Educational Administration: Theory and Practice
2024,30(4), 1835-1847
ISSN:2148-2403
https://kuey.net/

Research Article

Attaining Employee Satisfaction Through Effective Hospital Hygiene Management, Prevention Measures, And Medical Waste Collection" – A Field Study At ROUIBA'S Public Hospital In ALGERIA-

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Citation: Dr Islam Lebcir et al., Attaining Employee Satisfaction Through Effective Hospital Hygiene Management, Prevention Measures, And Medical Waste Collection" – A Field Study At ROUIBA'S Public Hospital In ALGERIA-, *Educational Administration: Theory And Practice*, *30*(4), 1835-1847 Doi: 10.53555/kuey.v30i4.1763

ARTICLE INFO

ABSTRACT

The purpose of this study is to highlight the importance of how the hospital applies hygiene, the elimination of medical waste, its role in achieving employees' satisfaction in health institutions. Especially after the emergence of some diseases and epidemics that are chasing the countries of the world at this time, resulting from the lack of hygiene and prevention.
The study was divided into three axes: hospital hygiene, medical waste, practical study at ROUIBA'S public hospital.
The study concluded that: the effect of independent variables (hospital hygiene and prevention, collection of medical waste) on the dependent variable (satisfaction of employees within the hospital) was very effective.

Keywords: Hospital hygiene management; prevention; medical waste; waste management

I Introduction

Medical waste management is a universal concern, which has an impact on different fields. The medical waste management is a complex process. It may contain chemical toxic substances which can lead to various hazards, such as pollution and infection hazards; this is why each type of the medical wastes should be eliminated by choosing the most appropriate method according the known technical procedures.
Medical waste management, cleanness and prevention present a true responsibility. It is not just an ordinary task, but is a process that should be evaluated. Appropriate management of medical wastes and hospital hygiene depend on good arrangement, enough financial support and employees' participation.
Algeria, like other developing countries, is suffering from many defects in the field of reaching hygiene and prevention the health institutes, and the field of accurate medical waste disposal using the appropriate followed procedure. Considering that those defects may have an impact on the environment and employees' feedback within the health institutes, which lead us to the problem of the study:
What is the impact of hospital hygiene and medical waste collection on the employees' satisfaction within the Algerian hospitals?

To answer this problem, several sub-questions to be asked, like:

- What is meant by hospital hygiene? What is the role of workers and employees to achieve hospital hygiene? And what is the situation of the Algerian law towards the hospital hygiene?
- What is meant by medical wastes? What are its categories? And what are the appropriate methods of its segregation and management?
- does the hospital hygiene and prevention and medical wastes collection affect the employees' satisfaction at ROUIBA'S public hospital?

To answer these questions, the following hypotheses were formulated:

- Hospital hygiene means using accurate standards of prevention and wastes management and garbage produced in ROUIBA'S public hospital, where the employees at the health institutes are monitoring its implementation as the Algerian law states.
- The medical wastes are the garbage resulting from all activities of the health institutes, and are categorized into hazardous and non-hazardous wastes. Each type of them has a specific method of treating and disposing them.
- The hospital hygiene and prevention and collection of medical wastes are affecting the employee satisfaction at ROUIBA'S public hospital.

I.1. Importance of the study:

The importance of the study is to highlight the fact that the topic of medical waste itself is a very sensitive and important one, given the high risks of its mishandling, including the transmission of infections between staff and patients in health institutions, which can cause harm in and even out of health institutions

I.2. Objectives of the study:

The objectives of this study are to determine how much does the clean environment at the health institutes, the proper management of medical wastes and avoiding its aggregation on the employees' satisfaction within the hospital, and explaining the risks of dealing with dangerous medical wastes in addition to identifying the procedures and stages of this procedure at the health institutes of Algeria through conducting this study on ROUIBA'S public hospital.
To control the study and formulate its final appearance, the topic was abridged into three main axes:
First axis: Hospital hygiene.
Second axis: Medical wastes.
Third axis: A field study at the **ROUIBA'S public hospital, Algeria.**
ROUIBA'S public hospital.

