Polyzou, Maria; Kilindri, Stamatia

Article

Conflicts in hospitals : a quantitative analysis of determinant factors

Conflicts in Hospitals: A quantitative Analysis of Determinant Factors

Maria Polyzou[1], **Stamatia Kilindri**[2]
1. MD MSc, St Anna Hospital, Duisburg, Germany,
email: mary_polyzou@hotmail.com.
2. PhD, TEI Larisas, email: skilindri@yahoo.gr

Abstract
Conflict takes place in any organization specially hospitals where continuous human interactions between personnel or personnel and patients or their escorts occur. Conflict is a dynamic process and it can have positive or negative effects on the hospitals operation. There are many reasons that may influence the appearance of conflicts in hospitals. These reasons or determinant factors are described in this article and a quantitative analysis is conducted by using statistical data obtained from a survey carried out in three large hospitals in Greece. Specifically, descriptive statistics are obtained for the used data; the correlation indices between conflict determinant factors are estimated and a cluster analysis is performed that tries to identify homogenous groups between conflict causes. The results of this research may contribute to a better understanding of conflict characteristics, as they are configurated using the aspect of personnel, as well as help hospitals to eliminate negative effects of conflicts or exploit them for an efficient operation

Keywords*:* Hospital management, Greek hospitals, conflict management.

JEL classification: I12, I18, M12, M54

Introduction

Conflict is an inseparable part of people's life and within organizations it is unavoidable. It can be characterized as a natural phenomenon that has acquired a multitude of meanings and connotations (Omisore and Abiodun, 2014). In other words, it is an inevitable and "normal" part of cooperation (Skjørshammer, 2001). Conflict can be defined as a process in which one party suggests that its interests are being opposed by another party. It is a distress due to opposition to incompatible wishes or desires between individuals or teams. More specifically, organizational conflict is the expression of incompatibility among goals, aims, and values which interdependent people have, who work in the same organization (Putnam and Poole 1987, Miller 2002; Miller 2003). Conflicts can indeed be very heterogeneous in their form, characteristics, origin and outcome (Carneiro er al., 2014).

The appearance of conflict is a usual phenomenon in hospitals because of the specific characteristics of working conditions. Hospitals are similar to the other enterprises in the ways in which people behave when a conflict happens, but they have some particularities in relation to other workplaces. Healthcare is unique in many ways. This is due to the diversity of objectives, needs, desires, responsibilities and belief. In addition, in many cases conflict are favored by the inability of hospital staff (medical, nursing and administrative) to cooperate successfully both with each other and patients or their attendants (Al-Hamali et al, 2013; Higazee, 2015).

Hospitals or healthcare sector in general, are characterized by multiple professional employee groups with an entrenched "tribal" culture. Hospitals constitute complex organizations, including many professional teams with different levels of education, where there is a need for interdisciplinary collaboration on clinical objectives. The need for interdisciplinary cooperation between workers increases the degree of their interaction, which contributes potentially to increased conflict generation. The intense stressful environment of health organizations, where continuous human interactions occur, contributes significantly to creating conflicts (Higazee, 2015).

Conflict is a dynamic process that can be positive or negative, healthy or dysfunctional, within workplaces (Higazee, 2015). Since conflict is unavoidable, it is obviously necessary the sources of the conflict to be recognized from the managers, who have to manage conflict in a constructive way. Last years, the views of managers concerning conflict have changed, and conflict is now seen as having the potential for positive growth (Omisore and Abiodun, 2014).

This article aims at the description of main factors that influence the appearance of conflicts in hospitals in Greece, as well as a quantitative analysis that is conducted by using statistical data obtained from a survey carried out in three large hospitals in Greece. The results of this research may contribute to a better understanding of conflict characteristics, the importance of each determinant factor and the relationship between these factors, helping the conflict management in hospitals.

Literature Review

Conflict is a social phenomenon that is found in personal, group or organizational interactions and it comprises several dimensions. For many authors, conflict in healthcare comes from communication problems. The institution has the opportunity to learn and be improved from the experience of any conflict and also to deal fairly and openly with the personnel, patient and family involved (Matz, 2005).

There are many types of conflict that may happen in a hospital. Conflict constitute a complex behavior, and according to the level on which conflict may occur, it can be distinguished in: (a) Intrapersonal or role conflict, when it occur within the person and the main sources of conflict are the ideas, thoughts, feelings, values, predispositions or impulses that are in conflict with each other. In other words, these conflicts happen within ourselves, when we face situations in which contradictory values or convictions must be weighted and a decision or action, based on them, taken (Carneiro er al., 2014). (b) Interpersonal, which occurs between two or more people who have contradictions to values, purposes, beliefs. (c) Intragroup, when it happens within one group of people and (d) intergroup, when it occurs between two or more groups of people (Paton, 2014).

