia were completed, unearthing

very important findings, such as a part of the skeleton of a prehistoric elephant aged 200,000 years, as well as two teeth of a prehistoric bovine animal (Tsoukala, 2002, 29, Tsoukala & Lister, 1998).

Picture 4: The 5,02 m. mastodon of Grevena on the cover of Deposits magazine



Picture 5 : Thigh bones and teeth were also dug up (pic: Prof E. Tsoukala, 2007)



Source: www.naftemporiki.gr

The excavations continued until 2007, revealing more findings of global scientific interest. Some of these findings earned a place in the Guinness Book of World Records because of their size, such as the 5.02 meters long tusks of the mastodon *Mammuthus borsoni*, which are the biggest tusks ever discovered in the world. *Mastodons are thought to have first appeared about five million years ago and became extinct in North America about 10,000 years ago - much later than in Europe, and the tusks found in Milia 'They are the longest tusks ever found on a prehistoric elephant-like animal. "It is spectacular," Mr Mol told at an interview at BBC (<http://news.bbc.co.uk/2/hi/europe/6913366.stm>). This record for the huge tusks came to beat a previous record, also placed at Milia Museum, for tusks that had been discovered in the area and were 4.39 meters long. In the same area it was also found the smallest deciduous tusk of a zygodont worldwide, with a length of 4-5 cm. It is worth mentioning that as a result of these discoveries the area of Grevena became an important area for the world scientific community of paleontologists. Due to the importance of these paleontological findings, the International Congress on Mammoths was held in Grevena and Siatista in 2014.*

Picture 6 : Dr Dick Mol at Milia Natural History Museum

Source : https://www.researchgate.net/profile/Dick_Mol

The 5.02 meters long tusks that have been registered in the Guinness Book of Records as the biggest tusks in the world are on exhibit at the Milia Museum. Prof. Evaggelia Tsoukala, a Paleontologist, with her research team from the Aristotle University of Thessaloniki has been working in the area.

Among the most important exhibits/fossils of the Museum are: the fossilized bones of *Elephas antiquus* (parts of the skeleton with the ribs, the scapulae, the head, the vertebrae, the limbs, the mandible with the right molar all well preserved). A big part of the skeletons of mastodons (full jaws, parts of the head and bones) as well as fossilized tusks of *Mammuth borsoni*, which are among the largest ones worldwide as mentioned. Apart from the proboscidea, there were also found a head, parts of jaws, teeth and bones from rhinoceros, the jaw of a tapir, a jagged canine tooth of the *Machairodus*, fossils from a bear, an agriotherium, a bison, bovines, pigs, gazelles, cervine animals, all these being findings from the fauna that existed some 3,000,000 years ago.

Another important finding is a shark's tooth, which was found and donated by a teacher of the village of Amygdalies on a hillside of the village in an altitude of 800 m. The shark's tooth dates to the Oligocene era, when the whole area of Grevena was just the ocean floor of the sea of Tethys. The sea extended from Asia to the Atlantic and covered the biggest part of the Greek peninsula. This is also the reason why, apart from the shark's tooth, in the Museum one can find several marine fossils, such as corals, sea urchins, hippourites, cephalopods, gastropods, bivalves, etc.

Until 1992, when the excavations started, the local society knew nothing of the Paleontological treasure that was hidden under Grevena's soil. The existence of fossils became known thanks to residents of the area, who had in their possession findings that were presented to the team of the Aristotle University of Thessaloniki and became the reason for which the excavations were initiated. In 2009, Grevena earned a place in the Guinness Book of World Records for possessing the biggest tusk of a Mammoth in the world, however this did not have any impact upon either the local community, the region or the general administration of the Cultural Authorities.

Since 1997, with the discovery of the mastodon of Milia, while the attention of the world paleontological community has turned its attention to the wider area of Grevena very little local and national interest was to seek further resources to facilitate this community to study, research and further promote culturally and for the general public these discoveries by the development of a fully-fledged modern museum in the site of these discoveries.

Picture 7: Museum's entrance

Source: <https://www.gnoristetinellada.gr/politismos/mouseia/4134-mouseio-fysiki-istorias-milias-grevenon>

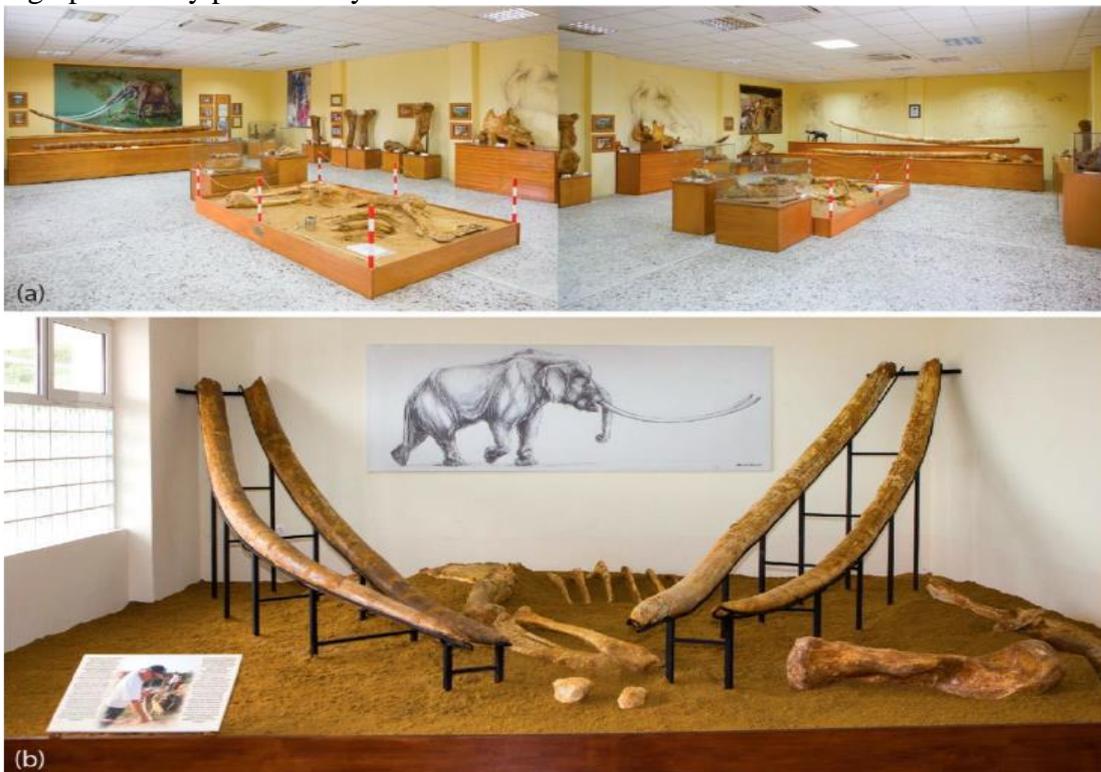
Picture 8: The Municipal Natural History Museum of Milia, Grevena

