

## Original Article

# Experiences of Individuals that Undergone in Vitro Fertilization: A Great Opportunity for Medical Tourism in Greece

**George Bartzis, BD, MSc, PhD (c)**

Center for Health Services Management and Evaluation, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Olga Siskou, PhD**

Assistant Professor, University of Piraeus, Greece

**Petros Galanis, PhD**

Assistant Professor, Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Olympia Konstantakopoulou, Economist, MSc, PhD**

Center for Health Services Management and Evaluation, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Theodoros Mariolis-Sapsakos, PhD**

Associate Professor, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Ioannis Mantas, PhD**

Emeritus Professor, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Georgios Angelopoulos, Economist, MSc**

Center for Health Services Management and Evaluation, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Daphne Kaitelidou, PhD**

Professor, Center for Health Services Management and Evaluation, Faculty of Nursing, National and Kapodistrian University of Athens, Greece

**Correspondence:** George Bartzis, Faculty of Nursing, National and Kapodistrian University of Athens, Greece, 123 Papadiamantopoulou street, GR-11527, Athens, Greece, e-mail: georgebartzis@gmail.com

### Abstract

**Introduction:** Choosing a country for medical tourism is a complex decision that is influenced by eral factors. Emphasis should be placed on the quality and safety of the health services provided.

**Aim:** To evaluate the experiences of individuals from foreign countries that undergone in vitro fertilization (IVF) in Greece.

**Methods:** We conducted a cross-sectional study with a convenience sample. We collected our data from May to December 2019. The response rate was 71%. We used a self-administrated questionnaire to collect our data. All

participants gave their informed consent to participate in the study. Demographic data were the independent variables. We used as dependent variables the following: cost of health services, quality of health services, and total experiences from health services.

**Results:** Study sample included 216 individuals that undergone IVF in Greece. Mean age of participants was 39,4 years. Among the participants, 40,7% (n=88) evaluated their total experience as very good, 46,8% (n=101) as good, 12% (n=26) as moderate, and 0,5% (n=1) as poor. Multivariable linear regression analysis identified that males had higher score on health services cost than females, individuals with public insurance or no insurance had higher score on health services cost than individuals with private insurance, and decreased annual income was associated with increased score on health services cost. Also, increased educational level and increased annual income were associated with increased score on health services quality.

**Conclusions:** Greece, due to its geographical location and climatic conditions, is an excellent choice for medical tourism for many people and for this reason special emphasis should be placed on developing and establishing the appropriate conditions.

**Keywords:** medical tourism, in vitro fertilization, Greece, quality, experiences

## **Introduction**

Health tourism includes wellness tourism and medical tourism. Wellness tourism aims to improve the health status of tourists through relaxation with spa treatments or the provision of alternative therapies for healthy people. Medical tourism involves diagnosis, hospitalisation and surgery to improve or restore health on a long-term basis, always combined with leisure (Connell 2006).

There are essentially three forms of health tourism: interventional, diagnostic and wellness tourism (Bookman & Bookman, 2007). Invasive treatments involve high-tech procedures performed by specialists. Diagnostic procedures include various types of tests such as blood tests and electrocardiograms, while the last form, which includes traditional “spa tourism”, includes wellness or recovery treatments carried out under medical supervision (spa, thalassotherapy, hydrotherapy, herbal/spa baths, facial and beauty treatments, fitness programmes, massage, sauna).

In addition, there are several ways of classifying medical tourism. A common classification includes the following types. people moving to a location better for their health, such as many Americans going to Florida or the Caribbean; (c) Medical tourists, two neighboring countries that have entered into a health service exchange agreement; (d) Outpatients, who are sent abroad at government expense because the necessary treatment is not available locally (Rosenmöller et al. 2006, Al-Lamki 2011).

Individuals undertaking medical tourism fall into five categories, depending on the incentive (Lautier 2013): (a) patients travelling to seek treatment in prestigious treatment centers or to undergo treatments not available in their country; (b) patients travelling for convalescence; (c) patients travelling to a specific place to benefit from natural resources (spas, spas), (d) patients whose travel is motivated by financial considerations and who seek treatment similar to, but cheaper than, that available in the place/country of residence, and (e) elderly people

travelling to countries with more favourable climatic and economic conditions.

In Greece medical tourism includes mainly tourists from European Union (England, France, Italy, Germany), Russia, Southeast Europe, the Middle East (Qatar, United Arab Emirates, Saudi Arabia), USA and China.