Intrapersonal conflicts constitute the simplest form of conflict in terms of the number of parts involved. Most of these conflicts are generated by (Carneiro er al., 2014):

- A contradiction between our preconceived notions and observed evidence or facts;

- Abstract social values that can be hard to define, understand and live by;
- Uncertainty when taking binding and important decisions;
- A contradiction between inner values. Although these conflicts are not so "visible" as open conflicts or confrontation with other individuals, they happen frequently and have a constant effect in our daily living.

Interpersonal conflicts are the most "classical" type of conflict. They constitute a conflict between two or more individuals, and can be seen as a struggle between interdependent parties. Two other types of conflict can be identified, more complex in the dynamics of their interactions. Intragroup conflicts take place between individuals that belong to a same group, i.e., those individuals often share interests, cultural aspects, objectives and other identifying characteristics. Intergroup conflicts emerge when two or more groups, with their own culture, objectives or beliefs, take actions that go against each other's values. Such conflicts are socially complex since they involve an arbitrary large number of individuals, behaving under the frame of social groups (Carneiro er al., 2014):

According to the results that arise we can distinguish: (a) competitive conflict that occurs when two or more groups try to achieve a common goal, and (b) conflict disorder resulting from the effort to reduce or defeat the opponent (Higazee, 2015).

During the conflict process, some form of interaction between persons or groups takes place. This interaction concerns interfering goals or a disagreement in terms of interests, values, or power. A conflict is a process which begins when one person or a group perceives that another has frustrated, or is about to frustrate, some concern of his. So, according to another aspect, conflicts are often divided into cognitive and affective types (Parayitam and Dooley 2009). With a cognitive conflict in a healthcare organization, the disagreement focuses on the goals, related tasks and processes, and its effects on structural issues. Affective conflicts have a more psychological basis and are related to threats concerned feelings of exclusion and loss during the implementation process or the perception that some processes conflicts with the status quo, cultural principles, social relations, or values.

Another aspect differentiates conflicts in healthcare organizations according to their sources at the micro, meso, and macro levels. At the micro level conflict can ensue, when for example, there are differing personalities, physical space concerns, or issues regarding scope of practice. A combination of issues at the meso and macro levels, such as patient volume, patient expectations, financial remuneration, and new clinical practice guidelines can also be a source of conflict (Brown et al, 2011).

Last years, attitudes toward conflict in organizations have significantly changed. Each conflict has an aftermath which affects professionals as well as patients either positively or negatively. Managers treat conflict as a natural phenomenon, aiming at minimizing negative consequences and maximizing positive ones. An inappropriate treatment of conflicts leads to negative consequences for personnel, patients and the organization. These negative consequences include unprofessional personnel's behaviors which lead to lack of organizational commitment and finally poor quality of patients' care.

Conflict is a dynamic process that passes through different stages. It may causes an emotional explosion with anger manifestations of the two opposing "sides" with negative effects on the operation of organization or can be resolved in a mature way to common satisfaction before emotional charge takes large dimensions and affect the ability to properly address the problem. Regardless of the type of conflict that may occur in a hospital but also in any organization, the process mapping or the conflict cycle is illustrated briefly in Figure 1.

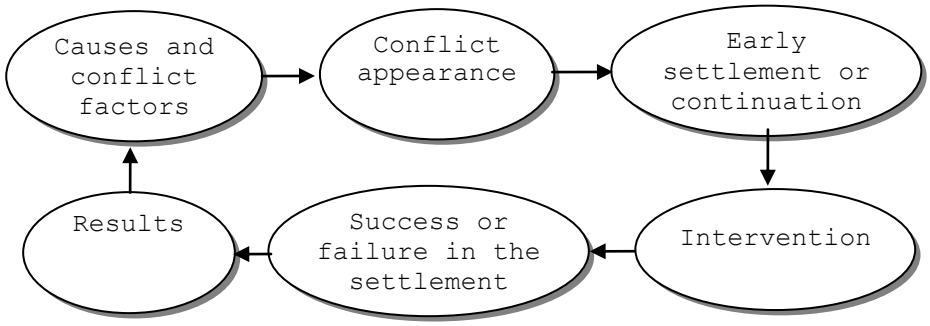

Figure 1: The cycle of conflict

In particular, every conflict is a consequence of some causes. If a conflict is not prevented, it may be developed into the stages that are its main process. Conflict cycle will be closed with positive or negative results, depending on the characteristics of the conflict, the measures used to evaluate the results, the participants and the criteria used to impact manage. The results affect the likelihood of conflict recurrence with the same or different characteristics and the same or different consequences. Generally speaking, sources of conflict in health care organizations emanate from inadequate interpersonal and inter-professional respect and recognition, differences in opinion regarding optimal treatment protocols and competition over fiscal and human resources (Mills, 2002).

