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Studying the efficiency triage at Shahid Beheshti Hospitals, Tehran, Iran

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Abstract

Background: Everyday emergency departments serve attendance of patients with different complications of various severity and acuteness. This problem have persuaded the responsible authorities of the emergency departments seek for a suitable executive approach to accelerate identifying and differentiating the injured and the patients in a very ill condition with non-emergent and chronic complaints. Consequently, use of triage system in prioritizing the patients of emergency departments has been put forth as suitable approach.

Methods: This study conducted in order to evaluate the correctness and preciseness of pediatric triage at hospitals affiliated to Shahid Beheshti University of Medical Sciences in 2014-15. In this retrospective study, the files of children below the age of 14 (boys and girls) who referred to the emergency department of the hospitals affiliated to Shahid Beheshti University of Medical Sciences as of March-April 2014 receiving triage service has been studied.

Results: In this research, 1453 files of patients were reviewed and studied with three variables of triage classification based on international defined standard of ESI Version 4, triage classification by nurses and triage classification based on a physician's diagnosis and order. A significant relationship among three groups has been found.

Conclusion: Constant training of triage nurses and constant follow-up of precise triage and use of nurses who have passed triage course are really necessary. ESI system in pediatric triage is questionable and needs to be corrected at levels 3, 4 and 5 of triage classification accordingly.

Key words: triage, pediatrics, emergency

Introduction

Over 225 million persons are affected by natural disasters every year and it is horrible to present medical cares for the aforesaid number of victims affected by such disasters (1). Bodily and financial damages rose due to lack of preplanned mechanisms and managements. However, desirable disaster management is not the only way to raise methods for confrontation with emergency cases. All of the victims should be evaluated for treatment and transfer. Moreover, it should be studied which persons enjoy priority for distribution of facilities. In fact, emergency cases are high-risk situations wherein physical or mental condition of individuals is suddenly damaged. This group of individuals does require emergent, fundamental and proper procedures. Everyday emergency departments observe attendance of patients who suffer from different complications of various severity and acuteness (2). This has persuaded the responsible authorities of emergency departments to seek for a proper executive approach to accelerate identifying and differentiating the injured and patients in a very ill condition from those with non-emergent and chronic complaints. Consequently, use of a triage system has been put forth as a suitable approach for solving this problem by prioritizing the patients of the emergency departments. The word "triage" has been taken from the French word of "Triage" that means Sorting (Sorting based on specific situation and needs of each patient). Such classification has been used for the first time to sort the injured in French Army (3-4). Triage is a critical step in entrance process of patients at an emergency ward and it is fundamentally a high volume and serious task. Although in peak time, it is a really challenging task, it is critical for safety of emergency. (5) (6).

A desirable triage system must be able to precisely identify the patients who needs emergency cares and by leading them in a proper direction, it creates suitable and swift ground for medical diagnostic procedures. An incorrect triage may bring about loss of resources, delay in treatment of patients, dissatisfaction of patients and occurrence of undesirable consequences. Meantime, the correct triage may be really useful to specify treatment direction of patients and to facilitate stabilization process of patients and admission of such patients (7).

A widespread range of systems through those dependent on an individual experience through three, four and five-level types all over the world is used for triage of patients. From existing triage systems, Emergency Severity Index ESI (five-level system) has highly been appreciated. Presently, it is the common system highly used in emergency departments of hospitals of many countries all over the world (8) (9).

Under triage is delay in diagnosis and treatment of the seriously damaged patients that may cause serious consequences and even death. Under triage in an emergency department may bring about side-effects for inpatients during their stay at hospital. On the other hand, over triage mostly creates some problems in consuming the resources and deviation of staff from other major activities at hospitals (10, 11).

Various studies conducted in the several decays ago have revealed that suitable triage for the injured patients may decrease death and improvement of use of resources. In order to achieve such desirable safety goal to present the required cares for patients, under triage should be minimized. Instead, for improvement of the resources used, over triage should be kept down (12).

Studies have revealed that no research has been conducted to evaluate the correctness and preciseness of pediatric triage. Considering the importance of the subject, discrete, theoretical and clinical knowledge that is increasingly grown, the goal of this study is to specify the correctness and preciseness of pediatric triage at hospitals affiliated to Shahid Beheshti University of Medical Sciences in 2014-15 so that by using the results of the said research and more desirable planning, existing insufficiencies and problems could be reduced.

Methods and material

In this retrospective study, the files of children below the age of 14 (boys and girls) who referred to the emergency department of the hospitals affiliated to Shahid Beheshti University of Medical Sciences as of March-April 2014 receiving triage service has been studied. Demographical information and medical history of patients and final consequences have been collected in the checklist. The final consequences recorded in the file have been regarded as Golden Standard and the level of triage has been recorded by physicians and nurses have separately been compared to corresponding standard. At the end, correctness and preciseness of five-level triage of nurses and decision making of physicians have been studied for efficiency of ESI system.

According to this system, the patients are divided into five levels immediately upon arrival based on severity of their illness and need for facilities (level one consists of the most serious injury and level 5 comprises the least severity of injury). In this method, the patients with undesirable general condition easily receive triage services. The required treatment procedures for the said patients immediately start. Other patients are sorted after interview and investigation of complaints of patients and the required medical procedures and cares for the said patients will be conducted at any expedient time. In the event that the patients need lifesaving procedures at level 1, in case of dizziness or drowsiness, severe pain or distress at level 2 and if the patients need two or more facilities (blood or urine test, electrocardiography, radiography and the ones) and no disturbed vital signs are observed, the patients are classified at level 3 and if the patients need one of the facilities, they are sorted at level 5 (10).

Results

Studying 1453 files of patients that have been defined for study of three variables of standard triage, triage classification by nurses, classification of triage based on findings of resource request and medical procedures by using Chronbach's Alpha, a result of 0.764 has been obtained. This reveals that corresponding test is valid at desirable level.

Corresponding samples have been collected from three hospitals namely Imam Hossein, Loghman and Mofid.

Shifts have been defined as follows:

Morning shift: 7: 30… 13: 30

Evening shift: 13: 30… 19: 30

Night shift: 19: 30… 7: 30

Table 1. Number of files separated on the basis of shifts

Shift					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	morning	314	21.6	21.7	21.7
	evening	382	26.3	26.5	48.2
	night	748	51.5	51.8	100.0
	Total	1444	99.4	100.0	
Missing	System	9	.6		
Total		**1453**	**100.0**		

51.8% of patients belong to night shift.

The age of kids have been defined as follows:

- Below one month old
- One through 12 month/s old
- One through 13 year/s old
- Three through 14 years old

Table 2. Number of files separated on the basis of age of individuals

age					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	>1 month	104	7.2	7.2	7.2
	>12months	355	24.4	24.6	31.8
	>3 years	393	27.0	27.2	59.0
	more than 3 years	593	40.8	41.0	100.0
	Total	1445	99.4	100.0	
Missing	System	8	.6		
Total		**1453**	**100.0**		

41% of patients were of 3 through 14 years old, comprising the most number of patients simultaneously. However, 52% of patients were male:

Table 3. Number of patients separated on the basis of age

sex					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Male	725	49.9	51.9	51.9
	female	671	46.2	48.1	100.0
	Total	1396	96.1	100.0	
Missing	System	57	3.9		
Total		**1453**	**100.0**		

Fever, coughing and vomiting were the most common complaints of patients respectively.

Table 4. Number of files separated based on main complaint of patients 15.3% were inpatients.

