TOOLS AND METHODS OF QUANTIFYING VIOLENCE CASES WITHIN PUBLIC HOSPITALS AND NURSING HOMES IN ROMANIA

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ABSTRACT
At a first view, the cases caused by violence in hospitals and nursing homes are formed on the psychological and emotional background, as a direct result of human consciousness inability to accept the impermanence of life, but are magnified by the behavior and features of each person. The goal of this study is mainly focused on designing a solution for assessing, quantifying and storage of cases of violence within hospitals and nursing homes with an example on cases involving medical personnel.

In order to achieve the objective, considered the necessity to achieve the following aspects:
- Defining the concept of violence by presenting the main categories and manifestations;
- Defining and exemplifying cases of violence against medical staff in hospitals and nursing homes in Romania;
- Identification of the main reasons causing this phenomenon and substantiation of the main variables that define the phenomenon;
- Designing a model to assess present and future incidents by storing them based on fundamental variables.

KEYWORDS: hospital, violence, database management system.


1. WHAT IS VIOLENCE?

The first aspect that is to be achieved is defining the notion of "violence" as well as the identification of the main features of it.
Specifically, this part of the research seeks to identify those elements of behavior and / or circumstances, which influence decisively the occurrence of incidents of violence against medical personnel from hospitals and nursing homes, how medical staff can react and, also, the legislation, which regulates the activity in hospitals and protect the victims of these incidents.
Most often, violence and other forms of abuse are perceived as a form of behavior, necessary in imposing and maintaining control over family members, associates, colleagues, individuals or groups. This can be caused both by people the victim know and also by strangers.
According to the website of the Government of Newfoundland and Labrador, the acts of violence can be singular, involving different manipulating methods, or may be frequent, escalating during months or even year. (http://www.gov.nl.ca/VPI/types/index.html)
The World Health Organization defines violence as the use of physical force and / or power, either as a threat or actual use of it against ones person, against other persons or against a group or community which materializes or which results in a high probability of injury, death, psychological effects or even personal development below expectations. (http://www.who.int/topics/violence/en/)
Violence can be divided into three main categories:

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• Self inflicted violence – defined as those behaviors or acts against one own person, such as suicidal behavior, self-mutilation and abuse;
• Interpersonal violence – acts or behavior against other person, such as member of the family or within a community;
• Collective violence – this category includes social violence, political violence and respectively economic violence. (http://en.wikipedia.org/wiki/Violence)
• In terms of forms of violence and abuse, they are classified into nine categories:
• Physical violence – occurs when a person uses a body part or an object to control the actions of another person;
• Sexual violence – defined as forcing a person to participate in sexual activity against that person’s will;
• Emotional violence – words or activities addressed to a person that cause feelings of worthlessness;
• Psychological violence – occurs when a person uses threats or who causes another person to fear in order to gain control;
• Spiritual violence – use religious beliefs to manipulate, dominate or control a person;
• Cultural violence – defined as hurting a person by using practices that are part of culture, religion and traditions;
• Verbal abuse – use of language, written or oral, to hurt a person;
• Financial abuse – lies in controlling the financial resources of a person without consent;
• Negligence – failure by an individual to take care of a person in his responsibility. (http://www.gov.nl.ca/VPI/types/)

At first view, it seems that there is not one category concerned and that all people can become, at one point, victims of violence. However, one can identify a category of vulnerable persons in this regard, such as children, women or elder people.

Going forward, we can say that victims of violence can be classified according to other categories, such as social categories, professional activities carried out or the degree of vulnerability.

2. VIOLENCE IN HOSPITALS AND NURSING HOMES IN ROMANIA

Violence in hospitals and nursing homes can be divided based on who the aggressor and the victim are. For the purpose of the present study, I have considered 4 categories of people which are most likely to encounter within a hospital:
• Medical staff – physicians and nurses;
• Auxiliary staff – administrative personnel, security staff;
• Patients;
• Caregivers.

Based on this classification, it is safe to say that, at any given point, a person from any of the 4 categories can became either a victim or an aggressor.