Despite the negative connotation generally associated to conflicts, these should not be regarded as necessarily negative. In fact, they can even be positive for the group of individuals or the organization in which they take place (Carneiro er al., 2014).

Material and Method

The survey includes a quantitative analysis of the factors that affect the emergence of conflicts in 3 major hospitals in Greece, located in 3 different cities. Specifically, 210 questionnaires were given to the personnel for completing in the hospitals AHEPA in Thessaloniki, the University Hospital of Larissa and the Hospital of Karditsa. The sampling was random since the people interviewed were selected randomly. The participation in the survey was voluntary and the questionnaires were distributed proportionally to the number of the workers in the 3 hospitals.

An introduction letter was attached to the questionnaire to explain the study purpose. The questionnaire was anonymous, and the respondents were reassured that all information would be kept confidential. 156 questionnaires were returned completed, while 54 questionnaires did not return belonged to people who were late to return them, or were people in our assessment showed a reluctance to complete them.

Demographic characteristics of the participants are shown in Table 1.

Table 1: Demographic characteristics of the participants

Gender	%	***Education level***	%
Male	32	Higher school	12
Female	68	Technological school	21
Age *(years)*	%	University Diploma	48
<30	13	Master degree	15
30-40	19	PhD	4
41-50	29	**Profession**	%
51-60	37	Doctors	48
>60	2	Nurses	19
Doctors		Administrative employees	21
Specialist doctors	50	Other employees (technicians etc)	12
Qualified doctors	50		

An analysis of causes and conflict factors in hospitals

According to the findings on the reasons and factors that cause conflicts in healthcare organizations and are included in the relevant literature, we estimate that these factors can be classified into three main categories. Each category includes other subcategories, which will be described below. In the survey conducted in 3 hospitals, the participants were asked to score the importance of each factor on a scale of 1 to 20.

Analytically, the factors that we estimate to affect hospital conflicts and were included in the questionnaire are as follows:

A. Internal due to working environment which are related to the characteristics of hospital environment and working conditions afforded to workers.

(a_1) Workload in workplace.
Most countries, and especially Greece due to the economic crisis, are experiencing the burden of rising demand for public health services. Generally speaking, public sector health services are, as a consequence, experiencing new pressures to improve the quality, quantity and accessibility of the services they provide, while at the same time having to operate under tight financial constraints (Ozcan1 and Hornby, 1999). These have as effects an increase in requirements for personnel, who are required to carry out a larger workload than what their time and capabilities allow, resulting in pressure.

(a_2) Weaknesses in hospital or department organization.
Weaknesses in the organization of hospitals include elements such as poor labor distribution, non-assignment of responsibilities to employees, mismanagement in the administration, etc. (Nayeri and Negarandeh, 2009).

(a_3) Poor working conditions.
Poor conditions in the workplace can create significant daily problems in hospitals and lead to conflicts (Pettersen and Nyland, 2012).

(a_4) Impairment of available resources.

Disposing of limited resources to hospitals may lead to confrontations or conflict between the director of the organization and the workers. This can explained by ignorance, lack of adequate information and non-participation in resource management decisions on the part of employees as workers are not involved in the financial management of resources, the responsibility of which is the director of the hospital (Trinh and Begun, 1999; Skjørshammer, 2001; Todorova and Mihaylova-Alakidi, 2010).

B. Behavioral, which are related to the individual characteristics of workers.

(b_1) Competition between employees or attitudes adoption.
A conflict is most likely to occur when two individuals or groups interact in a competition and one group tries to increase its power, stressing its needs, goals and positions. In this way, the first group seeks to exploit the other one whenever possible (Spagnol1 et al. 2010).

(b_2) Style of management of hospital manager.
The authoritarian-exploitative style of administration is a major cause of conflict between personnel and hospital manager, as decision-making takes place at the top of the administration's pyramid, without the involvement of the existing ones, and communication is one-way from top to bottom that is based on fear and compulsion. Also, the management of the hospital includes the "management of past conflicts" that have arisen in the past in the hospital workplace and which, while remaining unresolved, increases the negative climate and dysfunction within the organization (Trinh and Begun, 1999; Skjørshammer, 2001; Todorova and Mihaylova-Alakidi, 2010).