Source: Association of Friends of the Natural History's Museum of Milia, Grevenon., facebook page: Friends' Club of Natural History's Museum of Milia Grevenon <https://m.facebook.com/Palaiontologikomouseio/>

Picture 9: The Municipal Natural History Museum of Milia, Grevena

Source: Association of Friends of the Natural History's Museum of Milia, Grevena, facebook page: Friends' Club of Natural History's Museum of Milia Grevena <https://m.facebook.com/Palaiontologikomouseio/>

Picture 10: The evolving exhibition of Milia, Grevena municipality (a) The previous exhibition, with the two longest pairs of tusks in the world, (b) Detail of the new exhibition, with the tusks, along with some of the bones of the partial skeletons. Reconstructions of the taxa visible in the photographs are made by R. Bakker, under the supervision of D. Mol. Photographs kindly provided by H. Wildschut.



Source: <https://www.mdpi.com/2571-550X/1/2/13/htm>

Picture 11: Outer view of the museum

Source: From author's personal archive, http://arismiliasgrevenon.blogspot.com/p/blog-page_99.html

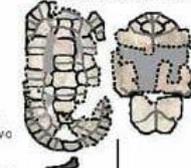
The abundance and richness of the fossil record place Milia as the richest Pliocene locality in Greece and among the richest in Europe, dating back to a crucial period for the faunal evolution in the Northern Hemisphere.

Picture 12: The Milia turtles

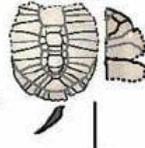
Η μελέτη του υλικού έδειξε ότι ορισμένα από τα απολιθώματα χελωνών της Μιλιάς ανήκουν σε ένα νέο είδος το οποίο ονομάστηκε *Testudo brevistata*. Ο ολότυπος του είδους (ραχιαίος θυρεός) ανακαλύφθηκε από το Θ. Λιάκο το 2006. Το είδος αυτό μας δίνει τη δυνατότητα να κατανοήσουμε την εξέλιξη του κλάδου των χελωνών που οδηγεί στη σημερινή κρασπεδωτή χελώνα. Από ένα μικρόσωμο είδος με κυρτό οπίσθιο χείλος του κελύφους, τη μαρμαροχελώνα, το μέγεθος άρχισε να αυξάνεται, το χείλος άρχισε να κάμπτεται προς τα πίσω, και στη συνέχεια το πίσω μισό του κελύφους άρχισε να επιμηκύνεται σημαντικά. Η βραχυκέλυφη χελώνα της Μιλιάς παρουσιάζει τη μορφολογία ενός ενδιάμεσου σταδίου με βραχύ κέλυφος αλλά πεπλατυσμένο οπίσθιο χείλος.

While studying the turtle remains found in Milia, some of their fossils were discovered to belong to a "new" species of tortoise, named *Testudo brevistata*. The definitive specimen for this species, its "holotype," was discovered by Theodore Liakos in 2006. This specimen is from a time period that allows the understanding of evolution leading to today's tortoises. These began as a small species with a curved shell rim (like the marble-tortoise). The size of the animal increased over geologic time, with the back rim of the shell becoming flared and elongated as for today's margined tortoise. The Milia tortoise has a short shell, intermediate between the marble- and margined-tortoises.

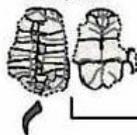
Testudo marginata
Η κρασπεδωτή χελώνα
~25 εκ. επών έως σήμερα
διάφορες θέσεις σε όλη την Ελλάδα
The margined tortoise
~2.5 million years old till today
various localities in Greece



Testudo brevistata
Η βραχυκέλυφη χελώνα
~3.5 εκ. επών Μιλιάς Γρεβενών
The short-shelled tortoise
~3.5 million years old
Milia, Grevena



Testudo marmorata
Η μαρμαροχελώνα
~7.11 - 7.37 εκ. επών Πικέρμι Αττικής
The marble-tortoise
~7.11 - 7.37 million years old
Pikermi, Attica



Ένα νέο είδος
A new species!