ChiefComplain					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	diarrhea	157	10.8	11.2	11.2
	fever	265	18.2	18.9	30.1
	vomiting	128	8.8	9.1	39.3
	dysphoria	61	4.2	4.4	43.6
	icterus	49	3.4	3.5	47.1
	Drug toxicity	27	1.9	1.9	49.0
	Chemical poisoning	30	2.1	2.1	51.2
	car accident	15	1.0	1.1	52.2
	head trauma	65	4.5	4.6	56.9
	Abdominal pain	83	5.7	5.9	62.8
	Abdominal hernia	11	.8	.8	63.6
	rash	49	3.4	3.5	67.1
	Earache	22	1.5	1.6	68.7
	Carbon monoxide poisoning	5	.3	.4	69.0
	Cough	141	9.7	10.1	79.1
	shortness of breath	27	1.9	1.9	81.0
	checkup	14	1.0	1.0	82.0
	constipation	12	.8	.9	82.9
	runny nose	82	5.6	5.9	88.7
	angina	16	1.1	1.1	89.9
	Upper Extremity Trauma	25	1.7	1.8	91.6
	Traumatic lower limb	14	1.0	1.0	92.6
	Convulsion	38	2.6	2.7	95.4
	Frequency or dysuria	12	.8	.9	96.2
	Anemia	1	.1	.1	96.3
	Headeache	15	1.0	1.1	97.4
	pain foot	9	.6	.6	98.0
	Epis taxis	4	.3	.3	98.3
	chest pain	2	.1	.1	98.4
	red eyes	9	.6	.6	99.1
	Melena	9	.6	.6	99.7
	hemotisist	1	.1	.1	99.8
	Artisit	3	.2	.2	100.0
	Total	1401	96.4	100.0	
Missing	System	52	3.6		
Total		**1453**	**100.0**		

Table 5. Percentage of Inpatients

admission					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	yes	221	15.2	15.3	15.3
	no	1223	84.2	84.7	100.0
	Total	1444	99.4	100.0	
Missing	System	9	.6		
Total		**1453**	**100.0**		

Vital signs of 54.2% of patients whom were sorted by nurses at levels 2 and 3 have been measured.

Table 6. Table of Vital Signs

VitalSigns					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	yes	513	35.3	54.2	54.2
	no	434	29.9	45.8	100.0
	Total	947	65.2	100.0	
Missing	System	506	34.8		
Total		**1453**	**100.0**		

The Most number of patients have been assigned to ESL 3 as classified by triage nurses:

Table 8-7: Table of Triage by Nurses

Relying on corresponding files, the requested resource and medical procedures, the most number of patients has been assigned to level five as well.

Table 7. Table of Triage for Medical Procedures

level.physician					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1	6	.4	.4	.4
	2	121	8.3	8.3	8.7
	3	320	22.0	22.0	30.8
	4	408	28.1	28.1	58.9
	5	597	41.1	41.1	100.0
	Total	1452	99.9	100.0	
Missing	System	1	.1		
Total		**1453**	**100.0**		

Further to investigation of files and considering ESI in terms of standard, the most number of patients has been assigned to level 2 at 42.2%.

Table 8. Table of ESI Triage

main level					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1	6	.4	.4	.4
	2	178	12.3	12.3	12.7
	3	611	42.1	42.2	54.9
	4	465	32.0	32.1	87.0
	5	189	13.0	13.0	100.0
	Total	1449	99.7	100.0	
Missing	System	4	.3		
Total		**1453**	**100.0**		

Concerning the fact that sorting by nurses for less than 80% conforms to standard classification level and this triage by nurses is not acceptable.

Table 9. Table of conformity of triage by nurses to ESI Protocol

correct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	540	37.2	37.2	37.2
	yes	911	62.7	62.8	100.0
	Total	1451	99.9	100.0	
Missing	System	2	.1		
Total		1453	100.0		

Comparing the correctness of triage by nurses and standard triage based on five samples from Chief Complaint:

Table 10. Table of frequency of five samples of chief complaints by patients

Statistics

		fever	car.accident	head.trauma	rash	AbdominalPain
N	Valid	265	15	63	47	83
	Missing	1188	1438	1390	1406	1370

Table 11. Correctness of triage by nurses for patients with fever

fever

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	67	4.6	25.3	25.3
	yes	198	13.6	74.7	100.0
	Total	265	18.2	100.0	
Missing	System	1188	81.8		
Total		1453	100.0		

Table 12. Correctness of triage by nurses for patients affected by car accidents

car.accident

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	15	1.0	100.0	100.0
Missing	System	1438	99.0		
Total		1453	100.0		

Table 13. Correctness of triage by nurses for patients with trauma

head.trauma

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	6	.4	9.5	9.5
	yes	57	3.9	90.5	100.0
	Total	63	4.3	100.0	
Missing	System	1390	95.7		
Total		1453	100.0		

Table 14. Correctness of triage by nurses for patients with skin rashes

rash

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	42	2.9	89.4	89.4
	yes	5	.3	10.6	100.0
	Total	47	3.2	100.0	
Missing	System	1406	96.8		
Total		1453	100.0		

Table 15. Correctness of triage by nurses for patients with abdominal pains

AbdominalPain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	7	.5	8.4	8.4
	yes	76	5.2	91.6	100.0
	Total	83	5.7	100.0	
Missing	System	1370	94.3		
Total		1453	100.0		

Discussion and Conclusion

Over three thousand patients across the USA use Five-level triage system (ESI) for triage of their patients (8). Different studies have confirmed the correctness and preciseness of five-level triage (ESI) by nurses and other medical staff to determine the place and period of hospitalization (16-14). This system has also been successful in evaluation of mortality and consuming resources (financial, time and human) as well (17). Reliability of this system has also been estimated at good-excellent level as well. From the viewpoint of main users i.e. nurses, this system has been highly appreciated and its application has been easier as well. Finally, acuteness of patients and other underlying diseases accompanying the patients, structure of emergency departments and its advancement and social interactions play a prominent role in decision making for triage (6).

Internal factors such as skills of nurses (experience, knowledge), individual characteristics and workplace conditions (overwork) and evaluation and referral of patients play a role in triage of patients (18).

Considering the research conducted by Tanabe et al in 2004 in the USA, correctness and preciseness of ESI at emergency departments have been studied. The said study has been conducted on a periodical and retrospective basis through which the files of 403 patients who referred to emergency

departments have been studied. Such variables as level of triage, admission condition and mortality have been evaluated. Kappa coefficient and Pearson's correlation have been used to calculate the validity of triage score recorded by nurses and real triage level. Kappa and Pearson's coefficient have been obtained at 0.89 and 0.83 respectively. At this emergency department, admission of patients for level one was specified as 80%; for level two as 73%; for level 3 as 51%, for level 4 as 6% and for level 5 as 5% respectively. Four patients passed away from which three persons had ESI at level 1 or 2. The researchers came up with this conclusion that ESI recorded by nurses enjoy high validity and Hospital admission and location admission could be predicted in this way (15).

According to study conducted by Wuerz et al in 2000 in Boston of USA, validity and reliability of ESI triage system were evaluated. The said study has been managed on prospective coherent basis on an adult population during 100 hours at two reference urban hospitals. 538 patients were enrolled from which 45 patients were excluded from the said study due to incomplete evaluation. Considering 493 patients studied in the said research, 52% were females. The average age of patients was given as 40 years old (16-95 years). 159 (32%) were inpatients. Kappa coefficient for triage system of this study has been obtained at 0.80 (95% CI=0.76 to 0.84). There is a direct relationship between hospitalization and triage level. For patients with level five (ESI system), 1/4th of patients need diagnostic tests and procedures and none of them has been hospitalized either. Instead, for patients at level 1, only one patient out of 12 patients was discharged. Researchers stated that ESI system at the medical center subject of study enjoys high validity and reliability (16).

Considering the study of Platts-Mills et al, sensitivity and characteristics of ESI triage for patients above 65 who needed life protective interventions were obtained as 42.3% and 99.2% respectively. Moreover, it has been found that level of ESI triage enjoy lower sensitivity in identifying the aged patients who should receive life protective interventions. It reveals the necessity to change corresponding criteria of this level of triage for identifying the aged patients who are at risk (level 1) to receive emergent medical procedures (14).