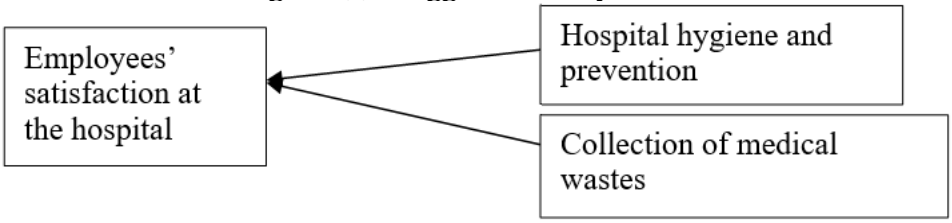
I.3. Previous study:

- Study of (Ben Gedo M. A, 2016) entitled "Hospital Hygiene Management - Accurate Infection Control Practices. Algeria". This study aimed to assess the impact of optimal sorting on the evolution of healthcare waste with infectious risks. The Results of the study have shown that selective sorting significantly decreases the proportion of healthcare waste with infectious risks and the reduction in the proportion of waste healthcare activity with infectious risks has repercussions on waste treated as household waste, the weight of which almost doubled after sorting.
- Study of (research and technical assistance unit, 2019) entitled "medical waste: real risks to health and the environment in the Gaza Strip". This study aimed to reveals important facts about medical waste and its disposal methods in health institutions in the Gaza Strip, and reviews basic information about it. The study shows an analysis of the reality of medical waste disposal in the sector, and its risks appear to public health and the environment. The Results of the study have shown that medical waste poses a great risk to public health and the environment, because its components are dangerous, and it harms the human being during the collection, sorting or disposal stages.

I.4. Study model:

In order to cover all aspects of the study and to answer all the questions, a comprehensive model was suggested. It gathers the hospital hygiene and prevention at the hospital and medical wastes collection from one aspect, and employees' satisfaction from another, as illustrated in the next figure:

Figure (1): Suggested study model



I.5. Methodology of the study:

A descriptive analytical approach was used, which used the field style to present the policies of reaching hospital hygiene and prevention, in addition to collection of medical wastes at the ROUIBA'S public hospital. This was achieved through data collection from the questionnaire prepared for this purpose, employees' answers to the study hypotheses. We depend on theoretical and previous studies about this field also.

II. Hospital hygiene as a method of infection control and prevention of diseases:

The hospital hygiene is a serious concept, as it presents the medical discipline, and it includes several concepts such as infection control, sterilization, disinfection. (UMVF educational editorial committee, 2011, p. 05)

Hospital acquired infection can be defined as: any disease that was acquired inside a hospital by microorganism which can be identified clinically or microbiologically. This affects either the patient through hospital admission or receiving medical care, or affects the workers and employees within the hospital. (UMVF educational editorial committee, 2011, p. 06)

The basic hospital hygiene includes the precautions to prevent disease transmission among patients, from patient to health care provider, and from health care provider to a patient. (Exotic pathology society, 2019, p. 230)

According to the World Health Organization (WHO), hospital acquired infection occurs secondary to transmission of microorganisms from the health workers hands to the patient on touching the patient. In the high income countries at least 7 out of 100 cases admitted to hospital will acquire infection. This number is raised to 10 in the low income countries. The percentage of hospital acquired infection may reach 30% among immune-deficient patients and critical patients and patients admitted to the intensive care units. Each year, hundreds of millions of patients are infected by antibiotic resistant microorganisms secondary to hospital acquired infection around the world.

The WHO stated that Hand hygiene helps reducing transmission of infection" i.e.: If a patient is infected with antibiotic resistant microorganisms, the clinical pictures will be worse, treatment costs will be higher and the risk of death will be increased. (World Health Organization , Good hand hygiene bu health workers protects patients from drug resistant infections, 2014, p. 04)

II. 1. The important role of health care workers in the cleanness and prevention inside the health institutes:

The health care workers could play an important role in preventing transmission of difficult infections through implementing the five main minutes of cleanness and hand hygiene. It is recommended to do this by using alcoholic solution or by hand washing using soap and water if it was grossly contaminated, those minutes are: (World Health Organization , Good hand hygiene bu health workers protects patients from drug resistant infections, 2014, p. 05)

Before touching a patient, before disinfection, after exposure to body fluids, after touching a patient and after contacting the patient's environment.

II. 2. Committees concerned with hygiene in health institutions

Each health administration should develop such a committee; its mission is to lay the rules of cleanness, prevention and infection control within the hospitals. The priorities of this committee are lay and regulate rules of cleanness at hospitals, monitoring and following cleanness and hygiene process through ensuring the implementation of disinfection procedures by Doctors and nurses. The acquired infection control committee CLIN, Which is set up according to the ministerial decree issued by Ministry of Health, Population and Hospital Reform under No 64 on17/11/1998, which includes setting up an acquired infection control committee at the level of health institutes. This committee is responsible for detecting infections within the hospitals, and to determine its level of danger and spread, in addition to verifying the results and preparing a detailed report and provide it to the general manager of the health institutes who will take the appropriate decision. (Ben Gedo M. A, 2016, pp. 11-12)