One area that is expected to attract even more international interest in the near future is fertility problems. Thus, the "spearhead" for the development of medical tourism in Greece is assisted reproduction and the attraction of couples from abroad. In vitro fertilization is a highly effective method for achieving pregnancy in couples with subfertility. Greece is among the top preferences of couples for in vitro fertilization methods for three main reasons (a) the excellent bioclimate, which allows for additional relaxation and emotional approach of the couple during treatment, (b) the low cost, compared to the corresponding in Great Britain or the USA and (c) the high success rates. In addition, equally important reasons are the personal contact between doctor and patient, the accessibility of fertility treatment, the facilities of the IVF facility, the unsuitability of certain patients for certain methods and the long waiting lists or lack of sperm or egg donors.

Therefore, the purpose of this study was to evaluate the experiences of individuals from foreign countries that undergone in vitro fertilization (IVF) in Greece.

### **Material and methods**

We conducted a cross-sectional study with a convenience sample. We collected our data from May to December 2019. The response rate was 71%. We used a self-administrated questionnaire to collect our data. The questionnaire included 30 questions measuring experiences of tourists regarding the quality of services in Greece. The

questionnaire includes three dimensions: cost of health services, quality of health services, and total experiences from health services. Each dimension takes values from 1 to 5 with higher values indicating higher agreement. Questionnaire is reliable and valid in Greek (Bartzis et al. 2020). A pilot study was conducted confirming the reliability and the validity of the questionnaire. In particular, Cronbach's alpha for the questionnaire was 0.82 and Spearman's correlation coefficients were  $>0.7$  ( $p < 0.05$ ) for the 30 items. Participants were adults over 18 years old that can understand the English language.

All participants gave their informed consent to participate in the study. Study protocol was approved from the Ethics and Ethical Committee of the Department of Nursing, National and Kapodistrian University of Athens.

We measured the following demographic data: gender (males or females), age (continuous variable), highest educational level (elementary school, high school, University degree, MSc/PhD diploma), marital status (singles, married, divorced, widows), occupational status (employee or unemployed), annual income in Euros (continuous variable).

Demographic data were the independent variables. We used as dependent variables the following: cost of health services, quality of health services, and total experiences from health services.

Descriptive statistics were presented with absolute and relative frequencies for the categorical variables and mean and standard deviation for the continuous variables. First, we performed bivariate analysis applying independent samples t-test, Pearson's correlation coefficient, Spearman's correlation coefficient and analysis of variance. Then, we performed multivariable linear regression analysis in order to

eliminate confounding. Data analysis was performed using IBM SPSS 21.0 and a two-sided significance level was set at 0.05.

### Results

Study sample included 216 individuals that undergone IVF in Greece. Mean age of

participants was 39,4 years, while the majority of the participants were females (71,3%), hold a university degree (85,2%), were married (84,3%), were employees (96.3%), had insurance (93,5%), and had an annual income between 35.001 and 75.000 Euros (69%). Demographic data of study sample are summarized in Table 1.

**Table 1:** Demographic data of study sample (n=216)

Variables	N (%)
<b>Gender</b>	
Males	62 (28.7)
Females	154 (71.3)
<b>Age</b>	39.4 (3.8) <sup>a</sup>
<b>Highest educational level</b>	
Elementary school	2 (0.9)
High school	30 (13.9)
University degree	141 (65.3)
MSc/PhD	43 (19.9)
<b>Marital status</b>	
Singles	25 (11.6)
Married	182 (84.3)
Divorced	7 (3.2)
Widows	2 (0.9)
<b>Occupational status</b>	
Employees	208 (96.3)
Unemployed	8 (3.7)
<b>Insurance</b>	
Yes	202 (93.5)
No	14 (6.5)
<b>Annual income in Euros</b>	
4.000-15.000	3 (1.4)
15.001-25.000	3 (1.4)
25.001- 35.000	33 (15.3)
35.001-55.000	74 (34.3)
55.001-75.000	75 (34.7)

75.001-100.000	25 (11.6)
>100.000	3 (1.4)

<sup>a</sup> mean (standard deviation)

Among the participants, 40,7% (n=88) evaluated their total experience as very good, 46,8% (n=101) as good, 12% (n=26) as moderate, and 0,5% (n=1) as poor.