According to the results obtained from studying 1453 files conducted for investigating the correctness of pediatric triage, there is a significant relationship between difference of pediatric triage by nurses and fixed triage protocol because of the following reasons:

1. Use of untrained nurses for triage
2. Use of nurses with less service records for triage
3. Use of nurses completing their obligatory service for hospital triage who will be replaced by unskilled nurses after termination of the said period.
4. No constant and annual training for triage
5. No follow up for correct triage by head nurses or persons in charge of triage

Moreover, the significant relationship between different of triage protocol with medical diagnoses especially at levels 3, 4 and 5 reveals unreliability of ESI system in pediatric triage.

It should be noted that use of specializes who do not treat patients on an academic basis may emerge such difference.

A desirable triage system must be able to precisely identity the patients who need emergency cares and by leading the said patients in right direction the said system creates swift and suitable grounds for medical diagnostic procedures. An incorrect triage causes waste of resources, delay in treating the patients, their dissatisfaction and emergency of undesirable consequences. In fact, correct and swift triage of patients is the key elements for successful performance of emergency departments. If improper triage level is selected based on misinterpretation of and disregarding the variables of patients and triage standards, nurses can make triage errors. Triage errors may appear in form of putting the patients at lower level and "under triage" that leads to waiting and aggravation of patients' conditions and instead sorting at higher level and over triage may appear in form of limited access of other patients who need emergency cares (19). Disregarding high risk and lack of proper interpretation of vital signs may be regarded as main causes for "under triage" (20).

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Prevalence of chronic diseases and nutritional status of the oldest old

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Abstract

Objective: To analyze the prevalence of chronic non-communicable diseases (NCDs) and nutritional status of the elderly aged 80 years or over, from Presidente Prudente, São Paulo state.

Methods: The sample consisted of 120 elderly individuals, without cognitive impairment, aged 80 to 95 years (83.4±2.9 years). The NCDs analyzed were: hypertension, hypercholesterolemia, diabetes mellitus, hyperthyroidism, hypothyroidism, heart disease, osteoporosis, arthropathy and spinal problems. Body composition was assessed through body mass index (BMI), waist circumference (WC) and waist-hip ratio (WHR). For statistical analysis, the Student's t and chi-square tests were employed; the software used was SPSS (20.0) and the significance level was set at 5%.

Results: The most prevalent NCDs were: hypertension (65.0%), heart disease (25.8%) and arthropathy (32.5%). When analyzed according to gender, it was observed that women demonstrated a higher prevalence of osteoporosis than men ($p= 0.008$). The majority of the elderly (86.7%) presented more than one NCDs. According to the BMI cutoff, 33.3% of the elderly were underweight and 30% were overweight/obese. High WHR was observed in 57.5%, and the elderly males (34.0%) demonstrated lower values than the females (72.6%) ($p< 0.001$).

Conclusion: The oldest old presented a high prevalence of NCDs, as well as inadequate nutritional status, with a high prevalence of low weight and, in women, high WHR. Further studies may advance the survival of this population, affected by these adverse health factors.

Key words: Aged, 80 and over, Chronic diseases, Epidemiology, Body composition, Brazil, Elderly.

Introduction

Inevitably, with the passing of years, elderly individuals begin to present distinctive conditions which, in turn, can compromise their nutritional status. Some of these conditions are due to the physiological changes of aging itself, while others are due to pre-existing diseases, inadequate lifestyle habits (smoking, poor diet and physical inactivity) and socioeconomic status[(1)].

Thus, maintaining an adequate nutritional status is very important because of, on one hand, low weight, which increases the risk of infections, fragility and mortality and on the other, excess weight, which increases the risk of chronic non-communicable diseases (NCDs), such as hypertension, diabetes mellitus, dyslipidemia and joint problems[(2)].

The accumulation of these diseases can lead, in the oldest old, to both cognitive and functional impairment, generating a negative effect on quality of life, increased hospitalization, institutionalization and death, and an increased burden on health and social systems [(3)].

Due to the high prevalence of NCDs and their aggravating effects on the health and quality of life of elderly individuals [(4)], there has been an increase in interest in the subject, as this situation does not occur only in Brazil but in most of the world [(4, 5)]. Thus, the aim of this study was to analyze the prevalence of chronic degenerative diseases and the nutritional status of elderly individuals aged 80 or over.

Methods

Study design

This was a cross-sectional study, developed with a simple random sample, conducted from October 2009 to May 2010, in the city of Presidente Prudente, Sao Paulo. Elderly individuals aged 80 or over, of both sexes, participated in this study. All procedures of the sampling process and the collection and creation of the database have been previously published [6].

Subjects

All individuals invited to participate in this study were informed about the objectives and methods used in data collection. Individuals who were unable to walk, bedridden, residents of rural areas, institutionalized individuals or those with incomplete data were excluded from the sample. Thus, of a total of 2, 100 individuals, aged 80 years or over, living in the city of Presidente Prudente, 120 elderly subjects of both sexes took part in this study with an average age of 83.4 years.

The individuals invited to participate in this study were informed about the objectives and the methodology used for data collection. Only those who signed the "Free and Informed Consent" formed part of the sample. It was also explained to all subjects that they could withdraw from the study at any time. All study protocols were reviewed and approved by the Committee for ethics in research of the Universidade Estadual Paulista (Protocol no. 26/2009).

Research Instrument and Variables

A questionnaire was used to characterize the participants - adapted from that usually applied by the SABE Study (Health Welfare and Aging) - which included the following variables: gender, age, ethnicity, educational level and marital status (sociodemographic characteristics), alcohol consumption, smoking habits and the presence, number and type of NCDs (lifestyle related characteristics).

Regarding educational level, the elderly subjects were categorized into: no schooling, between one and four years of study and five or more years of study. The presence of an NCDs was measured based on affirmative responses (self-reported) for nine NCDs: arterial hypertension, hypercholesterolemia, diabetes mellitus, hyperthyroidism, hypothyroidism, cardiac diseases (heart attack, coronary artery disease, angina, congestive disease or other cardiac problems), osteoporosis, arthropathy (arthritis or osteoarthritis) and back pain (herniated disc, lower back pain and scoliosis).

Anthropometry and Nutritional Status

A digital scale, Filizola® brand, was used to evaluate body mass with an accuracy of 0.1 kg and maximum capacity of 150 kg. At the time of measurement, the elderly individuals were barefoot, wearing light clothing, and were positioned standing in the center of the scale platform. Height was measured using a fixed metal stadiometer, accurate to 0.1 cm, with a maximum length of two meters.

To measure waist (WC) and hip circumference (HC) a metal tape measure was used, Sanny® brand, with a precision of 0.1 cm and maximum extension of 2 meters. All anthropometric measurements were performed following the procedures described by Lohman et al.[7].

BMI was calculated by dividing the value of body weight (W) in kilograms by height (H) in meters squared ($BMI = W/H^2$). Regarding central adiposity variables, values were verified regarding the WC and waist/hip ratio (WHR) by dividing the WC measurement by the HC.

To categorize the individuals, the following cut-off points were used for the respective variables:

- BMI (kg/m^2) = Low weight (<23); normal (23>, <28); overweight (> 28 - <30) and obese (≥30)[8].
- WC= ≥88 cm for women and ≥102 cm for men[9].
- WHR= ≥0.84 for women and ≥1.00 for men[9].

Statistical Analysis

After performing the adherence test to verify the normality of the data, using the Kolmogorov-Smirnov test, parametric statistics were used for the quantitative variables.

The absolute and relative frequency was presented for each categorical variable. The chi-square test was used with the Yates correction to test the proportions between the sexes. For this analysis we used the SPSS program (SPSS inc. Chicago, IL), version 20.0, and a significance level of less than 5% was adopted.