Οι χελώνες της Μιλιάς
The Milia turtles



Κέλυφος χελώνας
Tortoise shell
Testudo brevistata

79

Source: Pursuit Elephants in Grevena, Guidebook to the Paleontological Exhibition of the Museum of Natural History of Milia, Grevena

During the initial period of research, the paleontologists were able to confidently identify most of the species that lived in Milia and analyze their diversity. The fossil record of Milia holds a significant place in the discussions surrounding the faunal changes during the Early Villafranchian and Quaternary and could be considered as a reference point for the MN16a biozone in southeastern Europe. It should also be recognized as the best-preserved fossil record of the mastodon *Mammuth borsoni*, a species with a broad distribution temporally and geographically, but never known by such complete fossils that allow detailed documentation of its anatomy.

Shortly after their co-occurrence in Milia, the giants of the Early Villafranchian, including Borson's mastodon and the rhinoceros, survived a bit longer but never crossed to the Quaternary. Instead, the mastodon of Auvergne, the gazelle, the ramosus deer, the great saber-toothed cat and the giant tortoise managed to survive a little more at the beginning of the Quaternary before they became, eventually, extinct.

Milia paints with vivid colors the calmness before the Quaternary "storm" that brought dramatic and shocking faunal and climate changes. As its unique fossils indicate, around 3,5 Ma Milia was a paradise for these animals without water and food shortage, allowing them to reach record-breaking sizes and a remarkable diversity—a paradise lost following the climate changes in the last two million years.... (Tsoukala, E. & Vlachos, E. & Wildschut, H. & Mol, D. (2018). Pursuit of Elephants in Grevena,

4.1. Management Planning and Local Development

According to the statute of the International Council of Museums, "*A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and entertainment.*" (ICOM 2007). Thus, the Paleontological Museum of Milia should realize a long-term plan which among others will involve its conservation, its promotion, the cultural and social development of the wider area which will serve the society and its development.

According to the principles of modern Museology, the Museum nowadays should respond to the question "Why and for whom it exists?" In theory but in practice as well it should exist for the community and the contribution to the communities' wellbeing, as quality of life, lifelong education and entertainment for all social classes (Picopoulou-Tsolaki, 2002, 69).

Regarding the unique findings in the Milia Paleontological Museum their conservation, utilization and further promotion is important. Until recently, 2018, the Museum of Milia was not but a storage facility for the impressive fossils and not at all a Museum one would expect. It lacked basic facilities that constitute a Museum. The findings were finally transferred to the area of an unused school building of the village approximately 100m². Though the place is better than the previous it does not completely fulfill the requirements of a modern museum. Educational visits could take place in a more modern environment with interactive media, which would intrigue the audience about Paleontology and the place's past, it would stimulate the visitor's imagination and the learning outcome will be of substantial importance and profound, not being just a sterile visit and sighting of the findings in what appears more likely a storage facility.

In a Museum the visitor while receiving information comprehension is achieved through senses, symbols, images and action (Hooper-Greenhill, 1996, 144). The visitors of Milea's Paleontological "Museum", once it is organized properly it would allow better comprehension of the importance of the findings, the significance and paleontological importance of the area, the evolution of natural history, the climate changes of the landscape, the geological map, as well as to reflect on all these.

The Museum should obtain research facilities, a library, auditoriums, space for visitors to further explore the area. This could increase both scientific visitors' impact in the area but also popular visitors enhancing tourist activity in the area.

Museums are learning institutions that serve as an ideal destination of a memorable experience and ensure, ways and new possibilities to use their exhibits, aiming to educate the visitors in a realistic way showing real objects and their origin.

As far as the Paleontological Museum of Milia is concerned, educational programs could be run including students from all over Greece, and the scientific conferences or scientific seminars could be of a benefit for the local area. On the one hand, the education per

se of the students, the awareness in environmental and paleontological related subjects, and on the other hand, the touristic development of the area, with visitors arriving to the city all over the year would be a unique social development process for the whole area. The contribution of the educational programs, the visits of school classes and students from various places of Greece would be continuous and could create bonds with local people and the local area in the future, as well as a broader interest in the natural wealth of the area, the local kitchen, and the local products. On the other hand, by conducting conferences and seminars, the area would earn a place in the international scientific community with scientists from various parts of the world arriving, since Grevena already holds a very significant place for Paleontology. Paleontology presented in proper museum settings as a Museum of Milia could thus serve as a first-class advertisement for the local area, which would attract, visitors and tourists throughout the year. Currently the area attracts visitors for the winter months as it has well-known ski resort center nearby at the Vasilitsa Mountain-Grevena.

Among the activities of the Museum of Milia scientific studies, on Paleontology could further advance in the wider area of Western Macedonia conservation, restoration of the fossils with specialized staff and in collaboration with scientists not only from Greece but also from abroad. Activities that could take place to develop the area and the Museum could be the conduct of studies, the archiving of information on findings concerning geology and paleontology, the applied research, the training of scientists and students in issues concerning paleontology and geology and the raising of awareness among the public with regards to issues of environment, environmental education and consciousness. Apart from these, a thematic park could be created in the area to further develop the local cultural economy. With a functional organizational plan as part of strategy the administration of a future Museum of Milia could become a driving force in one of the least developed areas in Europe.

4.2. Tourism and Employment

A growing number of less developed areas have improved their standard of living, have created new jobs, and have flourished economically after a proper management of their cultural capital. The proper exploitation of a place's environment and culture helps the development of the economy, by creating jobs and by assisting deurbanization, but it also develops further an area by founding natural parks, restoring monuments and other cultural spaces, since, because of tourism, other infrastructures are necessarily improved, such as roads and generally road networks, and consequently upgrading the standard of living of the local populations (General Board Meeting P.O.T, 2006).