Bivariate relationships between demographic variables and health services cost are presented in Table 2. Multivariable linear regression analysis identified that males had higher score on health services cost than females (b = -0,33, 95%

confidence interval = -0,56 to -0,09, p = 0,007), individuals with public insurance or no insurance had higher score on health services cost than individuals with private insurance (b = -0,21, 95% confidence interval = -0,39 to -0,03, p = 0,021), and decreased annual income was associated with increased score on health services cost (b = -0,25, 95% confidence interval = -0,35 to -0,15, p < 0,001).

**Table 2.** Bivariate relationships between demographic variables and health services cost.

Demographic variables	Mean score on health services cost (standard deviation)	P-value
<b>Gender</b>		<b>0.007<sup>a</sup></b>
Males	4.2 (0.5)	
Females	3.9 (1.0)	
<b>Age</b>	0.007 <sup>b</sup>	0.921 <sup>b</sup>
<b>Highest educational level</b>	-0.016 <sup>c</sup>	0.815 <sup>c</sup>
<b>Marital status</b>		0.732 <sup>a</sup>
Singles/Divorced/Widows	4.0 (1.1)	
Married	4.0 (0.8)	
<b>Insurance</b>		<b>0.029<sup>d</sup></b>
Public	4.2 (0.6)	
Private	3.9 (1.0)	

None	4.0 (0.6)	
<b>Annual income in Euros</b>	-0.140 <sup>c</sup>	<b>0.040<sup>c</sup></b>

<sup>a</sup> independent samples t-test <sup>b</sup> Pearson's correlation coefficient <sup>c</sup> Spearman's correlation coefficient <sup>d</sup> analysis of variance

Bivariate relationships between demographic variables and health services quality are presented in Table 3. Multivariable linear regression analysis identified that increased educational level was associated with increased score on health services quality (b = 0.08, 95% confidence interval = 0.014 to 0.15, p = 0.017) and increased annual income was associated with increased score on health services quality (b = 0.05, 95% confidence interval = 0.008 to 0.093, p = 0.021).

**Table 3.** Bivariate relationships between demographic variables and health services quality.

<b>Demographic variables</b>	<b>Mean score on health services quality (standard deviation)</b>	<b>P-value</b>
<b>Gender</b>		0.315 <sup>a</sup>
Males	4.3 (0.3)	
Females	4.3 (0.3)	
<b>Age</b>	0.050 <sup>b</sup>	0.465 <sup>b</sup>
<b>Highest educational level</b>	0.174 <sup>c</sup>	<b>0.010<sup>c</sup></b>
<b>Marital status</b>		<b>0.101<sup>a</sup></b>
Singles/Divorced/Widows	4.4 (0.3)	
Married	4.3 (0.3)	
<b>Insurance</b>		<b>0.135<sup>d</sup></b>
Public	4.3 (0.3)	
Private	4.3 (0.3)	
None	4.1 (0.4)	
<b>Annual income in Euros</b>	0.112 <sup>c</sup>	<b>0.100<sup>c</sup></b>

<sup>a</sup> independent samples t-test <sup>b</sup> Pearson's correlation coefficient <sup>c</sup> Spearman's correlation coefficient <sup>d</sup> analysis of variance

Bivariate relationships between demographic variables and total experience score are presented in Table 4. There were no statistically significant relationships.

**Table 4.** Bivariate relationships between demographic variables total experience score.

Demographic variables	Mean total experience score (standard deviation)	P-value
<b>Gender</b>		<b>0.065<sup>a</sup></b>
Males	4.1 (0.6)	
Females	4.3 (0.7)	
<b>Age</b>	-0.021 <sup>b</sup>	0.755 <sup>b</sup>
<b>Highest educational level</b>	0.058 <sup>c</sup>	0.398 <sup>c</sup>
<b>Marital status</b>		0.904 <sup>a</sup>
Singles/Divorced/Widows	4.3 (0.7)	
Married	4.3 (0.7)	
<b>Insurance</b>		0.203 <sup>d</sup>
Public	4.2 (0.7)	
Private	4.3 (0.7)	
None	4.1 (0.7)	
<b>Annual income in Euros</b>	0.091 <sup>c</sup>	<b>0.183<sup>c</sup></b>

<sup>a</sup> independent samples t-test <sup>b</sup> Pearson's correlation coefficient <sup>c</sup> Spearman's correlation coefficient <sup>d</sup> analysis of variance

## Discussion

We conducted a cross-sectional study in order to evaluate the experiences of individuals from

foreign countries that undergone in vitro fertilization in Greece. Also, we investigated the impact of several demographic variables on the experiences of individuals.