Results

The study included 120 participants ranging in age from 80 to 84 years (mean 83.4 years). The majority of participants were female (60.8%), white (55.8%), widowed (53.3%) and presented an educational level of between one and four years of study (38.3%). The majority of the women were widows (75.3%), whilst the majority of the men were married (68.1%) (Table 1).

As for the living habits of the participants, 23.3% of the elderly individuals reported drinking alcohol, with consumption higher in men (40.4%) compared to women (12.3%). Of the total, 7.5% were smokers, with a statistically significant difference between the sexes (Table 1).

The values regarding the presence, number and type of NCDs are presented in table 2. It was observed that 86.7% of seniors reported at least one NCD and when analyzing the number of diseases, 77% presented two or more.

The most prevalent NCDs were hypertension (65%), heart disease (25.8%) and arthritis/osteoarthritis (32.5%). When comparing the types of NCDs between the sexes, statistically significant values were observed only for osteoporosis (p=0.008) (Table 2).

According to the BMI classification, 33.3% of the elderly were underweight and 30% were overweight and obese (Table 3). With regard to the central obesity variables, 42.5% of the elderly presented high WC and 57.5% high WHR; the men (34.0%) presented lower WHR values than the women (72.6%) (p≤0.001).

Table 1. Distribution of the oldest old by sex, according to socio-demographic and lifestyle variables. Presidente Prudente - SP, Brazil, 2010

	Total (n=120)	Male (n=47)	Female (n=73)	*p**
	Frequency (%)	Frequency (%)	Frequency (%)	
Age group (Years)				0.849
≤84	93 (77.5)	36 (76.6)	57 (78.1)	
≥85	27 (22.5)	11 (23.4)	16 (21.9)	
Ethnicity				0.305
White	67 (55.8)	23 (48.9)	44 (60.3)	
Brown/Black	34 (28.3)	17 (36.2)	17 (23.3)	
Yellow	19 (15.8)	7 (14.9)	12 (16.4)	
Education				0.586
No schooling	34 (28.3)	14 (29.8)	20 (27.4)	
1 to 4 years	46 (38.3)	19 (40.4)	27 (37.0)	
≥5 years	35 (29.2)	11 (23.4)	24 (32.9)	
Ignored question	5 (4.2)	3 (6.4)	2 (2.7)	
Marital Status				0.001
Single/divorced	9 (7.5)	6 (12.8)	3 (4.1)	
Married	47 (39.2)	32 (68.1)	15 (20.5)	
Widowed	64 (53.3)	9 (19.1)	55 (75.3)	
Alcohol				0.001
Currently drinks	28 (23.3)	19 (40.4)	9 (12.3)	
Used to drink, but does not drink currently	12 (10.0)	5 (10.6)	7 (9.6)	
Never drank	80 (66.7)	23 (48.9)	57 (78.1)	
Smoking				0.001
Smoker	9 (7.5)	5 (10.6)	4 (5.5)	
Ex Smoker	38 (31.7)	28 (59.6)	10 (13.7)	
Never smoked	73 (60.8)	14 (29.8)	59 (80.8)	

**= Chi-square test with significant critical value.*

Table 2. Distribution of the oldest old by sex, according to the presence, number and type of NCDs. Presidente Prudente - SP, Brazil, 2010

	Total (n=120)	Male (n=47)	Female (n=73)	p*
	Frequency (%)	Frequency (%)	Frequency (%)	
Presence of NCDs	104 (86.7)	39 (83.0)	65 (89.0)	0.340
Number of NCDs				0.197
1	24 (23.0)	9 (23.1)	15 (23.1)	
2	35 (33.7)	17 (43.6)	18 (27.7)	
≥3	45 (43.3)	13 (33.3)	32 (49.2)	
Hypertension	78 (65.0)	29 (61.7)	49 (67.1)	0.543
Hypercholesterolemia	19 (15.8)	5 (10.6)	14 (19.2)	0.211
Diabetes	23 (19.2)	9 (19.1)	14 (19.2)	0.997
Hyperthyroidism	9 (7.5)	3 (6.4)	6 (8.2)	0.709
Hypothyroidism	6 (5.0)	3 (6.4)	3 (4.1)	0.577
Heart Disease	31 (25.8)	14 (29.8)	17 (23.3)	0.427
Osteoporosis	25 (20.8)	4 (8.5)	21 (28.8)	0.008
Arthritis/Osteoarthritis	39 (32.5)	13 (27.7)	26 (35.6)	0.364
Back pain	21 (17.5)	6 (12.8)	15 (20.5)	0.273

**= Chi-square test with significant critical value; NCDs = Chronic non-communicable disease.*

Table 3. Anthropometric data and nutritional status in the oldest old, according to sex. Presidente Prudente - SP, Brazil, 2010

Variables	Total (n=120)	Male (n=47)	Female (n=73)	p*
	Frequency (%)	Frequency (%)	Frequency (%)	
BMI				0.562
Low weight	40 (33.3)	14 (29.8)	26 (35.6)	
Eutrophic	44 (36.7)	17 (36.2)	27 (37.0)	
Overweight	15 (12.5)	5 (10.6)	10 (13.7)	
Obese	21 (17.5)	11 (23.4)	10 (13.7)	
WC				0.260
Normal	69 (57.5)	30 (63.8)	39 (53.4)	
Elevated	51 (42.5)	17 (36.2)	34 (46.6)	
WHR				0.001
Normal	51 (42.5)	31 (66.0)	20 (27.4)	
Elevated	69 (57.5)	16 (34.0)	53 (72.6)	

**= Chi-square test with significant critical value; BMI = body mass index; WC = Waist Circumference; WHR = waist-hip ratio; SD = Standard Deviation.*

Discussion

The socio-demographic profile and lifestyle habits can provide an overview of how the oldest old have lived and currently live. In the studied population the elderly were mostly white (55.8%), with up to four years of education (56.6%), widowed (53.6%) and who never drank (66.7%) or smoked (60.8%). These values are similar to the population studies of Fares et al.[1], performed in the elderly in the South and Northeast and the study of Pedrazzi et al.[10], performed in octogenarians in Southeastern Brazil.

The oldest old in the present study demonstrated a high prevalence of a minimum of one of the NCDs investigated (86.7%). A Brazilian national survey also found a high prevalence of NCDs in the elderly[11] and emphasized their relationship with mortality and multimorbidities[12].

Multimorbidity is characterized by the presence of two or more NCDs[13] and, in addition to the strong relationship with mortality[12]; this presents a strong association with functional disability[14], generating higher expenses in the public health services for the oldest old[15]. Of the elderly people who reported having at least one NCD, 77.0% presented multimorbidities. This result was close to the 83% found in elderly individuals aged 75 years or over in the study by Britt et al.[16] and much lower than the 99% found in the study by Fortin et al. [17], in elderly subjects aged 65 and over. These results may differ due to methodological differences, since each study verified different NCDs, hindering possible comparisons of results.

The presence of arterial hypertension as a NCD has been studied in research worldwide[5]. In the oldest old of the present study, the prevalence of hypertension was 65% (61.7% in men and 67.1% in women). These results were higher than in other countries where elderly individuals aged 60 or over were investigated: Cuba (44.1%) Mexico (43.1%), Uruguay (44.9%), Chile (52.3%), and in Brazil, in São Paulo (53.8%)[18]. However, it was similar to the study of McDonald et al. (5) performed in the United States, with elderly subjects aged over 65 who found 63% of men and 76.6% of women with hypertension. With advancing age, the arterial structure and function suffer alterations such as increased collagen deposition, calcification and the degradation of elastin fibers, generating a reduction in arterial distensibility, which in turn increases vascular resistance and systolic blood pressure[19]. These factors, combined with other NCDs, are responsible for increasing disabilities[14].