II. 3. Hospital hygiene in the Algerian legislation:

According to decree No 85-05 on 16th February 1985, which is concerning with health protection and development. This modified and complementary law according to executive decree No 96-66 on 27th January 1997 which determine the authorities of Minister of Health, Population and Hospital Reform. According to decree No 12 on 28th March which is related to setting up National committee of hospital cleanness and hygiene. All health institutes should set up a committee called acquired infections control committee. The chair of this committee is the health institute director, and this committee includes: (Article 1,2,3,4,5,6 of Executive Decree No. 12 , 1998)

The head of scientific council or the head of medical council, the head of epidemiology and preventive medicine, the individual responsible for the institute's pharmacy, a practitioner presenting the clinical pathology lab, a practitioner presenting the medical specialties, a practitioner presenting the surgical specialties, a practitioner presenting the dentistry medicine, the coordinator of the medical activities the selected by the head of the institute, the responsible of infrastructure and equipment, the biomedical maintenance engineer and the architect if available. This committee has the privilege of calling any individual who can help. It is mandatory that committee's meeting is held once per month.

III. Medical wastes and its appropriate management:

Medical wastes management is discussed from the medical and environmental aspects, and it is recommended to consider both the health and administrative side and availability side to prepare planes for medical wastes management.
Medical waste is defined as "Those wastes produced during therapeutic and medical activities inside health institutes". (International comimittee of the red cross, 2011, p. 12)
The WHO defines medical waste management as "An administrative case rather than technical problem depending on the employees' commitment at all health institutes. This commitment needs well trained workers who are oriented about the hazards of this special type of wastes. This necessitates that all the medical workers and medical assistants training programs are including this important case related to the general health of the community". (World Health Organization & The Secretariat of the Basel Convention , 2005, p. 08)

III. 1. Hazards related to health care wastes:

The risks affects individuals exposed to the dangerous medical wastes and are at risk to be harmed, especially towards the highly dangerous toxic waste that can have carcinogenic properties, which leads to the emergence of acute safety problems in hospitals or after the disposal of this waste. (research and technical assistance unit, 2019, p. 05). This group includes: Medical field: Doctors, nurses, health and maintenance hospital employees, in and outpatients receiving treatment in health organizations, as well as their visitors. Support workers in health organizations such as those working at laundry and transport services. Workers at wastes' disposal, including general population and children who can play with wastes outside health institutes are also at risk.

III. 2. Medical wastes characteristics and categories:

The majority of medical wastes can be categorized as general wastes which present 75%-90% of the wastes in health centers and are not hazardous. This category is similar to domestic garbage and can be recycled, collected and treated just as the domestic household wastes. The remaining 10%-25% of medical wastes are called hazardous medical wastes or special wastes. Theses wastes are dangerous and pose major health hazards. (International comimittee of the red cross, 2011, p. 12)
Medical wastes are sorted into 5 categories as follow:

Table (1): Categories of health care wastes:

Category	Components	Examples
Non-hazardous medical wastes	Recyclable wastes	Papers, cardboard boxes, plastic or non-contaminated metals
	Bio-degradable wastes	Food residues
Medical wastes need special treatment	Anatomical wastes	Anatomical parts, organs, human tissues and blood bags
	Sharp wastes	All needles, broken glass, scalpels and empty flasks
	Pharmaceutical wastes	Hazardous and non-hazardous medications
Infectious and highly infectious wastes	Infectious wastes	HIV, viral hepatitis patients' blood Typhoid patients' stool
	Highly infectious wastes	Glass ware of medical laboratories highly infectious microorganisms in medical laboratories
Other hazardous wastes	_	Organic and non-organic chemicals, thermometers, sphygmomanometers.....
Radiological medical wastes	_	Solid, liquid and gaseous wastes contaminated with radiological substances resulting from tissues, body fluid analyses, radiation and tumor examinations

The source: (World Health Organization & The Secretariat of the Basel Convention , 2005, pp. 11-14)

III. 3. Medical wastes segregation and appropriate methods of its safe disposal:

III. 3.1. Segregation of medical wastes:

Segregation of medical wastes means separating the hazardous wastes from the non-hazardous. The aim of this phase is to reduce the volume of medical wastes requesting special treatment and to recycle some wastes to reuse it. (Sharif Lubna. A & Ghassan, 2001, p. 16)
The WHO identified colors for the bags and containers used for collection of medical wastes, with different symbols to differentiate between them, as illustrated in the next table:

Table (2): Color coding of medical wastes

Category of wastes	Container color and symbol	Container type
Highly infectious	Yellow with "Highly infectious" written on it	Tough non-leak plastic bag or container, which can be sterilized in autoclave
Other infectious and anatomical wastes	Yellow	Tough non-leak plastic bag or container
Sharps	Yellow with "Sharps" written on it	Puncture-proof container
Chemicals and pharmaceuticals	Brown	
Radiological wastes	Red + Radiation symbol	Lead box with radiation symbol on it
General wastes	Black	Plastic bag

The source: (Mariam D.A, 2014, p. 30)