(b_3) The interdependence between the conflicting team members.
When two or more groups of an organization depend on one another for completing a project, interdependence can create a conflict. In the context of decision-making, asymmetric interdependence affects the level of trust and loyalty of groups and triggers conflicts (Byrkjeflot and Jespersen, 2014).

(b_4) Poor communication.
Inappropriate communication between individuals and groups in an organization, which may result from prejudices, distrust of the source of the message, distorted mood, bad coding and decoding of messages, unspecified expectations, concealment of information, lack of trust and honesty, leads to misunderstandings and conflicts (Byrkjeflot and Jespersen, 2014).

(b_5) Indifference of nurses.
This factor can be considered as a cause of both problematic behavior of patients and their escorts (Nayeri and Negarandeh, 2009).
(b_6) Domineering behavior of doctors.

The authoritarian behavior of doctors is included in the cause of conflict as it creates nervousness, anger and disability in nurses (Skjørshammer, 2001; Latreille and Saundry, 2016).

(b_7) Style of management of head of department.
When management's decisions contradict what the existing people see as the most correct practice, their confidence in leadership is being shaken and a climate of frustration is being created.

(b_8) Individual factors.
Different knowledge, skills, beliefs, values, perceptions, ideologies, idiosyncrasies, ages and interests of workers cause conflicts in the workplace of organizations (Miller, 2003).

(b_9) Formality.
A possible cause of conflict among workers is the low degree of formalism. Although the standardization of an organization's actions (rules, regulations, etc) leads to more bureaucracy, its existence acts as a deterrent to the conflict, because the solution of the differences is based on the prescribed standard instructions. When there is standardization of the roles and the contacts between the people of the organization are somewhat planned and prescribed, there is not much room for personal interpretations or misinterpretations (Miller, 2003).

C. External, which are related to the characteristics both of patients and their escorts and generally they are not directly related to hospital general conditions.

(c_1) Problematic behavior of patients.
This problematic behavior may be due either to poor patient information about the hospital operation or to excessive demands of patients for doctors and nurses and even to the poor conditions in the hospital, as the lack of staff.

(c_2) Problematic behavior of escorts.
This behavior may arise from the very individual characteristics of the escorts, their emotional charging, the poor conditions prevailing in hospitals, the lack of information and information on the operation of the hospital, their different expectations regarding the behavior of workers in health care, etc.

(c_3) Uncertainty of personnel.
Uncertainty in the workplace involves risk of conflict, especially in terms of responsibilities. When it is no longer known what responsibility is an issue or who is responsible for the allocation of the project or resources, it is likely that conflicts will begin.

(c_4) Differences in the hierarchy and the position of each employee.
These differences create hostile moods amongst group members because there is a different degree of participation in decision-making or distribution of pay. Also, the existence of stereotypes relating to the profession of nurses and doctors is often the cause of conflicts (Higazee, 2015).

(c_5) Employee participation in decision making.
When the proportion of employee involvement in decision-making increases, the incidence of conflict incidents increases. Regarding the second factor, it has been suggested that different knowledge, skills, beliefs, values, perceptions, ideologies, idiosyncrasies, ages and interests of the workers cause conflicts on the workplace of organizations (Al-Hamali et al. 2013).

(c_6) Introduction of innovations in workplace.
Modern challenges and changes in the environment make necessary the introduction of innovations in the workplace so that each organization can be effective, develop new ideas, experiment and survive. With technological progress and research in the international environment,

the necessary changes are now a necessity. When individuals are not properly prepared for the upcoming changes, they pose a threat to the preservation of the establishment and are often accompanied by tension, anxiety, resistance and conflict, as they are usually perceived as threats or a challenge to react. In hospitals there is an increased possibility of being considered by nurses as losing vested rights to doctors. Pressures related to cost containment, staff reduction, decentralization, patient care efficiency, collective bargaining, increased consumer health awareness and 'compulsory' continuing vocational training are also among the causes of conflict (Pettersen and Nyland, 2012).

Quantitative Analysis and Results

(a) Estimation of significance and ranking of the factors

Subsequently, an estimation of the significance of the factors described above is made by utilizing the answers and the scores given by respondents to the aforementioned survey in the 3 hospitals, as well as a classification of factors according to their importance.

By symbolizing with w_i the rating or the "weight" of each factor in the scale i=1÷20, x_{ij} the number of answers that corresponds to w_i for the factor j, we can create the product $w_i.x_{ij}$ corresponding to each factor and each weight. The summation of products gives the overall rating that takes each factor and simultaneously achieves the hierarchy of factors included in each query (Mosmans et al, 2002). Thus, the total score received by each factor is estimated as follows:

$$W_i = \sum_{i=1}^{n} w_i x_{ij} \quad (1)$$

When:

W_i = the total result for the factor j.
w_i = the rating or weight for each factor.
x_{ij} = the number of responses or the performance of the factor j in the standings.