Despite joint disorders being strongly linked to age[20], surprisingly few studies in the Brazilian population have examined those conditions in the oldest old[21]. Values close to the prevalence of arthritis/osteoarthritis found in Presidente Prudente elderly, were reported in the study by Fares et al.[1], with elderly subjects aged 60 and over, conducted in the states of Santa Catarina and Bahia, with prevalences of 31% and 33.7%, respectively. However, the study by Pilger et al.[22] in elderly participants in the same age group, in the state of Paraná, found a prevalence of 12.2%.

Pain caused by joint disorders is the leading cause of age related disability[23]; an increase in longevity is likely to have important consequences on quality of life and service provision of the elderly.

A decrease in bone mass begins to occur at around 40 years of age[24] and, if prevention interventions are not performed to mitigate the loss, this process may contribute to the development of osteoporosis. This statement is evident when we analyze studies in the literature with adult populations, where the prevalence rarely exceeds 15%,[24] and the oldest old, where the prevalence reaches more than 50%[25].

In the present study, the differences in the prevalence of osteoporosis in relation to gender should be analyzed with caution due to the number of elderly men who reported osteoporosis. However, it is well documented in the literature that the prevalence of osteoporosis and the incidence of osteoporotic fractures are less frequent in men compared to women, this is because the bone mineral density and bone size are larger, and therefore stronger, in men[26].

Low weight and excess weight (overweight/obesity) are independent risk factors for functional disability in the elderly[27].

Although not presenting statistically significant differences between the sexes, it is important to note that 33.3% and 30% of the oldest old in the present study presented low weight or excess weight, respectively. In a study conducted with a representative sample in the city of São Paulo in the elderly aged 60 or over, similar values were found for overweight/obesity (33.8%) and lower values for low weight (17.7%)[27]. This difference in the prevalence of low weight may be due to many factors that are accentuated after the eighth decade of life (loss of muscle mass, loss of bone mass and feeding difficulties)[27]. Similar results to those of the São Paulo study were found by Antônio Carlos - SC, with the oldest old, 18.8% low weight and 43.1% overweight/obese. However, in the study of Antonio Carlos different cutoff points were used[28].

Accumulation of fat in the central region is considered a cardiovascular risk factor[2] and presents association with various chronic diseases[14, 29] and a decrease in physical capabilities[29], possibly leading to decreased autonomy to carry out activities of daily living[30]. The high prevalence of the oldest old with WHR values above those re-

commended, in residents in the city of Presidente Prudente, was 57.5%, being 34% in elderly men and 72.6% in women. These results are similar to those found in a study with adults and the elderly in the city of Londrina - PR[31] and in a study with elderly individuals in Fortaleza – CE[32].

In terms of public health, this study presents some important evidence to be applied to the prevention of NCDs and inadequate nutritional status in the Brazilian oldest old; however some limitations must be pointed out. Although the results do not demonstrate large differences from other population studies, the results of the present study are for the oldest old only in one Brazilian geographic location. It should also be mentioned that all information on NCDs was self-reported, which allows the identification of individuals who have received a diagnosis at least once in their lifetime, but omits those who are unaware of the condition or of whether or not they have the disease; this fact can lead to underestimation of the prevalence of chronic conditions. However, Vargas, et al.[33] found that, based on data from the National Health and Nutrition Examination Survey III, self-reporting NCDs was valid for estimating the prevalence in a population.

In conclusion, the oldest old present a high prevalence of chronic diseases, principally hypertension, arthritis/osteoarthritis and, in women, osteoporosis, as well as inadequate nutritional status, with a high prevalence of underweight and, in women, an excess of central fat.

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The nature and causes of violence against hospital staff in Arak hospitals - 2010

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Abstract

Introduction: Everyone may face with different physical and linguistic threats, but hospital personnel are excessively under effect of different threatening factors. We decided to research for identifying nature and factors of violence rising which threaten hospital personnel so that we can find reasonable and real solutions to decrease this problem of medical profession.

Material and method: In a descriptive study 810 personnel who working in Arak hospitals were selected by cluster sampling. Data were analyzed by means of SPSS-16 statistic software. Descriptive statistics comprising of frequency, percentage, mean, and standard deviation were utilized.

Result: Experience of violence including physical, verbal and sexual were reported in 447 (58.6%) personnel, 161 persons (21 %) mentioned physical violence and 300 persons (39.4 %). Experience of verbal violence was reported in 420(55.1%) of personnel and 310(56 %) of male personnel were faced with that. 204(26.7%) persons invited the attacker to calmness and 234 persons (31 %) had informed the guards.

Discussion: immediate security action, presence of psychiatrists and psychologists in different hospital sections, overcrowding prevention, increasing relaxation hours of physicians and improving environmental quality of hospitals are the most effective factors for prevention of violence.

Key words: security action, overcrowding prevention, increasing relaxation hours.

Introduction

Security is most important branch of development in every society. Security has different definitions; sometimes a condition in which order-empowering forces can confront with order-disturbing forces is named as "security". (1)

Security is defined into different levels: social security, personal security, and job security and so on; job security and confidence is so vital in some kinds of jobs like the medical profession which is a kind of scientific service and helps to increase public health. A physician must treat patients according to his/her scientific and expert capacity and based on an oath s/he had taken for the medical profession. As patients have some specific rights, physicians have also some mutual specific rights. (2, 3, 4)

Hospitals are places which nobody goes to in normal conditions. Therefore, we must not expect a normal behavior from patients and their comrades alongside every cultural background. According to sensitivity and internal tumult within hospitals, we can come to this conclusion that personnel of hospitals face more threats and violence than a pedestrian or a bank clerk. (4)

Scholars consider increasing violence in hospitals resulted from increasing violence in whole societies and consider this problem as a main health problem in every society.(5) Although everyone may face with different physical and linguistic threats, but hospital personnel are excessively under effect of different threatening factors and therefore must be under due attention in this regard; therefore, according to the effect of different factors in making violence within hospital environments and their effects on treatment process and lack of such a study in Iran, we decided to research for identifying nature and factors of violence rising which threaten hospital personnel so that we can find reasonable and real solutions to decrease this problem of medical profession.

Material and method

In a descriptive study 810 personnel who working in Arak hospitals were selected by cluster sampling. The World Health Organization (WHO, 2003) questionnaire was selected as the study questionnaire, and all personal information like age, gender, education level, professional year of experience and so on, and occurrence of different kinds of violence like physical, verbal, ethnic and sexual; and separation of attackers including patient, his/her comrades and their gender were all collected by questionnaire; under study personnel reactions against violence and their ideas regarding threaten rising factors and their strategies and anti-violence facilities of hospitals were all recorded

Questionnaires were distributed among personnel who had at least one year experience working in their current position in 2010, and they were collected after due date; finally those not interested in participating in the study and who did not filled the questionnaire were removed from the study.

Data were analyzed by means of SPSS-16 statistic software. Descriptive statistics comprising of frequency, percentage, mean, and standard deviation were utilized.

Personnel name and information was privately recorded .Helsinki declaration was observed in all stages of the research. This research plan was confirmed by research ethics committee.

Result

In this study 762 person with age 21 to 54 years old entered to the study, 209 persons were female (27 %), 24 persons with under High School Diploma, 118 with High School Diploma degree, 96 with Associate Degree, 484 with Bachelor Degree, 16 with Master Degree and 24 physicians.

Experience of violence including physical, verbal and sexual were reported in 447 (58.6%) personnel, 161 persons (21 %) mentioned physical violence and 300 persons (39.4 %) have not experienced any violence yet and 204 personnel did not response.