III. 3.2. Commonly used methods of medical wastes disposal:

No doubt, each category of medical wastes has a specific method for discarding it. The next table shows the most popular methods of disposing medical wastes:

Table (3): Methods of discarding dangerous medical wastes:

Method	Explanation
Incineration	Uses incinerators, used for infectious wastes, has many dis-advantages, with environmental pollution is the worst
Burying	Traditional method involving digging to bury wastes. Its worst disadvantage is pollution of underground water
Chemical sterilization	It depends on using chemicals to get rid of wastes, but the can be hazardous to the environment
Stem sterilization	Exposure of the wastes to stem, known as autoclave, One if its disadvantages that it doesn't reduce the volume of wastes
Radiation (MICROWAVE)	Use the microwave. It is quite safe to dispose this kind of wastes and to avoid exposure to radiation but it is expensive.

The source: (Araba Alhadj & Mazhouda Noureddin, 2011, pp. 05-06)

IV. Methods and Materials:

The study was conducted in ROUIBA'S public hospital. In order to achieve the aims of the study, we formed a questionnaire including the study axes, then dump data and data analysis using the statistical program called Statistical Package For Social Science (SPSS).

IV.1. Study tool:

The study used the questionnaire as a main tool to gain data and information necessary to the subject of the study. The questionnaire was designed after reviewing previous studies. The questionnaire included an introduction in which the subject of the study was explained to the target sample population and the questionnaire was subdivided into 2 parts:

First part: Personal and professional criteria of the sample group individuals, it included working category, sex and working experience.

Second part: Further subdivided into three axes, the first and second axes are about the independent variable, while the third axis is about the dependent variable. These axes were divided as following:

Axis 1: 8 statements about the hospital hygiene and prevention within the hospital.

Axis 2: 7 statements about the collection of wastes within the hospital.

Axis 3: 9 statements about employees' satisfaction within the hospital.

The answers to questions were done according to Likert Scale which ranges between strongly disagree to strongly agree as follow: strongly agree (5), Agree (4), Neutral (3), dis-agree (2), strongly agree (1).

100 questionnaires were distributed to the sample individuals. After collecting the questionnaires, they were sorted and 77 were valid to be used, the questionnaires were divided into:

Table (4): Distribution of the questionnaires

Type	Number	Percentage
Valid for analysis	77	77 %
Missed	20	20 %
Canceled	3	3 %
Total	100	100 %

The source: Designed by the researchers according to the questionnaires

IV. 2. Consistency and reliability tests:

Alpha Cronbach's coefficient was used which ranges between 0-1. If the coefficient value equals 0, it means that data are not reliable while on the contrary, if it equals 1, this means reliable data. If the value of this coefficient is less than 0.6, this indicates low internal consistency. After conducting the test, Alpha Cronbach's coefficient was 0.83 which is a high value, meaning that axes of the questionnaire are highly reliable. According to this it was clear that the study method can be used and has reliable and trustable results. The following table shows the value of Alpha Cronbach's coefficient for values of the questionnaire:

Table (5): value of Alpha Cronbach's coefficient for values of the questionnaire

Axes	N° of sentences	Alpha Cronbach's coefficient
Axis 1: hospital hygiene and prevention	8	0.68
Axis 2: Collection of wastes	7	0.81
Axis 3: Employees' satisfaction	9	0.76
Total reliability coefficient	0.83	

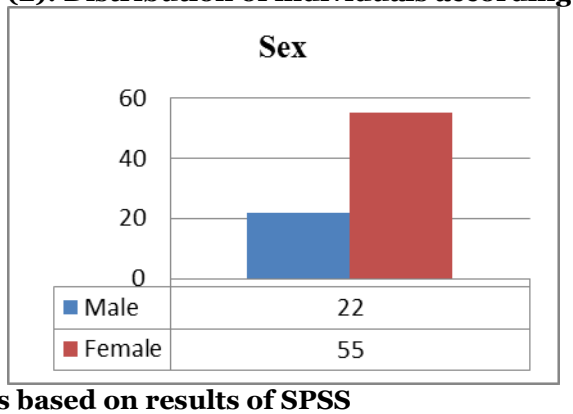
The source: Prepared by researchers based on SPSS data

V. Results and discussion:

We are going to present the result of the study, analyze, discuss and explain it.

V. 1. The demographic variables related results:

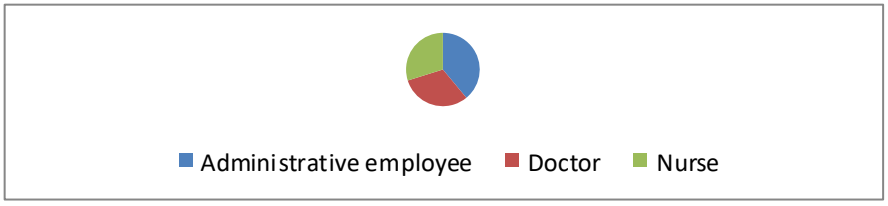
Figure (2): Distribution of individuals according to sex



The source: By researchers based on results of SPSS

The above figure shows that most of the sample size individuals were females. 71.4 % females compared with 28.6% males.