One of the primary objectives of the Museum of Milia should be the reinforcement of the local economy, culture and society, something that could be succeeded with the increase of the visitors. Currently, the museum has annually 10.000 visitors. Visits to the Museum could be combined with various activities related to agritourism, such as trips and interaction with the locals and participation in the collection and consumption of local products such as mushrooms, grapes, wine making, cheese making etc. A continuous flow of visitors would lead to low unemployment levels, by creating new jobs, to the revival of local customs and traditions, preservation of the rich rural architectonic and cultural heritage of the area, and at the same time the connection of Grevena's rural area with the big urban centers. A visit to the Paleontological Museum of Milia could serve not only as cognizance with the natural history of the specific region and Greece. The promotion of local products would contribute to the development of an ecological local awareness. The development of the local labor markets for disadvantaged groups, as women and young people, should be prioritized (Tsobanoglou, 2007, 468). The establishment and collaboration of women's cooperatives with the Museum would create demand for the products, would contribute to their promotion and advertisement and to the creation of new jobs for women along with young people of the area, who comprise the groups more affected by unemployment.

A visit to the Paleontological Museum could as well be combined with religious, archaeological, sports' tourism, hiking, visits to the ski resort of Vasilitsa, the nearby National Park of Valia Calda could be combined with a visit to the important Byzantine and post-Byzantine monasteries which are scattered throughout the villages of the area. There is the opportunity for organized activities, such as rafting, canoe, hiking, climbing. Moreover, Grevena includes in its cultural heritage the brothers Manakia from Avdella, Grevena, pioneers in photography and cinema in the Balkans. Aristotle Varsamis (Grevena, History-Culture-Art, 2002) has been one of the most important iconographers expressing the unique Byzantine iconographic tradition of the area. The village of Samarina, is another important cultural area well known for its rich tradition in iconography among other. Finally, Grevena has numerous traditions and customs untouched by time as the lanterns in the period of Carnival, the custom of "Andromana" in Deskati, Grevena among many others.

The building of a Museum in Milia could lead to a creation of several employment opportunities for scientific, technical, ancillary and administrative staff. Though, apart from the employees in the Museum, many jobs will be created around the Museum, with enterprises either of agritourism or catering, production, promotion and selling of local products, mountain, and tour guides for the area etc. Another developmental factor regarding employment that does not yet exist is the creation, production and selling in a special designated area of the Museum of souvenirs, molds, copies of the fossils, publications on the Museum, and local products. At the same time, the local community could exploit the space outside the Museum, by creating kiosks for the exhibition and selling of local traditional products etc. This collaboration between the Museum and local enterprises of wine, pasta, cheese products, legumes, could boost both local production and the quality of the local products, and even lead to the creation of a brand name having Grevena as its place of origin, expanding the market and the local development. Therefore, the visitors could absorb something from the local culture by participating in a village's fair, tasting local dishes in a traditional restaurant, trying traditional products or buying a souvenir (General Board Meeting, P.O.T., 2006).

Picture 13: The planned paleontology Center in Milia, Grevena, Greece



Source: facebook page: Friends' Club of Natural History's Museum of Milia Grevena, maquette made by Anaptixiaki Grevenon-(Grevena Development Company-ANGRE)).

Picture 14: The planned paleontology Center in Milia, Grevena, Greece

Source: facebook page: Friends' Club of Natural History's Museum of Milia Grevena, maquette made by Anaptixiaki Grevenon, ANGRE (Grevena Development Company).

There was an ambitious plan for a new Paleontology Center (as the Natural History Museum of Milia) which could be located in a space of 3,000 m², just outside the village Milia, in which there would be life-size representations of the prehistoric animals that generally lived in the wider area. The space would give the opportunity for virtual tours in the palaeo-environment of the area, as well as laboratories for the conservation and study of the fossils, a room to produce molds, a venue and a guest house for researchers and students would exist. It would also have a library and would host seminars, lectures and conferences for scientific reasons, summer and winter schools, as well as a research department of the Aristotle University of Thessaloniki and its students, in collaboration with other academic institutions and scientific bodies (www.enet.gr, www.archaiologia.gr, 15.10.2012). *“The Paleontology Center of Milia is expected to become an infrastructure for tourism of an alternative form, which will essentially contribute to the place's promotion and development. Through its modern equipment, it will offer educational and research work that will be aimed at all the educational levels of Greece and the neighboring countries, as well as at special audience groups, such as amateur paleontologists and geologists”* (www.archaiologia.gr, 15.10.2012). After all, based on the current situation, it is no exaggeration to mention that the Museum's ambitious developmental plan, started from a “Jurassic Park” and ended to a “Matrix”.

The rich geological and natural environment in combination with the unique paleontological findings make Grevena a place full of unexploited international potentials as the paleontological evolution of the world and the natural map does not concern only Greece and the local society but is of worldwide interest as *‘The fossils of Milia depict a Late Pliocene paradise in the Southern Balkans; a paradise, unfortunately, lost with the onset of the dramatic climate changes of the Quaternary.’* (<https://www.mdpi.com/2571-550X/1/2/13/htm>).

5. Ways to Local Development of a World Unique Heritage Site

Dr. Dick Mol while searching for Mammut in Siberia ended up locating them in Greece. Here is what seems to be the Mammut whose tusks were found in Milia, Grevena.

The elephant could represent the emblem of the area of Grevena, it could further inspire logos, trademarks, activities, both public and natural persons or companies relevant to the tourism activity, as it happened already with the tickets and the cards of the ski resort of Vasilitsa (www.mfi-miliasgrevenon.gr, 22.03.2011). So, whereas The Natural History Museum of Milia is the only of world importance institution which once developed could lift up the whole area yet there seems to be lacking in materialization. It looks that both local capacity building as well as national interest for such a unique heritage in world natural history is somehow characterized by inertia.