Table 1. Experience of Physical Violence in personnel of Arak hospitals in 2010 according gender and education

		Physical Violence			
		Yes	No	Without Answer	Total
Sex	Male	118(21%)	287(52%)	148(27%)	553(100%)
	Female	40(19%)	113(54%)	56(27%)	209(100%)
Education	Under High School Diploma	3(13%)	15(63%)	6(35%)	24(100%)
	High School Diploma	26(22%)	61(52%)	31(36%)	118(100%)
	Associate Degree	22(23%)	49(51%)	25(26%)	96(100%)
	Bachelor Degree	100(20%)	252(53%)	132(27%)	484(100%)
	Master Degree	4(25%)	8(50%)	4(25%)	16(100%)
	Physician Degree	3(12%)	15(63%)	6(35%)	24(100)

Table 2. Experience of verbal Violence in personnel of Arak hospitals in 2010 according gender and education

		verbal Violence			
		Yes	No	Without Answer	Total
Sex	Male	310(56%)	200(36%)	43(8%)	553(100%)
	Female	110(53%)	76(36%)	23(11%)	209(100%)
Education	Under High School Diploma	12(50%)	9(37%)	3(13%)	24(100%)
	High School Diploma	64(54%)	42(36%)	12(10%)	118(100%)
	Associate Degree	53(55%)	31(32%)	13(13%)	96(100%)
	Bachelor Degree	270(56%)	180(37%)	34(7%)	484(100%)
	Master Degree	9(56%)	5(31%)	2(13%)	16(100%)
	Physician Degree	12(50%)	9(37%)	3(13%)	24(100)

Physical violence in male personnel was more than with female personnel. (Table 1)

Experience of verbal violence was reported in 420(55.1%) of personnel and 310(56 %) of male personnel were faced with that. (Table 2)

Experience of ethnic and sexual violence was reported in 6 (1%) and 25(3%) of personnel respectively.

Reviewing attackers and or aggressors shows that among 570 persons who mentioned different kinds of violence, in 112 persons (20 %) the attacker was the patient, 189 persons (33 %) the attacker was the patient's comrade and 140 persons (25 %) the attackers were the patient and patient's comrade; and 128 persons (22 %) did not answer this question; and only 1 person (0.1 %) mentioned a physician.

The reactions of under study physicians against attackers, including men and women, were varied; 204(26.7%) persons invited the attacker to calmness and 234 persons (31 %) had informed the guards. (Table 3)

The ideas of personnel about potential factors of violence according to available options in questionnaire and their reviews in most cases including: drug and alcohol consumption by patients or their comrades, lack of security facilities, death of patients, lack of attention to patients or their families, lack of educational program for prevention all

Table 3. The frequency distribution of reactions of working personnel in Arak hospitals in 2010 toward violence

Kind of Reaction	Frequency	Percent
No Violence	40	5
I invited attacker to calmness	204	26.7
I did nothing and went away from environment	58	8
I reported to my superior rank	10	1
I tried to defend myself	23	3
I pretended that nothing had happened	3	0.4
I informed guard personnel	234	31
I also shouted	3	0.4
I also got angry	70	9
I did nothing since it was in vain	117	15
Total	762	100

Table 4. Frequency distribution of ideas of personnel toward potential factors of violence in Arak hospitals in 2010

Potential factors	Non effective	Low effective	Mediate effective	High effective	Very high effective	No answer	Total
Over dose in Patient	24 (3.1 %)	81 (10.6 %)	158 (20.7 %)	245 (32.2 %)	196 (22.2 %)	112 (11.2 %)	762 (100 %)
Overdose in Patient's Comrade	38 (5 %)	55 (7.2 %)	218 (28.6 %)	204 (26.8 %)	123 (16.1 %)	124 (16.2 %)	762 (100 %)
Lack of due security facilities	15 (2 %)	46 (6 %)	93 (12. 2 %)	221 (29 %)	325 (42.7 %)	62 (8.1 %)	762 (100 %)
Death of Patients	16 (2.1 %)	61 (8 %)	186 (24.4 %)	225 (29.5 %)	235 (30.8 %)	39 (5.1 %)	762 (100 %)
Lack of educational program	30 (3.9 %)	71 (9.3 %)	131 (17.2 %)	261 (34.3 %)	191 (25.1 %)	78 (10. 1 %)	762 (100 %)
Lack of attention	32 (4.2 %)	153 (20.1 %)	231 (30.31 %)	196 (22.2 %)	123 (16.1 %)	54 (7 %)	762 (100 %)
Overcrowded environment	15 (2 %)	15 (2 %)	60 (7. 9 %)	216 (28.3 %)	417 (54.7 %)	39 (5.1 %)	762 (100 %)
Overcrowding patients and noise	15 (2 %)	74 (9.7 %)	324 (42.5 %)	295 (38.7 %)	54 (7.1 %)	0 (0 %)	762 (100 %)
Neurotic disease in patients or their families	23 (3 %)	94 (12.3 %)	227 (29.8 %)	251 (32.9 %)	121 (15.9 %)	46 (6 %)	762 (100 %)

Table 5. The frequency distribution of ideas of personnel toward potential anti-violence factors and facilities in Arak hospitals in 2010

Potential factors	Yes	No	Total
Improving the quality of working place environment	325 (43 %)	437 (57 %)	762 (100 %)
Screening patients based on their violent actions	127 (17 %)	635 (83 %)	762 (100 %)
Instruction for public awareness	223 (29 %)	539 (71 %)	762 (100 %)
Increasing numbers of personnel	534 (70 %)	228 (30 %)	762 (100 %)
Educating methods of confronting with violence	148 (20 %)	614 (80 %)	762 (100 %)
Extending clinical and therapeutic areas	194 (25 %)	568 (75 %)	762 (100 %)
Decreasing number of patients	114 (15 %)	648 (85 %)	762 (100 %)
Increasing welfare facilities in different sections	483 (64 %)	279 (37 %)	762 (100 %)
Rest room for comrades	374 (49 %)	388 (51 %)	762 (100 %)
Increasing hours of relaxation	561 (74 %)	201 (26 %)	762 (100 %)
Shortening patient hospitalization	452 (59 %)	310 (41 %)	762 (100 %)
Psychiatrist and psychologists presence	395 (52 %)	367 (48 %)	762 (100 %)
Other factors	0	762 (100 %)	762 (100 %)

were mediate to very much effective whose complete information are shown in table 4.

Anti-violence facilities of working place were reviewed based on available options in questionnaire. 63.9 % of personnel selected increasing numbers of guard personnel; 62 % mentioned recruiting psychiatrist and psychologists in different hospital sections and 59.5 % mentioned increasing relaxation hours for working personnel. Table (5)

Discussion

In this study 762 personnel who working in Arak hospitals were entered to the study. The frequency Verbal, physical, sexual and ethnic violence was 420 (55.1 %), 161 (21.1 %), 25 (3 %), 6 (1 %) consequently.

The study of MM Stark et al. was congruent with our study regarding verbal violence, but the rate of physical violence is lower than our study and this can be due to smaller sample size and different locations of these study; however, as above study is about medical examiners who face with more violent behaviors, the mentioned statistic is considerable (6).

In study of Sheikhazadi et al. verbal violence was reported as 64.7 % which was compatible with our findings, and 122 medical examiners (32 %) faced with physical violence which is more than our finding and this can be due to environmental condition (7).

Karen Judy et al. showed that experience verbal or physical violence during their resident ship is 33% which is lower than our findings; one the reasons behind this can be the presence of old age physicians or experts and their higher experiences; another reason is that their clients are only kids (8).

Jankowaik B et al. showed that 80 % of physicians who work in hospital and 91 % of who work in outpatient center had faced with verbal violence and more than 50 % had faced with physical violence which are both more than our findings; the reason may be the presence of students younger than 30 and their lack of experience.(9).

Sue Winstanley et al. had reported that verbal violence was mentioned in more than 68 % of medical personnel which physicians had the lowest rate of violence; this finding is not congruent with our findings; the reason is that there are more security operations and or more support principles regarding physicians in this clinical center and another reason is that above mentioned study was done on all hospital personnel than just physicians (10).