According to a study carried by the World Health Organization, hospital staff and personnel worldwide have become victims of high violence. Thus, approximately 38% of employees had at least one physical aggression throughout their careers. Among them, the most predisposed to such incidents is the staff in the emergency units, nurses, respectively paramedics. (Viață Medicală, No 41 (1291), 2014)

In this regard, attention can be directed to the causes and the main factors that determine the occurrence of violence, persons involved and the consequences of such incidents.

Currently, cases of violence caused by patients and their caregivers against personnel and cases of old hospitals in Romania is an extremely common phenomenon, therefore is treated as an ordinary aspect and, therefore, trivialized. From this point of view, an incident in which a patient or a
caregiver bully physically or verbally en employee of a hospital or nursing home in Romania (whether we refer to doctors or nurses) do not attract attention on its gravity and its being publicized only in case of extreme circumstances. Certainly there is an extensive array of reasons and causes which spread this scourge in Romanian society. Among the causes which spread the phenomenon are:

- The quality of services provided by medical personnel, in relation to the patients’ expectations. This is caused by poor information of patients about the services provided in public health facilities from Romania.
- The staff responsible for ensuring order and safety within hospital units, which in most cases are overwhelmed by the situations faced, this being a result of poor preparation in the field.
- Legislation in force, meaning the absence of dedicated medical personnel laws designed to prevent such events and to protect medical personnel.

Frequently there have been complaints about the quality of services provided in hospitals in Romania, starting from the awaiting time before a consultation and reaching the point of a series of medical errors. However, there were situations in which patients were poorly informed about the services they receive (for example, a man insulted doctors from a hospital emergency unit because he was not transported home by ambulance). (Adevărul, 2002)

From the point of view of the second cause mentioned above, law number 333/2003 completed by Public Health Ministerial Order number 1365 of 25 July 2008, Article 1, paragraph 2 states that the organization and deployment of the security service at a hospital is the responsibility of that hospital manager.

The second article of Order number 1365, paragraphs 1 and 2, enables hospitals to ensure their own security services, consisting of specialized personnel, or to contract specialized security and protection.


This is shown in the main frequency in occurrence of cases of violence as a result to the fact that the security personnel is overwhelmed by the situations faced, this issue being explained by the poorly training and equipment.

On the other hand, Law number 21 2/2012 adopted in order to complete Law number 95/2006 regarding the health reform, enforces punishments for verbal and / or physical aggression against medical personnel on duty. Even so, medical staff considers this addition as incomplete as result of the inability of law enforcement bodies of acting without the need of a complaint from the victim.

In terms of events recorded in the media, we can say that medical personnel fell victim to a wide number of aggressions, such as insults, sequestrations in patients' homes, beatings, and threats with weapons. (Adevărul, 2002)

As a form of expression, this kind of violence can be listed as interpersonal violence and may be physical, emotional, psychological or verbal.

In order to identify the main causes that fuels and feeds the phenomenon of violence against medical staff, I have examined a research based on a questionnaire, one of the few of its kind existing in Bucharest, which was performed in hospital facilities. A first step in trying to shape a picture of the overall situation today was made by the College of Physicians in Bucharest, which in October 2014 - January 2015 has conducted a research based on a questionnaire with 23 questions about the aggressions against physicians in Bucharest and their exposure.
The study was conducted on 540 physicians in 39 specialties, within the 21 hospitals in Bucharest with emergency units and the Bucharest Ambulance Service and its main objective was analyzing the experiences doctors and medical staff from Bucharest went through in terms of frequency and severity of acts of aggression, the motivation of the aggressors and their impact on the health system as a whole.

Furthermore, the study appealed to doctors' suggestions and recommendations on possible solutions to remedy the doctor-patient relationship and the better management of these events within the public health system in Romania. The results of the study were published in the publication *Viața medicală*, nr. 9 (1311) from the 27th of February, 2015.

The study has shown that the main reason for the incidents of violence against medical personnel are waiting time for an appointment (33.1% of the cases analyzed), patient dissatisfaction towards the doctor's diagnosis (11.7% of analyzed cases) and the way in which the consultation was conducted (11.3% of the cases analyzed). A worrying aspect is that about 17.3% of the cases reviewed were not determined by an explicit reason.