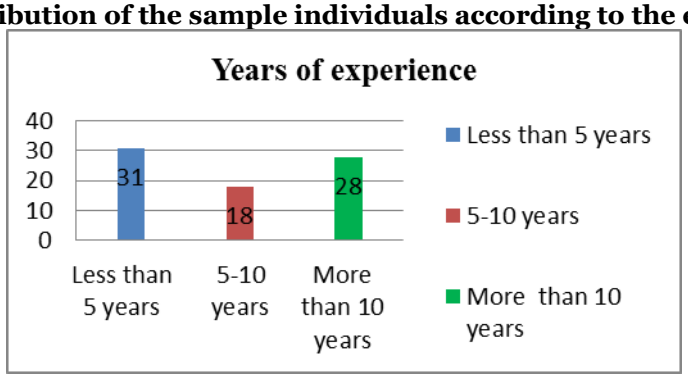
Figure (3): Distribution of the sample individuals according to the level of education:



The source: By researchers based on results of SPSS

The above figure shows that 39% of the sample individuals are administrative employees', 31.15% were Doctors, while 29.85% were nurses.

Figure (4): Distribution of the sample individuals according to the experience years



The source: By researchers based on results of SPSS

Individuals having experience less than 5 years are 31, those with 5-10 years' experience are 18 while those whom experience exceeding 10 years are 28 persons.

V. 2. Description of the study individuals' answers:

The scores were calculated according to the separation rule for the arithmetic circles as follows:
Strongly disagree: 1.0-1.8, disagree: 1.81-2.6, neutral: 2.61-3.8, Agree: 3.81-4.2, strongly agree: 4.21-2.0

A. Description of the questioned persons around the first axis:

Table (6): Frequencies of the individuals' opinions about each statement of the first axis:

Statement	Arithmetic mean	Standard error	Level of agreement
1. My working environment is clean and help me doing my work	2.71	1.305	Neutral
2. The medical instruments that directly contact blood and tissues are sterilized	3.64	0.954	Neutral
3. The rooms of hospitals are disinfected by chemicals	3.14	1.170	Neutral
4. Feed and smoking are forbidden within the hospital	3.12	1.336	Neutral
5. The hospital has materials for washing	2.74	1.302	Neutral
6. All reusable equipments are cleaned and disinfected	3.32	1.067	Neutral
7. Dirty clothes are contained into closed bags to laundry	3.36	1.067	Neutral
8. The hospital is continuously supplied by disposable equipment	3.49	1.143	Neutral
Mean and total standard deviation of the 1st axis	3.18	0.70	Neutral

The source: By researchers based on results of SPSS

From the above table, it is obvious that the overall mean of points of the 1st axis around hospital hygiene and prevention reached 3.18 with a standard deviation of 0.70. This explains that prevention and hospital hygiene are present in a moderate way according to the opinions of the sample individuals.

B. Description of the individuals' opinions about the 2nd axis:

Table (7): Frequencies of the individuals' opinions about each point of the 2nd axis:

Statement	Arithmetic mean	Standard error	Level of agreement
1. All wastes are collected regularly to avoid its accumulation	3,60	1,115	Neutral
2. Hazardous and infectious wastes are separated from other wastes	4,01	0,852	Agree

3. The hospital has equipments to throw wastes	3,60	1,055	Neutral
4. The hospital has colored bags to sort wastes according to its category and hazards	3,88	1,058	Agree
5. The hospital has materials for washing	3,88	0,973	Agree
6. The hospital has banners and leaflets show rules of discarding wastes in specified places in the hospital	3,05	1,337	Neutral
7. The hospital undergo deterrent measures for people not committed to the rules of discarding wastes in specified places in the hospital	2,53	1,382	Disagree
Mean and total standard deviation of the 2nd axis	3,50	0,781	Neutral

The source: By researchers based on results of SPSS

From the above table, we observe that overall mean of this axis related to collection of wastes within the hospital is 3.50 with 0.781 standard deviation. This explains that this process is done according to the standards in a moderate level. We observe also that phrases number 2, 4 and 5 which are related to separating the hazardous medical wastes from other wastes, availability of colored bags and plastic containers for wastes and sharps are quite available, as the means are 1.01, 3.88 and 3.88 respectively which we observed within the hospital perimeter. Phrase number 7 which is related to the deterrent measures from the hospital towards those not committed to the rules of discarding medical wastes was done in a mild manner as the mean was 2.53.