The World Health Organization (WHO) reported that 61 % of nurses in Australia, 50 % in Bulgaria, 62 % in Brazil and 58 in South Africa were victims of different kinds of violence; this finding is relatively congruent with our findings; WHO also reported that the rate of ethnic and sexual violence in Bulgaria is 2.2 and 0.8 percent, 0.7 and 1.8 percent in Lebanon, 4 and 8 percent in Thailand, 8 and 2.2 percent in Portugal and 22.5

and 4.7 percent in South Africa. However, ethnic violence is so low in our study and this shows that ethnic difference in our country in not so distinguished in comparison with mentioned countries; however, sexual violence in our study is more than Bulgaria, Lebanon and Portugal which may be due to this reason that above studies have been general and had different sample sizes than our study which is focused only on nurses (11).

Oconnell B et al. showed that 98.5 % of nurses in last year faced with verbal violence and 19.7 faced with physical violence. Non conformity of this statistic with our study can be due to cultural difference and or different sample size which involves nurses in this study (12).

In another study published in Emergency Nursing Journal 88 % of nurses faced with verbal violence and 74 % faced with physical violence which are more than our findings and which may be due to the presence of emergency centers as very potential locations of these kinds of violent behaviors and sample size of study which includes Nurses (13).

In study of Sue Winstanley 23 % of attacks against medical personnel were done by patients (12). Nobb also (2000) reported that 59 % nurses faced with threats and misconducts by patients' families in last year (14). In studies by The World Health Organization (WHO) most attackers in most kinds of violence were patient's families and is congruent with our study in which most attackers in most kinds of violence were patient's families and comrades too (11, 12 and 13).

It should be mentioned that sexual violence was not mentioned clearly in other study.

In study of Zamanzade M et al ,32.2 % of nurses invited attackers to calmness, 17.9 did not do anything and 15.2 % reported to their superior ranks and it is nearly similar with our study; the only difference is that violence reporting to superior ranks and informing colleagues is higher among nurses of this study; this can be due to lack adequate support for physicians in our study and their hopelessness regarding this fact that superior ranks of hospital will not pursue their complaint (15).

Bombay Hospital Journal reported that lack of adequate relation between patient and physician, injustice in judicial system and police and non-adequate security for physicians. Other studies are similar to our findings regarding supportive issues, but it is necessary to review these issues more in our country (15, 8, 16).

Lack of personnel and exhaustion caused by stress in Netherlands are reasons of violence toward physicians in clinical and other kinds of hospitals which are not mentioned in our study and shall be reviewed (10).

The ideas of under study personnel regarding anti-violence facilities in working places: increasing guard personnel, the presence of psychiatry consulter and psychologist in our section, increasing relaxation hour and decreasing physicians' working load, decreasing hospitalization of patients, improving environmental quality and educating prevention methods of violence. (16, 17) physical violence occurred to 118 men (21.1 % of male participators) and 43 women (20 % of female participators). Verbal violence was occurred more among male participators. Verbal violence relatively increases with increasing educational level. The frequency of different kinds of violence is not reviewed in other study.

Conclusion

Results show that verbal violence and physical violence are very common toward hospital personnel. Most of these personnel are not hopeful and optimist that their superior ranks will pursue these issues; therefore, it is necessary to compose due instructions for instantly collecting information from personnel and instant pursuing violence cases. Moreover, it is necessary to make educational programs to prevent violence in working places.

Immediate security action, presence of psychiatrists and psychologists in different hospital sections, overcrowding prevention, increasing relaxation hours of physicians and improving environmental quality of hospitals are the most effective factors for prevention of violence. We hope our findings will show due strategies to health and clinical planners so that they can try more in improving public health.

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Experiences of Community Verbal Autopsy in Maternal and Newborn Health of Bangladesh

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Abstract

Introduction: Verbal autopsy in maternal and neonatal deaths is commonly used in developing countries to understand the medical and social causes of death in the community. Bangladesh first undertook a community verbal autopsy program in 2010. This was implemented under the maternal and neonatal death review (MNDR) system.

Objectives: To know the process of implementation of community verbal autopsy, its acceptability and effect in maternal and neonatal health, Bangladesh.

Methods: A qualitative study was performed in two districts of Bangladesh in 2011. A review of documents, observations, focus group discussions (FGDs) and in-depth interviews (IDIs) were conducted with health care providers from different systems. Data were analysed using a thematic approach

Results: Community verbal autopsy was developed in Bangladesh using existing available tools and guidelines. First line field supervisors from health and family planning departments conducted verbal autopsies at the deceased's home. It has been adopted within the government health system and is able to identify medical and social causes, including delays within the community that are the major contributing factors of maternal and neonatal deaths. Verbal autopsy findings are shared at the Upazila level (sub-district) and these influence the development and implementation of local action plans. Recall bias and hard to reach areas are still challenges to be overcome in the conduction of verbal autopsies.

Conclusions: The use of community verbal autopsy to identify medical and social causes of maternal and neonatal deaths is possible in an encouraging country context. The Government health system can comfortably conduct autopsies within the community. The findings of autopsy can be an effective tool and can be used by the local health and family planning managers to take the initiative at local level to improve health status of the mother and newborn.

Key words: Verbal autopsy, maternal death, neonatal death, Bangladesh.

Introduction

Globally, total maternal deaths decreased by 45% from 523 000 in 1990 to 289 000 in 2013 whereas, developing countries account for 99% (286, 000) of global maternal deaths [1]. Whilst the number of neonatal deaths declined from 4.7 million in 1990 to 2.8 million in 2013 [2], developing countries comprise 98% of total deaths [3]. Bangladesh maternal mortality survey findings shows that maternal mortality declined from 322 in 2001 to 194 in 2010, a 40% decline in 9 years, a rate of decline on average about 5.5%, which appears to be on track to achieve MDG 5 [4]. United Nations estimation in 2013 showed that MMR has declined to 170 [1]. Similarly, neonatal mortality declined by 38 % between 1989 and 2009 from 52 to 37 deaths per 1000 live births in Bangladesh [5]. Bangladesh is on track to achieve MDG 5 by 2015 [6, 7]. The proposed global average maternal mortality ratio is targeted at 50 by 2035 [8]. The country is one of the ten countries with the greatest absolute declines in neonatal morality [2], whereas the Every Newborn Action Plan, calls for reducing neonatal mortality rates in all countries to fewer than 10 deaths per 1,000 live births by 2035 [2]. A reduction in maternal and neonatal mortality is delayed when no routine vital registration is available and without assigning cause of death [9]. In lack of vital registration and poor certification for cause of death, verbal autopsies can provide a vital solution [10]. Studies in India indicate that every maternal death has a story to tell and can provide evidence on useful ways of addressing challenges [11]. It is important to know

the causes for maternal deaths, contextual factors and social determinants in order to avert them, but the causes are complex and multifactorial. There lies the importance of maternal death review (MDR); it helps in identifying the three delays. Delay one is in not seeking prompt formal health care by family members; delay two is transportation to the health facility in time and delay three, factors at play at the Health facility [12]. Nevertheless, to monitor and follow up the progress of maternal health, evidence is necessary [9]. Verbal autopsy in the community is a participatory process that involves the deceased's family members providing important information relating to death and into identifying causes and factors behind a death [13].

Bangladesh introduced the piloting of maternal and neonatal death review in one district in 2010. This included notification of each maternal and neonatal death, including still births, conducting verbal autopsies of those deaths, and preparing remedial action plan based on findings at a local level to reduce the incidence of maternal and neonatal deaths. Community verbal autopsies, conducted with the deceased's family, were carried out by the government health system using a structured questionnaire developed and endorsed by the Directorate General of Health Services and Family planning [14, 15]. This study has identified the process of the community verbal autopsy, its acceptability and effect in addressing the issue of maternal and neonatal health in Bangladesh.