<table>
<thead>
<tr>
<th>Reason of the incident</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Waiting time</td>
<td>286</td>
</tr>
<tr>
<td>2 Dissatisfaction of the diagnosis</td>
<td>101</td>
</tr>
<tr>
<td>3 Conduction of the appointment</td>
<td>98</td>
</tr>
<tr>
<td>4 Refuse of medicine</td>
<td>48</td>
</tr>
<tr>
<td>5 Refuse of admission</td>
<td>30</td>
</tr>
<tr>
<td>6 Refuse of sick leaves</td>
<td>24</td>
</tr>
<tr>
<td>7 Alcohol</td>
<td>16</td>
</tr>
<tr>
<td>8 No explicit reason</td>
<td>149</td>
</tr>
<tr>
<td>9 Another reason</td>
<td>112</td>
</tr>
</tbody>
</table>

*Source: adapted from Viața Medicală, No 9 (1311), 2015, p 3*

In terms of the frequency of the incidents, 22% of the physicians were frequently confronted with such cases, 36% of them said they had such incidents occasionally while 3% of respondents have not been a victim of such an event at the time of the research.

<table>
<thead>
<tr>
<th>Frequency of incidents</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Frequently</td>
<td>22</td>
</tr>
<tr>
<td>2 Occasionally</td>
<td>36</td>
</tr>
<tr>
<td>3 Rare</td>
<td>19</td>
</tr>
<tr>
<td>4 Rarely</td>
<td>19</td>
</tr>
<tr>
<td>5 Never</td>
<td>3</td>
</tr>
</tbody>
</table>

*Source: adapted from Viața Medicală, No 9 (1311), 2015, p 3*

According to this survey the most exposed medical specialty is emergency medicine with about 34% of the analyzed cases having occurred in the emergency wards. The main factor influencing this percentage is the high exposure of the department in terms of the organization, given that there is no filter for entering persons. Psychiatrists, with 29% of cases, and plastic and reconstructive surgery, with 9% of the cases analyzed, are the next two most exposed medical specialties, in terms of distribution of cases of violence against medical personnel.
Table 3. Distribution of incident in terms of medical specialties

<table>
<thead>
<tr>
<th>Distribution of incidents by specialty</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Emergency Unit</td>
<td>34</td>
</tr>
<tr>
<td>2 Psychiatry</td>
<td>29</td>
</tr>
<tr>
<td>3 Plastic Surgery</td>
<td>9</td>
</tr>
<tr>
<td>4 Cardiology</td>
<td>3, 6</td>
</tr>
<tr>
<td>5 Internal Medicine</td>
<td>3, 6</td>
</tr>
<tr>
<td>6 ICU</td>
<td>3, 6</td>
</tr>
<tr>
<td>7 Other specializations</td>
<td>17, 2</td>
</tr>
</tbody>
</table>

Source: adapted from Viața Medicală, No 9 (1311), 2015, p 3

Taking into account the results of the investigation by the Medical Board in Bucharest, I believe it is safe to say that violence against the staff of the hospitals in Bucharest is a widespread and diversified phenomenon.

But this small study and shows only a small piece of the experiences faced by medical personnel. Moving forward, there have been very few in which patients or caregivers have become victims of violence cases within hospitals units.

More often, incidents where patients have been assaulted by other patients or by caregivers were merely consequences of preexisting conflicts.

Furthermore, when it comes to the auxiliary staff, such as accountants, human resources employees of other administrative personnel, the interaction with patients and their caregivers is often limited, if not inexistent, thus the probability of occurrence of any violence cases which would include them is insignificant.

Based on this, I believe it is safe to assume that the most exposed category to becoming victim of violence cases is the medical staff.

3. SOLUTIONS

The study presented defines indirectly a significant gap in trying to quantify and identify a trend of phenomenon in the absence of a centralized record of registered cases.

Following the existing indifference, which meant the uncontrolled spread of the phenomenon, there are no accurate figures on the extent of this phenomenon. Moreover, there is no official statistics on the scope, frequency, reasons and consequences of these cases, which makes it extremely difficult and even impossible to take any initiative in order to control and reduce the occurrence of new cases.