C .Description of the individuals' opinions about the 3rd axis:

Table (8): Frequencies of the individuals' opinions about each point of the 3rd axis:

Statement	Arithmetic	Standard	Agreement
1. I'm satisfied about my work	3.78	1.210	Neutral
2. The hospital supply me all equipments that help me to achieve my work	2.43	1.199	Dis-agree
3. The hospital provide me security during work	2.20	1.255	Dis-agree
4. My salary is satisfactory	1.97	1.154	Dis-agree
5. The work I'm doing can achieve my dreams	1.92	1.152	Dis-agree
6. I feel appreciated by the manager	3.14	1.262	Neutral
7. I'm satisfied about my working schedule	3.19	1.278	Neutral
8. I needn't to get another work	2.21	1.299	Dis-agree
9. I get all vacations needed	3.04	1.380	Neutral
Mean and total standard deviation of the 3rd axis	2.66	0.750	Neutral

The source: By researchers based on results of SPSS

It is observed from the above table that the overall mean of axis 3 which is related to employees' satisfaction within the hospital was 2.66 with 0.750 standard deviation. This indicates that the employees' satisfaction is moderate or even low according to answers of sample individuals. Phrases number 2, 3, 4, 5 and 8 which are related to availability of the employees' equipment by the hospital, the employees' salary, ability to make dreams from work and no need to get another better job, the satisfaction was weak according to their answers, as the means were 2.43, 2.20, 1.97, 1.92 and 2.21 respectively.

V. 3. Interpretation of search results

Here we try to analyze the results by using statistical methods and tests, in addition to testing the hypothesis of the study.

A. Pearson correlation coefficient:

Table (9): Results of Pearson correlation coefficient

Axis	T 10	T 20	T 30
T 10	1	0.478	0.409
T 20	0.478	1	0.209
T 30	0.409	0.209	1

The source: By researchers based on results of SPSS

From the above table we observe that the Pearson linear correlation coefficient between 1st axis (prevention and hospital hygiene within the hospital) and 2nd axis (collection of wastes within the hospital) is 0.478. This coefficient represents moderate association between the 2 axes and the Pearson linear correlation coefficient between the 1st axis (prevention and hospital hygiene within hospital) and 3rd axis (employees' satisfaction within the hospital) is 0.409 which represents moderate association between the 2 axes. Pearson linear correlation coefficient between 2nd axis (collection of wastes within the hospital) and 3rd axis (employees' satisfaction within the hospital) is 0.209 which represents weak association between the 2 axes.

B. Calculate the effect size between the independent variables and the dependent variable of this study:

In order to determine the effectiveness of the independent variables (Prevention and hospital hygiene within the hospital) and (waste collection inside the hospital) on the dependent variable (employees' satisfaction within the hospital), we will calculate the value of the impact size (d), and to find the value of the impact size (d) must be calculated terrible ETA (η^2) represents the total variance of the dependent variable that can be due to the independent variable.

Table (10): Determine the effect size for (d, η^2) values

Effect size				Tool used
Very large	Large	Moderate	Small	
1.10	0.8	0.5	0.2	**d**
0.20	0.14	0.06	0.01	**$^2\eta$**

The source: Prepared by researchers based on tribal gains

Table (11): The effect size of independent variables on the dependent variable

Variable	value² η	d value	Effect volume
Hospital hygiene and prevention	0,532	2.13	Very large
Collection wastes within the hospital	0,364	1.51	Very large

The source: Prepared by researchers based on SPSS outputs

Knowing that $d = \frac{2\sqrt{\eta^2}}{\sqrt{1-\eta^2}}$

From the table above it is noted that the value of $\eta^2$for the independent variables (prevention and hygiene within the hospital) and (waste collection inside the hospital) are respectively (0.532) and (0.364) and the value of d is (2.13) and (1.51) respectively, this It means that the effect size is very large, which indicates that the independent variables have an effect on the dependent variable with a high degree of effectiveness.