The values of sums give us the possibility for a prioritization of survey factors and conflict characteristics according to their importance.

As can be seen from the above classification, the "Workload in workplace" factor is assessed by the workers as the most important for provoking conflicts in hospitals, following the factors "Weaknesses in work allocation" and "Poor working conditions". The factors "Introduction of Innovation in Workplace", "Formality" and "Individual Factors" appear to be the least significant for conflict. The other factors are in intermediate rankings, indicating that employees in their hospitals consider them less important for conflict.

Table 2: Hierarchy of factors contributing to the conflict appearance

Factor	**Weight W_i**	***Factor***	**Weight W_i**
Introduction of innovation in workplace	1521	Indifference of nurses	1771
Formality	1638	Style of management of hospital manager	1950
Individual factors	1641	Bad behaviour of escorts	1971
Uncertainty of personnel	1647	Bad behaviour of	1992

		patients	
Non-participation of personnel in decision-making	1680	Impairment of available resources	2016
Differences in the hierarchy and the position of each employee	1722	Competition among employees	2049
Interdependence of members or groups	1728	Poor working conditions	2076
Style of management of head of the department	1740	Weaknesses in work allocation	2089
Domineering behaviour of some doctors	1744	Workload in workplace	2095
Poor communication	1746		

It is worth noting that the most critical factors are associated with the organization of the hospitals and are internal factors. On the contrary, behavioral or external factors were not considered to be particularly important. These results indicate that hospitals in Greece have organizational problems that are the source of conflicts and possibly for other more general adverse developments. The above results can be properly exploited by decision makers to take appropriate measures to reduce the number and intensity of conflicts and to manage them effectively.

(b) Correlation analysis

Pearson's correlation coefficients of the above factors will then be calculated to investigate the relationship between them. The results of these calculations are shown on Table 3.

Table 3: Correlation coefficients of conflict factors

	(a1)	(a2)	(a3)	(a4)	(b1)	(b2)	(b3)	(b4)	(b5)	(b6)	(b7)	(b8)	(b9)	(c1)	(c2)	(c3)	(c4)	(c5)	(c6)
(a1)	1	0,39	-0,1	-0,08	0,44*	0,13	0,23	0,36	0,21	0,19	0,34	0,44*	0,11	-0,07	-0,04	-0,05	0,01	0,03	-0,11
(a2)	0,39	1	0,44	0,33	0,20	-0,21	0,34	0,44*	0,50*	0,07	0,45	0,14	0,41	0,40	0,48*	0,34	**0,51***	0,49*	0,462*
(a3)	-0,10	0,44	1	**0,53***	0,33	-0,23	0,38	0,50*	**0,54***	0,42	0,23	0,16	**0,63****	**0,64****	**0,79****	**0,66****	**0,59****	**0,69****	**0,557***
(a4)	-0,08	0,33	**0,53***	1	0,33	-0,08	**0,52***	0,26	**0,56***	0,31	0,47*	0,19	0,24	0,49*	0,36	0,30	0,13	0,13	0,276
(b1)	0,44*	0,20	0,33	0,33	1	0,49*	0,34	0,44*	**0,58****	0,49*	0,26	**0,62****	0,31	0,33	0,27	0,28	0,17	0,37	0,065
(b2)	0,13	-0,21	-0,23	-0,08	0,49*	1	0,23	-0,01	0,25	0,26	0,12	0,29	-0,25	-0,33	-0,37	-0,31	-0,34	-0,07	-0,38
(b3)	0,23	0,34	0,38	**0,52***	0,34	0,23	1	0,48*	**0,70***	0,19	0,52*	0,39	0,27	0,25	0,32	0,21	0,18	0,34	0,268
(b4)	0,36	0,44*	0,50*	0,26	0,44*	-0,01	0,48*	1	**0,55***	0,30	0,28	0,44*	0,64**	0,50*	0,53*	0,34	0,37	**0,55***	0,426
(b5)	0,21	0,50*	**0,54***	**0,56***	**0,58****	0,25	0,70**	0,55*	1	**0,53***	0,30	**0,60****	0,32	0,45*	0,41	0,29	0,37	0,47*	0,289
(b6)	0,19	0,07	0,42	0,31	0,49*	0,26	0,19	0,30	**0,53***	1	0,13	0,24	0,10	0,07	0,02	-0,00	-0,02	0,18	-0,203
(b7)	0,34	0,45*	0,23	0,47*	0,26	0,12	0,52*	0,28	0,30	0,13	1	0,13	0,22	0,08	0,05	-0,02	0,12	0,16	0,214
(b8)	0,44*	0,14	0,16	0,19	**0,62****	0,29	0,39	0,44*	**0,60****	0,24	0,13	1	0,40	0,47*	0,34	0,31	0,36	0,19	0,173
(b9)	0,11	0,41	**0,63****	0,24	0,31	-0,25	0,27	0,64**	0,32	0,10	0,22	0,40	1	0,71**	**0,83****	0,73**	0,79**	**0,55***	0,65**
(c1)	-0,07	0,40	**0,64****	0,49*	0,33	-0,3	0,25	0,50*	0,45*	0,07	0,08	0,47*	**0,71****	1	**0,8****	0,7**	0,7**	**0,6****	0,58**
(c2)	-0,04	0,48*	**0,79****	0,36	0,27	-0,37	0,32	0,53*	0,41	0,02	0,05	0,34	**0,83****	**0,84****	1	0,89**	0,80**	0,69**	0,73**
(c3)	-0,05	0,34	**0,66****	0,30	0,28	-0,31	0,21	0,34	0,29	-0,00	-0,02	0,31	**0,73****	**0,78****	**0,89****	1	0,73**	0,50*	0,66**
(c4)	0,01	**0,51***	**0,59****	0,13	0,17	-0,34	0,18	0,37	0,37	-0,02	0,12	0,36	**0,79****	**0,69****	**0,81****	**0,73****	1	**0,62****	0,83**
(c5)	0,03	0,49*	**0,69***	0,13	0,37	-0,0	0,34	**0,55***	0,47*	0,18	0,16	0,19	**0,55***	**0,6****	**0,6****	0,50*	**0,62****	1	0,51*
(c6)	-0,11	0,46*	**0,55***	0,27	0,06	-0,38	0,26	0,42	0,28	-0,20	0,21	0,17	**0,65****	**0,58****	**0,73****	**0,66****	**0,83****	**0,51***	**1**