Taking into account the importance of such database, starting from the results of the study, there can be conceived and drawn a software solution to quantify and classify the cases of violence against staff in hospitals and nursing homes. In this way, one can make a meaningful analysis of the main causes of this kind of incidents and classify them depending on a number of specific factors and variables. Based on the review of cases, a relevant and realistic database of the evolution and progress of the phenomenon in all medical units in Romania can be created, to store important cases and provide an accurate situation of the phenomenon.

However, the analysis of a limited study would only end with obtaining limited results. Based on these results, recommendations will be formed, which will only affect an isolated population. Therefore, I consider to be of an extremely importance a method of implementation and constant use of an IT solution in order to obtain a true, present and in real-time image of the phenomenon. Such software, created as a computer program which mimics the function of a questionnaire could provide solutions to the issue of storing and classifying reported cases, for further analysis and
consideration. The filling of the questionnaire may become mandatory for every employee medical units involved in a case of violence and the responsibility of centralizing the data collected will be designated to a person within the human resources department, who will handle and analyze data and make future recommendations.

A solution for the implementation of such software is increasing the level of usage of computers and information solutions within the healthcare system in Romania. In this way, for each case of aggression against the medical staff, the employee in charge of collecting data will draw up a description of the event, in which the main facts occurred will be listed.

A meaningful analysis, and the identification of a relevant trend of the phenomenon, will entail the need for identical data in terms of structure. In other words, each description of an event must follow a predefined template and must contain certain key elements in analyzing the phenomenon. Therefore, this will be done by filling the fields of the interface software, each field having a correspondent in the software fundamentals variables. In this way it will develop a database of standardized and accurate aggression incidents within the sanitary environment.

![Figure 1. The sequence of steps required for creating and storing incident reports](image_url)

*Source: made by author*
The following variables will be taken into consideration.

- The medical unit where the incident had occurred (polyclinics, hospitals, nursing home) – the type of the medical unit has a significant influence on the frequency of the phenomenon.
- The victim and his characteristics (medical staff, auxiliary staff, patient, caregiver, medical ward)
- The author and his characteristics (medical employee or non-employee, age, sex, location, rural / urban) – health, mood and specifics of the environment decisively influence the gravity of the incident and the behavior of an individual.
- Cause (patient diagnosis, the waiting time, staff attitude, and other reasons) – some cases act as a trigger sharply, while other causes acts like the Chinese drop.
- The type of violence (physical, psychological, language) – is, rather, the resultant of the other variables analyzed.

Subsequently, this description can be transformed into a police complaint in order to the start of legal proceedings.

This software solution can represent a database management system of recorded violence cases. This database will be composed of 7 relationships, described below.

The relationship "Physician" refers to doctors in the health system in Romania and will be created on 6 attributes. A tuple will be created for each physician.

The relationship attributes are:

- Physician PIN – is a 13 characters field that will record the personal identification number of the physician. Since each PIN (or CNP) is unique, this attribute will serve as the primary key.
- Physician Last Name – is a 20 character field that will record the doctor’s last name.
- Physician First Name – is 50 character fields, which will record the doctor's first name.
- Physician Specialty – represents fields from which the user chooses from a list of predefined variables with all medical specialties practiced in Romania.
- Physician Date of Birth – is a 10 character fields where will be recorded the doctor date of birth.
- Physician Address – fields of 100 characters, which will record the doctor's home address.

The relationship "Nurse" refers to the nurses from the health system and it will be built on six attributes (Nurse PIN – primary key, Nurse Last Name, Nurse First Name, Nurse Specialty, Nurse Date of Birth and Nurse Address). As in the previous relationship, a tuple will be assign for each nurse. The attributes within these relationships have the same characteristics of the relationship "Physician".

Relationship „Auxiliary Staff” considers non-medical staff (human resources, accounting, staff, and security personnel) of each hospital unit and consists of 6 attributes (AS PIN – primary key, AS Last Name, AS First Name, AS Position, AS Date of Birth and AS Address). A tuple will be assigned for each non-medical employee.

The attribute "AS Position" refers to a field of 30 characters that will record the position of each employee. The remaining attributes have the same characteristics.