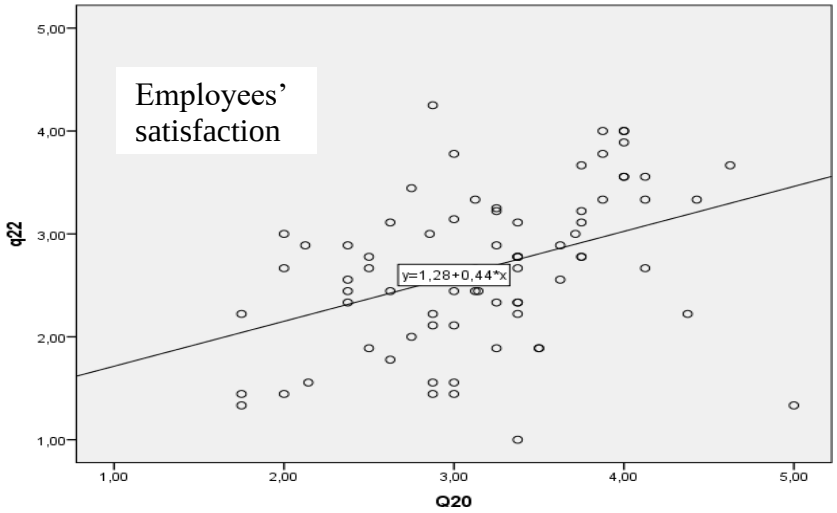
C. Test and analysis of multiple linear regressions between study variables:

Multiple linear regressions is a set of methods that can be used to find out the relationship between a continuous dependent variable and a number of independent variables that are usually continuous.
In order to use multiple linear regressions, the following conditions must be met:
- The relationship must be linear between independent variables and the dependent variable.
- The data should be distributed normally.

Step 1: Check the terms

We begin by making sure that there are linear relationship between the independent variables of the study and the dependent variable, and illustrate this through the following figures (Fig. 5 and Fig. 6):

Figure (5): Linear relationship between hospital hygiene, prevention and employees' satisfaction in hospital

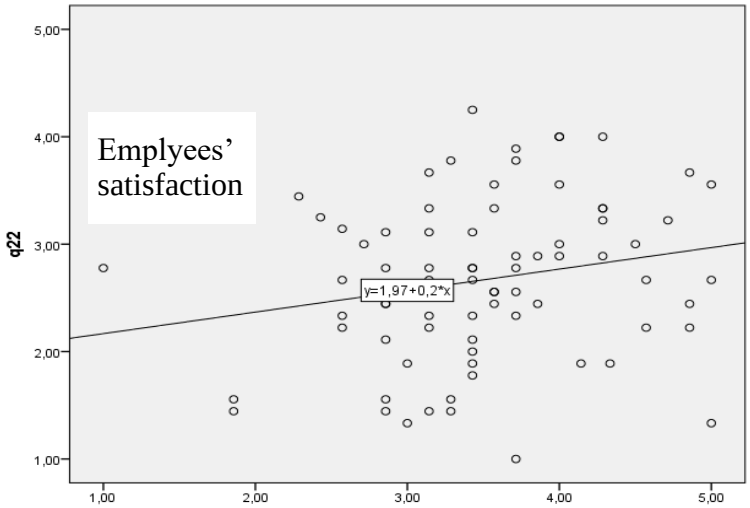


Hospital hygiene and prevention

The source: Prepared by researchers based on SPSS outputs

The above figure shows the linear relationship between the independent variable (hospital hygiene and prevention) and the dependent variable (employees' satisfaction at the hospital).

Figure (6): Linear relationship between medical waste collection and employees' satisfaction at the hospital

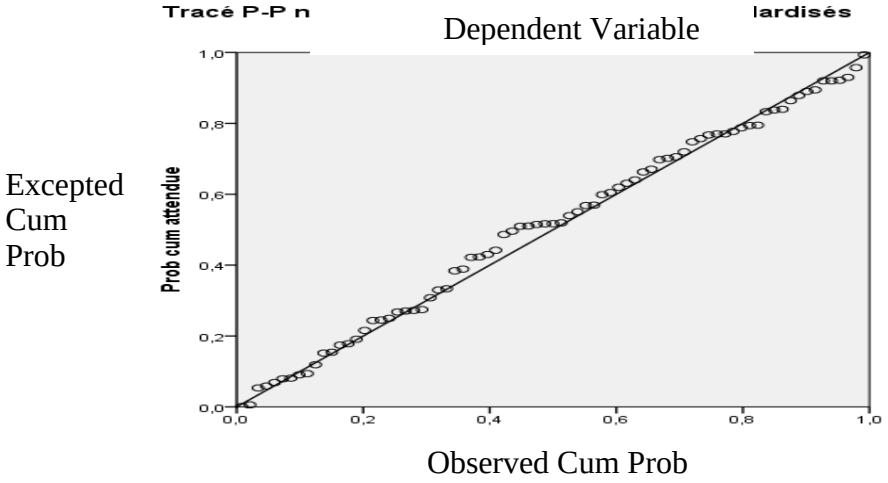


Collection of medical wastes

The source: Prepared by researchers based on SPSS outputs

The above figure shows the linear relationship between the independent variable (medical waste collection) and the dependent variable (employees' satisfaction at the hospital).
We are now making sure that the data follows the normal distribution, as shown in the following figure:

Figure (7): Normal P-P Plot of Regression Standardized Residual



The source: Prepared by researchers based on SPSS outputs

It is clear from the previous figure that the data is distributed according to the normal distribution.