Picture 15: Representation of the giant mastodon of *Milia Mammot borsoni* (artist Remie Bakker, supervision Dick Mol), to which the 5.02 m. tusks belong.



Source: facebook page: Association of Friends 'of the Natural History's Museum of Milia Grevena.

Picture 16: The Ambelia's Elephant, and the fauna of Milia



Source: Pursuit Elephants in Grevena, Guidebook to the Paleontological Exhibition of the Museum of Natural History of Milia, Grevena.

Another promotional and contemporary mean that is totally absent is the internet. The internet is used by all the contemporary museums, either big or small, to promote and highlight the Museum, and to educate and attract visitors. Though, the Museum of Milia does not even have a website on its own. There is only a page on facebook created and names as 'Association of Friends of Milia's Natural History Museum, Grevena'. The same applies for the several social media of internet, like twitter, Facebook, YouTube, which allow the website's visitor to feel as a "first-class object" (Cormode & Krishnamurthy, 2008, 2).

The use of the above online applications, could connect with remoted online visitors, and the visitors can have a more direct relationship with the cultural organization, as they could be active and interact with the Museums' online experience by watching online tours and videos, comments, photos of the exhibits, evaluation etc. On the other hand, the internet will serve as a feedback mechanism the Museum will have the necessary background to evaluate and improve the ways and methods of exhibition and display used, taking into serious account its public.

Online interactive methods can increase both the actual and the online footfall of the Museum. It has been a long time since not only the biggest museums in the world use the internet, offering even virtual tours of the spaces of their exhibitions, like for instance the Museum of Louvre, the MoMA (Museum of Modern Art) of New York, but also smaller museums in Greece, such as the Archaeological Museum of Aiani in Kozani, which has a very updated, modern, interactive website, and the Natural History Museum of the Lesvos Petrified Forest.

As it is understood, the Museum of Milia is underdeveloped in means of online promotion and support as well and all these happen while the Paleontological Museum of Milia is the only Museum operating in the area and attracts the global interest. One cannot even find posters or banners displayed in the wider area of the prefecture. It is essential that, advertisements and publications should constantly promote the Museum as the ideal recreational and educational space.

6. Challenges on the road to local cultural development.

The Natural History Museum Paleontological Museum of Milia suffers from several deficiencies thus needs operational and technical improvement and upgrade. The problems relate to the administration, the security for the safeguarding of the findings room for temporary and permanent exhibitions, an auditorium-lecture hall, a library, specialized staff, a stable schedule and specific hours of operation, a guest service area, restrooms, access to the place and tour in the place for people with disabilities, a shop for publications, souvenirs from the Museum, copies of the fossils etc., a recreational and rest area, a cafeteria /restaurant, research and laboratory infrastructure for the study and research on the Museum's fossils, a brochure translated in other languages for the visitors from abroad, a website. All the above could assist the new Museum to become a modern, pluralistic, multifaceted organization and not a boring, outdated, and anachronistic space.

Unfortunately, for so many years the Paleontological Museum was not included in the Region's developmental priorities and policies. As "*it turns out that in our country, the anachronistic view that the costs of the promotion of cultural development are nonproductive, prevails.*" (Konsola, 1990, 93). As seen one of the main problems is the lack of a strategy and a policy plan from the local authorities, which, on the one hand, seem to desire the creation of a new Museum, but they do not proceed to its implementation. At the same time, the public of Grevena and the public opinion remains silent and shows no reflexes at all as it seems the importance, and the value for the local society of a new contemporary Paleontological Museum may lead to is not communicated and comprehended.

7. Conclusive Remarks

A community with a high level of social integration, shares social cohesion, a better understanding on its own economic problems, and, thus, a better standard of living and quality of life (Tsobanoglou, 2007). As it was examined in the present article, the cultural capital contributes directly to the local development and the Paleontological Museum of Milia is a main cultural capital of the area of Grevena. Therefore, there is a need to create a modern pluralistic, multifaceted organization. The social, cultural, economic role of the museums and of every cultural organization of the region must not be based only on their pure existence, but their existence has to help the social development of the place, to connect its citizens and to contribute to the areas prosperity and development. The area of Grevena should find a common denominator for growth, which will lay beyond various political interests. The Paleontological Museum must be recognized as a cultural investment of national, not only local, importance. A modern Museum can unite the society, contribute to its cohesion and development, scientifically, economically, culturally.

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Nurse Workplace Challenges amidst crisis in a Hospital on a Greek Island: The Case of “Vostanio” General Hospital of Lesvos, Greece

Abstract:

The nursing workforce in many countries - including Greece - appear to be particularly vulnerable to the impact of recent global financial crisis (European Federation of Nurses Associations 2012). Due to cuts in all public sector salaries the nursing workforce is confronted with increased workloads and stress levels (Palese, 2012, Douglas 2011, Giannopoulou & Tsobanoglou, 2020, Tsobanoglou & Batra, 2010). The aim of the study was to assess the nurses' work environment of the General Hospital of Mytilene ‘Vostanio’, Lesvos, Greece. A mixed nurse work environment has been characterized by an unfavorable work environment as far as nurse participation in hospital affairs, nursing foundations for quality of care and, mostly, staffing adequacy are concerned. These characteristics are included in standards to sustain healthy work environment

Key Words: Work environment in a Greek Island's Hospital, work environment standards.