The relationship "Patient" considers patients in hospital units and contains 6 attributes (Patient PIN – primary key, Patient Last Name, Patient First Name, Patient Medical History, Patient Date of Birth and Patient Address). A tuple will be assigned for each patient.
The attribute "Patient Medical History" refers a field that will contain the patient’s medical history. The remaining attributes have the same characteristics.

Relation "Caregiver" refers to the relatives and friends of patients who visit at least once while the last are hospitalized. This relationship consists of 4 attributes (Caregiver PIN – primary key, Caregiver Last Name, Caregiver First Name and Patient PIN). A tuple will be assigned for each caregiver.

The attribute "patient PIN" contains the visited patient personal numeric code and connects with its correspondent tuple from relation "Patient", which primary key is identical to the PIN entered in this field.

The relationship "Hospital unit" refers to health units in Romania and consists of 8 attributes (Unit Code – primary key, Unit Name, Address, Unit Type, AS PIN, Physician PIN, Nurse PIN, and Patient PIN). A tuple will be assigned for each unit.

The relationship attributes are:

- **Unit Code** – are fields of 5 characters; including 2 letters for the county health unit is located in and three digits representing the serial number of the unit in the county. Exception will be in the hospitals of the capital, whose code will contain a letter and three numbers. Each unit will have a unique code, so this will become the primary key attribute of the relationship.
- **Unit Name** – is a field that will record the name of the hospital unit.
- **Unit Address** – fields of 100 characters, which will record the hospital unit address.
- **Unit Type** – represents fields where the user chooses from a list of predefined variables: hospital, clinic or nursing home.
- **AS PIN** – represents fields of 13 characters that will record the personal numeric numbers of the auxiliary staff. The recording of the PIN's in this field will link with the correspondent tuple from the relationship "auxiliary staff" which has primary key identical to the recorded PIN.
- **Physician PIN** – represents fields of 13 characters that will record the personal numeric numbers of the physicians. The recording of the PIN's in this field will link with the correspondent tuple from the relationship "physician" which has primary key identical to the recorded PIN.
- **Nurse PIN** – represents fields of 13 characters that will record the personal numeric numbers of the nurses. The recording of the PIN's in this field will link with the correspondent tuple from the relationship "nurse" which has primary key identical to the recorded PIN.
- **Patient PIN** – represents fields of 13 characters that will record the personal numeric numbers of the patients. The recording of the PIN's in this field will link with the correspondent tuple from the relationship "patient" which has primary key identical to the recorded PIN.

The relationship "Report" refers to the actual description of the incident and consists of 7 attributes. A tuple will be assigned for each report.

The relationship attributes are:

- **Report Code** – is a field which will generate an unique code for each report. The attribute will act as primary key relationship.
- **Unit Code** – represents fields that will record the code of the unit where the incident took place. The recording of the Unit Code in this field will link with the correspondent tuple from the relationship "Hospital Unit" which has primary key identical to the recorded Unit Code.
- **Aggressor PIN** – attribute refers to the personal numeric code of the person who caused the incident.
- **Victim PIN** – attribute refers to the personal numeric code of the person attacked.
The recording of the PIN in both Aggressor PIN and Victim PIN fields will be linked with the corresponding tuples from relationships Physician, Nurse, Auxiliary Staff, Patient and Caregiver.

- **Cause of the incident** – this column will contain a list of predefined variables, from which the cause of the incident will be chosen. Some variants can be used:
  - Waiting time
  - Dissatisfaction of the diagnosis
  - The way the appointment was conducted
  - Another reason

- **Type** – are fields in which the user will choose the type of violence from a list of predefined variables: physical, emotional, psychological or verbal.

- **Summary** – are fields where the user will enter a description of the incident.

Figure 2 shows the graphic representation of the designed database, highlighting the links between the relationships.

![Figure 2. Graphic with the database generated after the use of the software](source: made by author)

In the event of an incident, the person responsible with updating the software will access the application and log in. At that moment, the application displays the user menu, from which he will choose to create a new record.

Automatically a new window will be opened, unique for a new report, which will be allocated a unique reference code.