The results in Table 3 show that high correlation coefficients (Pearson coefficients>0.65) have mainly "Poor working conditions" factor with external factors, as well as the external factors among them. This leads to the conclusion that the external factors, despite the fact that they do not occupy the first places in the classification, have strong interdependence between each other and therefore as a group influence decisively the final results of the conflicts.

(c) Cluster analysis

The implementation of cluster analysis will follow to find relations between the variables - factors used and their grouping. Cluster analysis is a convenient method for identifying homogenous groups of objects called clusters. Objects (or cases, observations) in a specific cluster share many characteristics, but are very dissimilar to objects not belonging to that cluster (Norusis, 2011). In other words, the objective of cluster analysis is to identify groups of objects, in our case factors, that are very similar with regard to their price consciousness and assign them into clusters. Cluster analysis, like other multivariate analyzes, has the ability to highlight, if any, the structural elements that characterize the variables. Groupings are based on similarities or distances.

There are a lot of different approaches of cluster analysis, but the most popular are hierarchical methods and partitioning methods or more precisely K-means. Each of these approaches follows a method to grouping the most similar objects into a cluster and to determining each object's cluster membership. A different approach is Ward's method, which is considerably more complex than the simple linkage method. The aim in Ward's method is to join cases into clusters such that the variance within a cluster is minimized. To do this, each case begins as its own cluster. Clusters are then merged in such a way as to reduce the variability within a cluster (Everitt et al. 2001).

By using Ward's method we obtain the dendrogram that are shown in figure 2. Dendrogram is the most important result of cluster analysis, since it lists all samples and indicates at what level of similarity any the clusters were joined. The position of the line on the scale (axis x) indicates the distance at which clusters were joined, while axis y indicates the variables. The dendrogram is also a useful tool for determining the cluster number. Note any sudden increase in the difference between adjacent steps, as it will indicate an appropriate number of clusters to consider.

The purpose of grouping is to identify groups that exhibit relative uniformity in structural features and relevance in terms of materiality, as evidenced by choices of employees. As we can see in Figure 2, if the branches are cut at 6, we have 2 clusters. In the first cluster the factors a3, b9, c1, c2, c3, c4, c5 and c6 belong, while the second one includes the other factors. If the branches are cut at 4, we have 4 clusters. In the first the factors b9, c1, c2, c3, c4, and c6 belong, in the second cluster the factors a3 and c5 belong, in the third one the factor a2, a4, b3, b4, b5 and b7 belong and in the fourth cluster the rest factors belong.