We found that the characteristics of clinics were considered to be an important pillar of people's decision to choose Greece for their medical care. The main characteristics of the clinics included the following: comfort, high quality of care, quick response, new equipment and cost savings. A significant number of studies confirm this finding, particularly with regard to quality of health care, cost and equipment, with cost being the most important factor in most studies (Andreou et al. 2020, Park et al. 2017, Yildiz & Khan 2016, Sultana et al. 2014, Hudson et al. 2011, Culley et al. 2011, Milosevic 2009, Osterle et al. 2009, Turner 2008, Horowitz & Rosensweig 2007, Smith & Forgiione 2007, Connell 2006). Indeed, cost and quality of care play a more important role in the case of medically assisted reproduction and dental services (Andreou et al. 2020, Hudson et al. 2011, Milosevic 2009, Osterle et al. 2009, Turner 2008). It is noteworthy that in our study the most important cost parameters were: affordable overall costs, low travel costs, low costs of health services and low costs of medication.

Low costs combined with quality health services largely determine people's decision to visit specific countries for medical tourism, as it is extremely common for residents of the USA and Central Europe to visit Asian and Eastern countries for health services. Similarly, in Greece, the provision of high quality health services at a lower cost than in several other developed countries attracts a larger audience for medical tourism. A typical example is a cost-effectiveness study regarding medically assisted reproduction in Turkey compared to the US, where Turkey was found to be superior not only in terms of cost, which is 30-50% lower than in Western Europe and the US, but also in terms of quality, such as for example a higher success rate of medically assisted reproduction (Yildiz & Khan 2016). Particularly in the case of medically assisted

reproduction the problem is even more complex in some countries, where either the number of treatments is limited or the costs are extremely high, so many couples resort to medical tourism as the only solution (Speier 2011, Inhorn et al. 2012). It is typical that in our study the most important parameters regarding the quality and safety of health services provided were high quality health standards and a high level of safety.

In addition, we found that the personal characteristics of individuals influence their choice of medical tourism destination. Specifically, personal characteristics included familiarity with the country and its health services, recommendations from family and friends, communication with health service staff especially when this communication is in the clients' native language, travel habits and desire to visit new countries. Familiarity with the country and its health services is an extremely important factor influencing people's choice of medical tourism. In our study, the majority of participants stated that an important factor explaining their decision to visit Greece for medical tourism was familiarity with the country and its health services. Some of the participants even had Greek citizenship, so they combined their need for medical care with the opportunity to visit their country of origin. Familiarity with the country's socio-cultural factors and the existence of family support are key factors influencing the choice of medical tourism destination. A typical example is the fact that migrants from India, China, Korea and Mexico return to their country of origin for important therapeutic interventions either because they are not available in their country of residence or because they believe that they will be better in their country of origin (Lunt & Carrera 2011; Kumarasamy et al. 2010; Fried & Harris 2007). In fact, the language of communication plays a

particularly important role in this case, a finding that was also identified in our study.

We found that people with a higher level of education and higher income rated their experience of medical tourism as worse. Similar studies came to the same conclusion, as individuals with a higher educational level have more demands from the health services provided especially when they pay a higher financial consideration (Park et al. 2017, Pener 2017, Horowitz & Rosensweig 2007). It is expected that those who pay more money have more demands when seeking medical tourism destinations that offer quality and more opportunities.

Our study has several limitations. First of all, we used a self-reported questionnaire and information bias is probable. Also, we conducted a cross-sectional study and causal inferences cannot be established. A convenience sample was obtained in our study. Therefore, we cannot generalize our results. Also, our sample size was relatively small. Therefore, further studies should be conducted in order to expand our knowledge.

Medical tourism is constantly growing internationally, affecting both users of health services and health systems. Greece, due to its geographical location and climatic conditions, is an excellent choice for medical tourism for many people and for this reason special emphasis should be placed on developing and establishing the appropriate conditions. Choosing a country for medical tourism is a complex decision that is influenced by several factors as the study has shown. Certainly, however, particular emphasis should be placed on the quality and safety of the health services provided, as individuals choose mainly on the basis of these two factors. In fact, if medical tourism in Greece is combined with low-cost services, it will be an ideal combination and will attract a significant number of interested

parties. For this reason, coordinated efforts are required from both the private and public sectors so that medical tourism in Greece can be developed as much as possible, providing quality and cost-effective services.

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