Kontopou, Eirini¹ and Tsobanoglou, George²

¹ Corresponding-Address: Kontopou, Eirini “Vostanio” Mytilene General Hospital, Lesvos.

² Corresponding-Address: Tsobanoglou, George, Professor, Department of Sociology, University of the Aegean, Greece, Email: G.Tsobanoglou@aegean.gr

1. Introduction

Work environment plays an important role in securing employee Health and Safety and obtaining a desirable level of productivity from employees (Bayazit Hayta, 2007, Tsobanoglou & Batra, 1999). The concept of the healthy workplace is not new, but it has indeed changed, evolving from a nearly exclusive focus on Occupational Health and Safety (managing the physical, chemical, biological and ergonomic hazards of the workplace) to include work organization, workplace culture, lifestyle and the community, all of which can profoundly influence worker's health (Stoewen, 2016). The World Health Organization (WHO) proposes the following definition: *A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of workers and the sustainability of the work-place* (Burton 2010).

With the increased appreciation of healthy work environments, many research studies were conducted examining nurse work environments (Blake, 2015). The nurses' working environment is defined as 'the organizational characteristic of a work setting which facilitates or constraint's nursing practice' (Lake, 2002). Furthermore, it is an influential, modifiable organizational structure of health care associated with better nursing and patient outcomes (Aiken, 2011, Warshawsky & Havens, 2011, Aiken, 2008). A healthy work environment is both collaborative and productive, constituting an environment in which the nurses and other healthcare staff are protected from psychosocial and physical harm (Aiken, 2013).

The importance of work environment is highlighted by the fact that nurses make up the largest group of health care professionals in the medical system, according to the American Association of Colleges of Nursing (2015). Hospital staff nurses serve as a 24-hour surveillance system to monitor for patient condition changes and intervene for better outcomes, such as through preventing nosocomial (hospital) infections (Aiken, 2002). The relationship between the person who provides health care and the person who receives such care has been identified as one of the most crucial components of the entire health care delivery process (Northouse & Northouse, 1998). Working in hospitals is even more demanding for nurses as they have less work autonomy, less career development opportunities, and less alternatives for career change (Aiken, 2013). There is a growing consensus that identifying opportunities for improving working conditions in hospitals is essential to maintain adequate staffing, high-quality care, nurses' job satisfaction and hence their retention (Hinno, 2009, Rafferty, 2001).

Additionally, the nursing workforce in many countries - including Greece - appear to be particularly vulnerable to the impact of recent global financial crisis (European Federation of Nurses Associations 2012). Due to cuts in all public sector salaries, abolishment of the thirteenth and fourteenth monthly salary, increase in retirement age (Matsaganis, 2011), understaffing (Poulopoulos, 2012, Kentikelenis, 2011), early nurses' retirement (Kalafati, 2012), nursing workforce is confronted with increased workloads and stress levels (Palese, 2012, Douglas, 2011, Giannopoulou, & Tsobanoglou, 2020, Tsobanoglou & Batra, 2010).

It is important to examine nurses' work environment in border insular regions, which are characterized by geographical and transport isolation. The island of Lesbos is by definition a geographically isolated area because of the sea surrounding it. This water barrier differentiates the island isolation from the isolation of remote continental areas (Cross, 1999).

2. Methodology

The aim of the study was the assessment of nurses' work environment of the General Hospital of Mytilene 'Vostanio', in the island of Lesbos. Lesbos belongs to the border

insular region of North Aegean, along with Chios, Samos, Limnos and Ikaria. General Hospital of Mytilene 'Vostanio' is the only facility of secondary health care in Lesvos.

More specifically, our research questions were:

- (1). How is the hospital's working environment characterized (favorable, mixed or unfavorable), based on Practice Environment Scale of the Nursing Work Index (PES-NWI) scoring?
- (2). Which of the five sub-scales of the PES-NWI are recognized as favorable by the participants?
- (3). Which sociodemographic variables of the participants are related with work practice environment?

A cross-sectional study was conducted. The sample was made up of registered and assistant nurses, working in different nursing units of 'Vostanio' hospital. Data collection occurred from December 2017 to January 2018. A total of 230 questionnaires were given to participants. The response rate was 88,26%. The questionnaires were divided into two parts, the first one comprised sociodemographic information and the second the Practice Environment Scale of the Nursing Work Index (PES-NWI) items.

The sociodemographic variables questioned were: age, sex, marital status, professional category, employment unit, nursing experience, work experience at the current hospital and type of working shift. The second part addressed the nursing practice environment evaluation using the PES-NWI questionnaire.

The PES-NWI is a 31-item instrument, which was developed by Lake (2002) and derived from the Nursing Work Index (Kramer, & Hafner, 1989). These items are composed of 5 subscales:

- (1). Nurse's Participation in Hospital Affairs (9 items),
- (2) Nursing Foundations for Quality of Care (10 items),
- (3) Nurse Manager Ability, Leadership and Support of Nurses (5 items),
- (4) Staffing and Resource Adequacy (4 items) and
- (5) Collegial Nurse-Physician Relations (3 items).

The scale has been used in numerous countries and translated in several languages so far (Warshawsky, & Havens, 2011). The PES-NWI items included the following instruction (Lake 2002): 'For each item, please indicate the extent to which you agree that the item is PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.' Each item has four responses ranging from strongly agree to strongly disagree. The subscale scores are equal to the mean of item scores in that subscale. The composite score is equal to the mean of the five subscale scores.