Evaluating these results, we conclude that the grouping of the factors creates clusters in which the factors of all categories belong. The most "powerful" group of factors is external factors, while internal factors belong in all clusters.

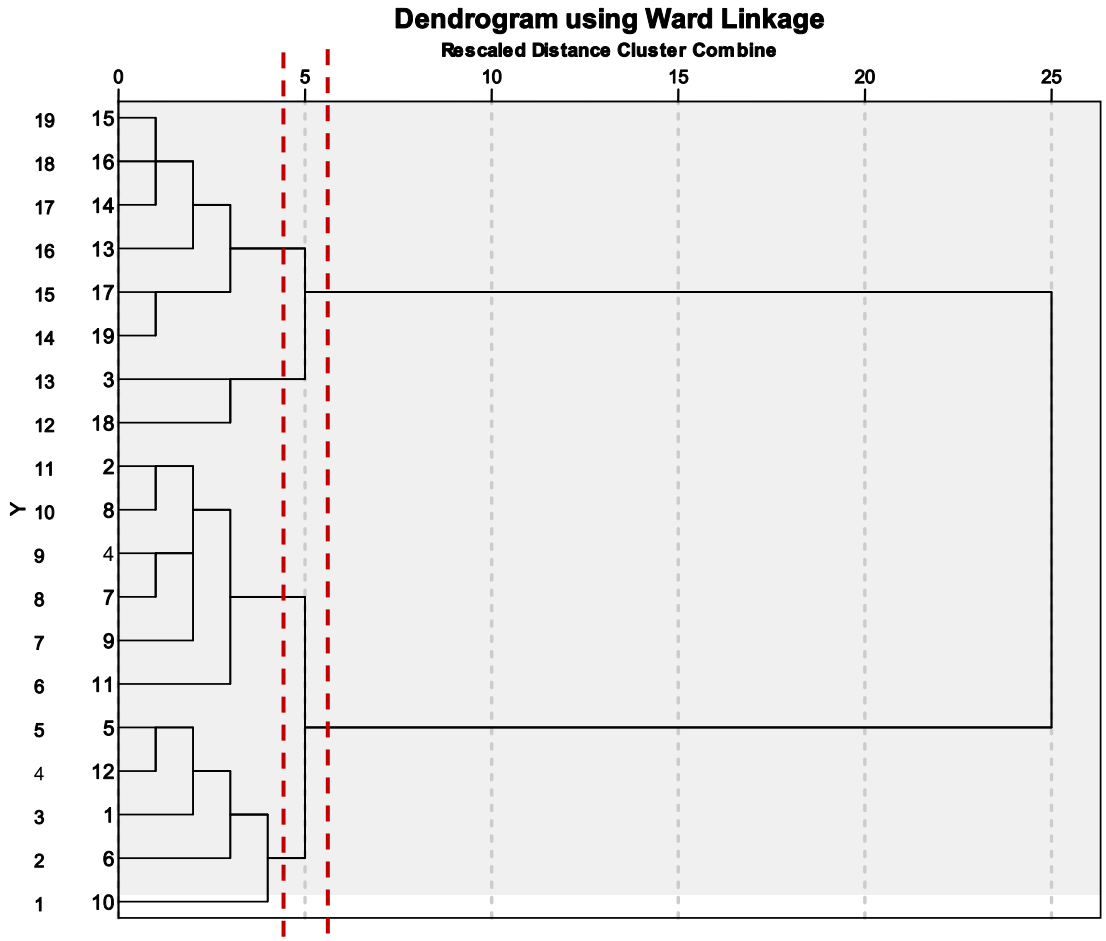

Figure 2: The dendrogram of cluster analysis

Conclusions

Health care is offered in complex environments of multidisciplinary professionals, as doctors, nurses, administrators and others, while many times patients or their escorts involved. The combinations of legal and regulatory pressures, incomplete health care financing, and demands placed on interdisciplinary teams have created high pressure work on Greek hospitals. In addition, a large number of patients for economic reasons have been turned form private health care organizations to public hospitals, increasing the volume of work in public hospitals. The above factors in combination to the nature of health care delivery also create tension as professional care-givers seek to meet the needs of patients and their families as well as the sometimes competing demands of the system itself.

The effective management and resolution of conflict is critical for the function of a health care organization. Conflict can be constructive for hospitals if enacted in a positive way to stimulate the accomplishment of goals and to synthesize differing viewpoints and promote critical thinking. For hospital conflict to be profitable its sources and the determinant factors need to be analyzed and their contribution assessed.