The user begins fill in the fields as follows:

- Will enter the Unit Code. If the code is correct, the corresponding fields will be automatically filled with the unit’s details.

- Will enter the victim's PIN.

- Will enter the aggressor’s PIN.
If the PINs are correct, the corresponding fields will be automatically filled with both the aggressor and the victim’s details (Category – Physician, Nurse, Auxiliary Staff, Patient and Caregiver – First Name, Last Name and Address) from the existing records from the database.

- Will choose the cause and the type of violence.

If the cause is not known or not within the known patterns, then choose "Other reason" and will manually add a description of it.

- Will fill the summary field with a detailed presentation of the incident.
- Will save the report.

However, this IT solution implies the existence of some basic elements. First, it is necessary to create and use an updated database with all the employees and collaborators from the health system. The software will classify the employees in 3 main categories – doctors, nurses and auxiliary staff – for each one an independent relationship is created. Thus providing a comprehensive database is essential in obtaining optimal results.

Secondly, it is equally necessary to have a similar complete and updated database with regards to the patients admitted in the hospitals. Thus, at the time of admission, each patient is registered in the database, with the PIN as the unique identification number and, once the registration is completed, he is transferred to a specialist. After the purpose of the admission was achieved, the patient will be discharged from the unit.

However, given the timeliness of bullying incidents, the IT solution will take into account only those patients admitted to the unit at the time of the assault.

Regarding the medical appointments, the computer system will automatically generate a admission file, which will start the medical process.

In the cases which require the physicians to go see the patient outside the hospital (e.g. cases involving ambulances) system will be updated once they have returned to the hospital.

Another important aspect to be considered is recording the presence of caregivers who visit hospitalized patients. So every caregiver will be recorded when visiting by creating a unique file in the system. This file will contain the PIN, the first and last name of the visitor and, also, the PIN of the visited patient. Certainly this procedure involves recording all visitors.

Lastly, the most important aspect to be considered in order to achieve a real image of the phenomenon of violence within hospitals and nursing homes is to provide a record for each incident occurred. This can generate an accurate picture of the phenomenon; can accurately identify both the causes that determine the appearance and proliferation of the phenomenon and, also, the main deficiencies of the system that allows the perpetuation of the phenomenon. Furthermore, it will ensure making recommendations and adopting the necessary actions in order to reduce and eliminate the phenomenon.

4. CONCLUSIONS

After designing the data base, I should be able to do identify the most common causes of the phenomenon, the segment of victims with the highest degree of vulnerability and, also, the most prevalent type of violence. At the same time, it will get a number of relevant data on the frequency of cases by:

- Environment (urban or rural);
- Type of medical unit (clinic, hospital, nursing home);
- Size of hospital unit (number of beds, medical staff size, number of visits daily);

Based on the collected data, an accurate picture of the phenomenon will be generated.
At the same time, the generated data will be analyzed in terms of existing measures and points of action. The implementation and usage of such software would solve a number of deficiencies that currently exist, such as:

- The absence of a real image regarding the extent of the phenomenon nationwide.
- Identifying of the main weaknesses in this moment.

This way it can be observed the dimensions of the aggressions against both medical staff and patients.

Achieving significant amounts of data regarding the scale of the phenomenon will lead to adopting of specific indicators by which to be able to identify the main weaknesses and threats, and to be able to outline a series of recommendations in order to improve them. Equally, it will identify the main strengths and opportunities upon which a series of measures to maintain and improve them should be formulated.

Perhaps the most important indicator generated is related to the size of the security personnel required. This way, I should be able to observe the situation of incidents based on the number of security guards currently deployed, to create the necessary arguments for updating and, if necessary, rethinking the job description and will be able to generate the number of security guards required depending on the characteristics of the unit (number of beds, size of the medical staff and patients or the number of existing specializations.)

Finally, designing and implementation of such software will have an influence at national level and in terms of organization of human resources in hospitals in Romania.

- Identifying the most exposed specializations

Although the study by Medical College of Bucharest City showed an increased incidence of aggression among doctors of the department of emergency room and, respectively, the psychiatric, it has not been linked to characteristics of the victim, aspect that has a great influence on the occurrence of such incidents.

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