Step 2: One way ANOVA test

In order to determine the explanatory power of the model as a whole, we perform come way ANOVA test of the study variables at the significance level ($\alpha \leq 0.05$) in order to ensure that there is a statistically significant effect between the independent variables and the dependent variable, by formulating the following hypotheses:

- H0: there are no statistically significant effect between independent and dependent variables
- H1: There are statistically significant effect between independent and dependent variables

Table (12): ANOVA at significance level ($\alpha \leq 0.05$)

The Model	Total of squares	F value	Significance level
Regression	7,152	7,433	0,001
The residual	35,60		
Total	42,752		

The source: Prepared by researchers based on SPSS data

In view of the results of the previous table, the following can be seen:

There was a statistically significant effect between the independent variables (prevention, hospital hygiene and collection of medical waste) and the dependent variable (employees' satisfaction at the hospital) where the value (F) was 7,433 which is a significant value at the significance level ($\alpha \leq 0.05$) This confirms the high explanatory power of the linear regression model statistically.

Step 3: Calculate the R^2 coefficient of determination

It should be noted that the regression method used is the standard regression method (ENTER), where we introduced all independent variables into the multiple linear regression equation.

Table (13): Interpretation coefficient between independent and dependent variables

Correlation coefficient R	coefficient of determination R^2
0.409	0.167

The source: Prepared by researchers based on SPSS outputs

It is noted from the previous table that the coefficient of determination R^2 was about 0.17, which means that the independent explanatory variables (prevention, hospital hygiene and collection of medical waste) accounted for 17% of the changes in the in the variance that found in the dependent variable (employees' satisfaction at the hospital), the rest 83% Attributable to other factors.

Step 4: Extract the value of the constant and the equation of multiple linear regression

The following table shows the value of the constant and regression coefficients and their statistical significance of the independent variables on the dependent variable. This table can be summarized as follows:

Table (14): Value of Constants and Regression Factors

Model	B Fixed non-standard	T values	Significance
Constant	1.248	2.935	0.004
Hospital hygiene and	0.428	3.316	0.001
Collection of medical	0.17	0.143	0.887

The source: Prepared by researchers based on SPSS outputs

From the above table, the independent variable (hospital hygiene and prevention) was statistically significant at the significance level ($\alpha \leq 0.05$) but the independent variable (collection of medical waste) had no significant effect in the multiple regression models.
The regression equation can be found from the table above as follows:
Y = a + b1X1 + b2X2
Where Y is the dependent variable and "a" is a constant value, b1 is the y slope of the first independent variable, b2 is the y slope of the second independent variable, and X1 and X2 are the first and second independent variables.
-So the regression equation of the study model is:
Y = 1,248+ 0,428 X1 + 0.17 X2

VI. Conclusion:

Based on the above, we can say that the embodiment of hospital hygiene in health institutions is an immune fortress for transmission within these institutions, and we can say that the hypothesis developed for the study is a correct hypothesis as hospital hygiene is the responsibility of all staff within health institutions, and the responsibility of visitors as well, Due to their risk of infection due to lack of hygiene and prevention within health institutions. The independent variables (hospital hygiene and prevention, collection of medical waste) have an effect on the dependent variable (employees' satisfaction at the hospital) with a high degree of effectiveness.
The results of the study include:
- The Algerian State shall endeavor to combat the spread of infection through strict legislation and laws in this field and, through the letter of the Minister of Health, Population and Hospital Reform, is keen to embody hospital hygiene and to provide water and all necessary equipment;
Hospital hygiene is the responsibility of all workers and employees within health institutions, since the presence of hazardous wastes, especially hazardous waste, threatens the safety and health of all. - Prevention and hygiene in the hospital are on average, according to the viewpoint of the sample in the institution under study.
- Waste collection in the hospital under study is carried out in accordance with the standards on an average basis.
- Satisfaction of staff within the hospital is moderate and barely weak, according to the responses of the respondents in the institution under study.
- The effect of the two independent variables (hygiene and prevention, collection of medical waste) on the dependent variable (employees' satisfaction within the hospital) is very effective.
- Independent variables (hospital hygiene, prevention and collection of medical waste) account for 17% of changes in the dependent variable (employees' satisfaction at the hospital)
One of the recommendations suggested is that: All actors in the Algerian health sector should pay very much attention to hospital hygiene, as their absence inevitably leads to the spread of serious diseases and viruses, which may be difficult to control these diseases later, and the cleanliness of the hospital environment affects the cost-effectiveness The satisfaction of the employees in it, therefore, work must be on the formation and rehabilitation of human capacity to follow up and evaluate the process of hygiene and proper disposal of waste, and to hold all those who are oblivious to this important process.

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