This article moves towards the analysis of determinants factors and the use of conflicts in hospitals, while the results of this analysis

can be used to manage conflicts in Greek hospitals. In genaral, conflict resolution will become a priority to building a strong healthcare system and a quality environment for patient care. This presupposes a continuous assessment of the factors impact on the size and characteristics of conflicts

References

Al-Hamali R.M., Alghanim S. & Sasidhar B., (2013), "Role Conflict among Health Personnel – A Study of Saudi Hospitals," *Interdisciplinary Journal of Research in Business*, **2**(8), 42- 51.

Byrkjeflot H. & Jespersen P., (2014), "Three conceptualizations of hybrid management in hospitals," *International Journal of Public Sector Management*, **27**(5), 441-458.

Brown J., Lewis L., Ellis K., Stewart M., Freeman1 T. & Kasperski J., (2011), "Conflict on interprofessional primary health care teams – can it be resolved?," *Journal of Interprofessional Care*, **25**, 4–10.

Carneiro D., Novais P. & Neves J., (2014), *Conflict Resolution and its Context*, Springer.

Everitt B.S., Landau S. & Leese M., (2001), *Cluster Analysis*, Fourth edition, Arnold.

Higazee, M.Z.A., (2015), "Types and Levels of Conflicts Experienced by Nurses in the Hospital Settings," *Health Science Journal*, **9**(6), 1-7.

Latreille P. & Saundry R., (2016), "Toward a System of Conflict Management? Cultural Change and Resistance in a Healthcare Organization," *In Managing and Resolving Workplace Conflict*, **22**, 189-209.

Matz, D., (2005), "The Inevitability and Perils of "Invisible" Health Care conflict," *Hamline J Pub L & Policy,* 29(2), 243-248.

Miller, K., (2002), *Communication Theories: Perspectives, processes, and Contexts,* McGraw-Hill, NY.

Miller, K., (2003), *Organizational Communication—Approaches and Processes,* Thomson Wadsworth, USA.

Mills, M.E., (2002), "Conflict in Health Care Organizations," *Journal of Health Care Law and Policy,* **5**(2), 502-523.

Mosmans, A., Praet, J-C. & Dumont C., (2002), "A decision support system for the budgeting of the Belgian health care system," *European Journal of Operational Research*, **139** (2), 449-460.

Nayeri, N.D. & Negarandeh R., (2009), "Conflict among Iranian hospital nurses: a qualitative study," *Human Resources for Health,* **7**(25), 1-8, doi:10.1186/1478-4491-7-25.

Norusis, M., (2011), SPSS Statistics 19 Guide to Data Analysis, Addison Wesley, N.Y.

Omisore, B.O. & Abiodun, A.R., (2014), "Organizational Conflicts: Causes, Effects and Remedies," *International Journal of Academic Research in Economics and Management Sciences,* **3**(6), 118-137.

Ozcan1, S. & Hornby, P., (1999), "Determining Hospital Workforce Requirements: A Case Study," *Human Resources for Health Development Journal (HRDJ*), **3**(3), pp. 210-220.

Parayitam, S. & Dooley, R.S., (2009), "The interplay between cognitive- and affective conflict and cognition- and affect-based trust in influencing decision outcomes," *Journal of Business Research,* **62**(8), 789-796.

Pettersen, I.J. & Nyland, K., (2012), "Reforms and clinical managers' responses: a study in Norwegian hospitals," *Journal of Health Organization and Management,* **26**(1), 15-31.

Putnam, L.L. & Poole, M.S., (1987), *Handbook of organizational communication: An interdisciplinary perspective*, Sage, Beverly Hills, CA.

Patton, C.M., (2014), "*Conflict in Health Care: A Literature Review,*" *The Internet Journal of Healthcare Administration*, **9**(1), 1-11.

Spagnol1 C. A., Santiago G. R., Oliveira Campos B. M., Badaró M. T., Vieira J. S. & Oliveira Silveira A. P. (2010), Conflict situations experienced at hospital: the view of nursing technicians and auxiliaries, *Rev Esc Enferm USP*, **44**(3), 792-9.

Skjørshammer, M., (2001), "Conflict management in a hospital: Designing processing structures and intervention methods," *Journal of Management in Medicine*, **15**(2), 156-166.

Todorova, M. & Mihaylova-Alakidi, V., (2010), "Aspects of behavior of healthcare specialists in conflict situations," *Trakia Journal of Sciences*, **8**(2), 395-399.

Trinh, H. & Begun J., (1999), "Strategic adaptation of US rural hospitals during an era of limited financial resources: a longitudinal study, 1983 to 1993," *Health Care Management Science*, **2**, 43–52.