The theoretical cutting point (a midpoint of 2.5) was used in this study, in order to evaluate the quality of practice environment. A hospital is classified as having unfavorable practice environment when it has 0 or 1 subscale above 2.5, mixed if it has 2 or 3, and favorable if it has 4 or 5 subscale scores exceeding 2.5 (Patrician 2010, Friese 2008, Lake 2006). Cronbach's α for the subscales in the present study ranged from 0,74 to 0,81 and the overall PES-NWI was 0,84, indicating acceptable reliability.

3. Results

The study participants were 98 registered and 105 assistant nurses. Of the 203 participants, 87% were female, aged between 41-50 years, ranging between 22 and 62 years and 75.1% were married. As for educational background, only 6 of them had achieved a Master of Science degree. The average amount of nursing experience was 17.1 years (SD 8.8) and the average of their work experience at the current hospital was 13.7 years (SD 9.1). Most of them (70,2%) were rotating shifts workers.

The participants rated below 2.5 both the total PES-NWI (mean=2.44, SD=0.52) and 3 out of 5 subscales ('Nurse Participation in Hospital Affairs', 'Nursing Foundations for Quality of Care', 'Staffing and Resource Adequacy'). The mean PES-NWI sub-dimension scores were 2.3 ± 0.65 for Nurse Participation in Hospital Affairs, 2.11 ± 0.61 for Nursing Foundations for Quality of Care, 2.91 ± 0.58 for Nurse Manager Ability, Leadership, and Support of nurses, 2.01 ± 0.67 for Staffing and Resource Adequacy, and 2.9 ± 0.59 for Collegial Nurse-Physician Relations.

When the PES-NWI mean total score and sub-dimension scores were compared by age, the mean sub-dimension scale score of Nursing Foundations for Quality of Care was found to be higher (2.43) in nurses aged between 21-30 years old than in older nurses ($p<0.05$).

When the PES-NWI mean total score and sub-dimension scores were compared by the unit of employment, the Nurse Manager Ability, Leadership, and Support of nurses sub-dimension was found to be higher in nurses working at the intensive care unit than nurses working at other units ($p<0.05$).

Nursing Foundations for Quality of Care was found to be negatively correlated with age ($p=0.011$), nursing experience ($p=0.001$) and work experience at the current hospital ($p=0.004$).

4. Discussion

The results of the study indicate a mixed work environment for the nursing staff, as 3 out of 5 subscales of the PES-NWI were rated below 2.5. Two sub-dimensions, Nurse Manager Ability, Leadership, and Support of nurses and Collegial Nurse-Physician Relations, were shown to be positive aspects of the work environment. Both of them are related with the interpersonal part of PES-NWI.

As stated by the American Association of Critical-Care Nurses (AACN 2005), authentic leadership is perceived as an important lever to improve nurse staffing, retention, and well-being of nurses (Kuoppala, 2008). Previous research has identified supervising, controlling or directing as skills and attributes traditionally associated with management (Watson, 2008). On the other hand, nurses perceive more positive leadership when the nurse unit manager engages with nursing staff, provides support and motivation, is sensitive to their needs and facilitates professional development (Roche, 2015). In addition, nurse leader and manager can be very influential in developing shared values and culture, creating a sense of community and articulating a vision for the future, all of which contribute to a positive practice environment (Calarco, 2011). Thereby, skilled unit managers are key to maintaining a safe and therapeutic environment for patients and staff (Hanharan, 2010). In Laschinger and Leiter's study, strong nursing leadership on the unit was positively related to good nurse-physician relationships. Considering that the 'Nurse Manager Ability, Leadership and Support of nurses' subscale seems to have a positive effect on nurses' job satisfaction at both individual and unit levels of analysis (Gabriel, 2013, Warshawsky, & Havens, 2011), and as a result, on nurses' productivity, nursing leadership is equivalent to social support in workplace (Gabriel, 2011). In other words, it can be an important moderator of work stress on occupational well-being (Pearlin, 1999).

Another positive aspect of nursing practice environment in General hospital 'Vostanio' was the 'Collegial Nurse-Physician Relations'. Communication and collaboration are the key ingredients to improved nurse-physician relationships (Flynn, 2010, Kramer, & Schmalenberg, 2004, Aiken, 1997), as they have a profound effect on the workplace environment and patient care (Elithy, 2011, Tjia, 2009, Baggs, 1999). Collegiality recognizes different spheres of professional practice and that each person in the relationship has an essential, unique and equal contribution

(Schmalenberg, 2005). Good nurse-physician relations have been shown to have a significant impact on the job satisfaction and retention of nurses and reduce the possibility of experiencing burnout (Shang, 2013, Manojlovich, 2007, Rosenstein, 2005, Rosenstein, 2002, Rafferty, 2001). On the other hand, poor communication and collaboration leads to misunderstandings, errors and conflicts between nurses and physicians (Nair, 2011, Tjia, 2009, Rosenstein, 2002).

The least favorable aspects of nurses' work environment in General Hospital of Mytilene were Nurse Participation in Hospital Affairs, Nursing Foundations for Quality of Care and Staffing and Resource Adequacy. Nurses' participation in hospital affairs may involve sharing in policy healthcare decisions, nursing committees, chances to serve on hospital and internal governance (Clarke, 2009, Upenieks, 2002) that facilitates the flow of information between nurses at the bedside and those in leadership (Kramer, 2009). In our study, lower scores in this subscale were observed in the statements referred to career development opportunities. Organizational features such as working environment influence nurses' career advancement through empowerment (Coventry, 2015), which is described as the perception of being involved and supported, having access to opportunities, resources and power within an organization (Hayes, 2006). Riley et al. stated that lack of opportunities for career advancement is the most important factor of nurses' dissatisfaction in clinical settings (Riley, 2009).

A significant positive correlation between the subscales 'Nurse Participation in Hospital Affairs' and 'Nursing Foundations for Quality of Care' was found in this study, confirming the results from previous studies *showing that providing conditions of continuing education facilitates the possibility of career advancement* (Drey, 2009) and the ability to think critically in clinical decision-making (Simpson, & Courtney, 2002). Continuing education programs are essential to nurses, because these are considered to be a valuable tool that enhances the quality of healthcare services provided to patients (Nsemo, 2013, Shang, 2013, Saran, 2003). In a Greek study, which was conducted in a 536-bed public general hospital of Athens, participation in Continuing Education Programs was, also, correlated with the foundations of quality by the nursing staff (Gikopoulou, 2014). In this study, lower scores in the subscale and 'Nursing Foundations for Quality of Care' were observed in the statements referred to the existence of active professional development program for nursing staff, mostly newly hired, and also, the use of nursing diagnosis and quality improvement program in everyday health care. It should be noted that these can be considered as tools of evidence-based practice, that is a systematic process which uses current evidence in making decisions about the care of clients, including evaluation of quality and applicability of existing research, client preferences, clinical expertise and valuable health care resources (Melnik, & Fineout-Overholt, 2011).

Nurses of General Hospital 'Vostanio' gave to staffing and resource adequacy the lower score and, mostly in two items: 'Enough staff to get the work done' and 'Enough registered nurses on shift to provide quality patient care'. On the other hand, staffing adequacy is thought to be positive related to work engagement (Christian, 2011, Halbesleben, 2010). This is consistent with the statistically strong correlation of this subscale with subscale 'Nurse Participation in Hospital Affairs', which was found in this study. Furthermore, unstable staffing threatens the quality of patient care (Shang, 2013, O' Brien-Pallas, 2010), which is confirmed from the fact that in our study, there is a strong correlation with subscale 'Nursing Foundations for Quality of Care'.

Since 2009, Greece has been undergoing one of the most severe debt crises in its history. The austerity period has severely affected spending on healthcare services

and the populations' health has been referred to in the literature as 'the Greek tragedy' (Kentikelenis, 2011). Nurse staffing was already very low even before the crisis. In 2009, Greece had the lowest nurse per 1.000 population ratio in Europe with 3.3 nurses versus 9.6 in the European Union (Kaitelidou, 2016). According to Anagnostopoulos (2013), the Greek National Health System operates with 10-40% fewer workers whose salary has been cut by 40%.

The healthcare workforce was affected by changes in public sector's salaries and pensions, the increase in retirement age (Kentikelenis, 2011), the reduced nurse-to-patient ratios and the rising emergency admissions in the public hospital sector (Kalafati, 2012), which have resulted in poorer working conditions (Aloumanis, 2014) and work-related stress (Mucci, 2016). The work-related stress also increases due to reorganization of work, which brings increased workload, superior number of shifts and hours of work (Avcin, 2011). In addition, the reduction in wages resulted in the development of work dissatisfaction that can lead to work burnout (Rachiotis, 2014). It should be noted that in a large cross-sectional survey among nurses in 12 European countries and the United States it was found that a burnout rate among nurses ranged from 10% in Netherlands to 78% in Greece (Aiken, 2012).

An interesting element is the conduction of this study, in this remote insular hospital, was the fact that geographical and transport isolation leads to a poor capacity to attracting and retain skilled and qualified professionals (Gould, 2000). Moreover, combined with the lack of adequate staffing, it hinders healthcare professionals' capability to participate in continuous educational programs, carried out in urban areas (Margaras, 2016). Comparing with other studies conducted in Greek hospitals using the same research tool, PES-NWI, the subscale 'Collegial Nurse-Physician Relations' is reported as favorable aspect and subscales 'Nurse Participation in Hospital Affairs' and 'Staffing and Resource Adequacy' as unfavorable in all of them (Brofidi, 2019, Prezerakos, 2015, Gikopoulou, 2014). The extremely low scores of the staffing adequacy subscale reveals that poor staffing with its consequences, especially workload, constitute the most important problem of nurse work environment in Greek hospitals.

5. Limitations and Recommendations for Future Research

The findings of this study have to be seen in light of some limitations. The primary limitation of this study is the reliance on cross-sectional survey data, which does not provide conclusive evidence of causality. In addition, it was conducted in a certain hospital setting with specific characteristics, hence generalization of the results has to be with great attention.

Studies with larger samples could provide more rigorous and generalizable results. Researchers may focus on units to explore the differences in practice environments and may, also, take comparisons of data among several regions in our country, which can result in validating and generalizing some findings. Apart from the descriptive level, future challenges for improving the nurse's work environment include effective research study design to inform interventions, testing interventions and sustaining changes for healthy work environments.

6. Conclusion

This research revealed a mixed nurse work environment in General Hospital of Mytilene 'Vostanio'. Unfavorable aspects of this work environment were nurse participation in hospital affairs, nursing foundations for quality of care and, mostly, staffing adequacy. These characteristics are included in standards to sustain healthy work environment according to American Association of Critical Care Nurses (AACN 2015). Indeed, their combination compose nurses' everyday practice in Greek hospitals, burdening their

wellbeing (retention, dissatisfaction, burnout syndrome) and affecting patient care outcomes.

It is vital that organizations consider their practice environment in light of specific characteristics of their facility (for example, border insularity, geographic and transport isolation) and current financial and social conditions and crisis. There is a need of establishing a baseline from which to evaluate interventions, targeting to nurses' empowerment and participation in decision making process, continuing education for skills development, adequate number of staff and decrease of adverse work schedules.

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