Methods

The Directorate General of Health Services (DGHS) in collaboration with the Directorate General of Family Planning (DGFP), Ministry of Health and Family Welfare of Government of the People's Republic of Bangladesh introduced maternal and neonatal death review (MNDR) under a Joint GoB - UN maternal neonatal health initiative. MNDR was piloted in the Thakurgaon district in 2010 with the technical support of the Centre for Injury Prevention and Research, Bangladesh (CIPRB) and UNICEF, Bangladesh [14]. In 2011 it was scaled up to four districts including Thakurgaon, Jamalpur, Narail and Moulvibazar districts of Bangladesh.

The study was performed in two districts named Thakurgaon and Jamalpur. Data was collected in two stages. The first stage of data was collected after initial piloting in Thakurgaon during January 2011. Three sub-districts (Upazilas) were randomly selected from all five Upazilas for the study.

Following that, the 2nd stage data collection was performed in September 2011, where in addition to Thakurgaon, Jamalpur district was randomly chosen. From each of the district, again three upazilas were randomly selected.

The community verbal autopsy built on a coordinated and supportive policy environment at the national level. A national level technical team from the DGHS and DGFP was responsible for developing tools, guidelines and the implementation framework. Community verbal autopsy tools and guidelines were finally developed after a number of technical meetings and workshops and finally the government endorsed its use at the community level. The questionnaire was adapted to local customs and culture and was translated into Bengali. The questionnaires included sections on background, events leading to the death, signs and symptoms of illness leading to the death, pregnancy history, care seeking behavior and perception of the respondents about the cause of death. It also contained questions on different signs and symptoms at the time of complications.

Field level first line supervisor from the health department was designated as the health inspector (HI), assistant health inspector (AHI) and family planning inspector (FPI) from the family planning department were given responsibility to conduct verbal autopsies in maternal, neonatal deaths and still births within the community. Before doing verbal autopsy, deaths were notified by the grass root level health workers and reported at the MNDR focal point in Upazila health complex setting (UHC). The focal point at UHC assigned HI, AHI or FPI to conduct verbal autopsy as per their allocated geographical area distributions. The recommended time to do a verbal autopsy was set at least seven days after the death occurred and undertaken within the next 15 days of time period to minimize the recall bias. After completion of the autopsy, the health workers returned back completed the documentation for the MNDR focal point at UHC. A monitoring and supervision

mechanism was developed. Validity and quality of verbal autopsy data were randomly checked by the Upazila and district managers and provided necessary feedback for improvement and data quality.

To collect qualitative information on the conduction of VA and its acceptance, we randomly selected three Upazilas from the piloted district Thakurgaon. We undertook three focus group discussions conducted with the health care providers. These included health inspectors, assistant health inceptors and family planning inspectors, one for each of the Upazila. Six in-depth interviews were conducted with the managers of the health department and family planning department, including Upazila health and family planning officer (UHFPO) and Upazila family planning officer (UFPO). We also conducted unstructured participants observations in six verbal autopsy sessions to look at every possible relevant area [table 1].

To know the effect of community verbal autopsy, including the lessons learnt, a total number of six FGDs were performed from two districts, one from each of the selected Upazila. Focus group discussions took place at the community clinic (service centre, rural community) where two research officers collected information. Health inspectors, assistant health inspectors and family planning inspectors participated. Twelve in-depth interviews with the health managers and family planning managers took place at the UHC whereas interviews were taken from the district civil surgeon and deputy director of family planning at both district offices [table 2].

Research officers were trained on the guidelines and different prompts for the interviews. Before the final interviews, a pre-test was performed and tools were modified accordingly. Audio-recordings and notes were taken by the research officers. From the audio-recordings and hand notes, transcripts were prepared in local Bengali language and then translated into English. About 10% of the transcriptions were checked by the investigators to check the quality and to ensure every component was captured as per objectives. Data analysis was then conducted by examining the transcripts and recorder's notes. Documents were analysed by initial examination, reading though and interpretation of the content

This was accomplished by examining the transcripts and recorder's notes in detail to explore their views on VA and process of conduction as per guideline. The data was then coded line by line, and then categories and themes were identified after a careful focused re-reading and reviewing the data. Thematic analysis is a form of pattern recognition in the data and categories the emerging themes for analysis [16]. Data were analysed and written up accordingly to the objectives. Example quotations were used to demonstrate these themes.

Table 1. Qualitative methods used in January 2011 at Thakurgaon district

Method used	Participants	Numbers	Area
Focus group discussion	Health Inspector Assistant Health Inspector Family Planning Inspector	3	One in each upazila
In-depth interview	Upazila Health and Family Planning Officer (UHFPO) Upazila Family Planning Officer (UFPO)	3 3	One in each upazila One in each upazila
Observation	Verbal autopsy	6	Two in each upazila

Table 2. Qualitative methods used in September 2011 at Thakurgaon and Jamalpur districts

Method used	Participants	Thakurgaon	Jamalpur
Focus group discussion	Health Inspector Assistant Health Inspector Family Planning Inspector	3 [One from each upazila]	3 [One from each upazila]
In-depth interview	Upazila Health and Family Planning Officer (UHFPO) Upazila family Planning Officer (UFPO) Civil Surgeon (CS) Deputy Director of Family Planning (DDFP)	3 3 1 1	3 3 1 1

Ethical clearance

The ethical clearance for the study was obtained from the CIPRB Ethical Committee. A consent form was developed and utilized during interviews and participants observation. Informed consent was taken from respondents. Anonymity of each interviews and direct observation sessions was strictly maintained. The participants of the study were informed that the collected data would be used for this research only.

Results

Conduction of verbal autopsy: Observation views

Six direct observations of verbal autopsy at the community level showed that the time of day for doing a verbal autopsy varies. Usually, a health worker undertook the session between 10am to 4pm. It was observed that during noon time or during the evening a male person acted as the principal respondent or associated respondent. Many male persons in rural communities return home during their lunch time.

In the majority of cases, we identified that health workers were looked on as favourably as the local doctor and they were found to be well known to the household. Family members cordially welcomed the health workers to the home in all cases.

The health workers visit the family of the deceased person and describe the reason behind their coming to the house and seek proper permission from the family members before the interview. The consent form is read to the family members by the health workers before the interview and the villagers then agree to provide data and sign the written consent form or put their thumb or finger print mark on the document. In most cases the autopsy is conducted in a sitting position. Families bring chairs, benches or cushions for the health worker to sit in a comfortable place. In a number of cases where the family members had to sit in the floor out of respect the interviewers did the same.

We have found that interviews were conducted with the family members who were present at or before the time of death, and in neonatal death cases the mother was the respondent in all cases. However, in maternal death, we have found the husband, mother in law, sister in law or father in law to be the respondents. The health workers selected the principal responder, decided by the family, who was very familiar with the details about the death. The rest of the family becomes associate responders.

During the observation, privacy and confidentiality were maintained in all cases. The interview took place in a convenient place so that family members were able to interact. However, in most of the VA cases, there were found to be always a few people waiting outside the room to observe what was happening.

We explored mixed time duration for each of the verbal autopsies, ranging from 20 minutes to 45 minutes depending upon how the health workers talked to them. However, in no cases did we find the health workers hurrying the respondent into quick answers. However, health workers found it useful to use a clue or prompt in many questions when he deceased's family faced difficulty in understanding terminology. It was observed that the health workers used local dialect for interactions and asking questions.

During the entire verbal autopsy session, observation findings showed that there was nowhere resistance or a reluctant to provide information. Also there was no refusal to participate in the verbal autopsy sessions. However, in a few cases we found the deceased family members were working at the time of doing a verbal autopsy and these cases took a little more time than usual.

Conduction of verbal autopsy at the community: Health workers view

Verbal autopsy is undertaken in the community when a maternal, neonatal death or still birth occurred. Assigned field level health and family planning worker assigned by the primary health care centre to conduct the verbal autopsy by visiting the deceased household family. Health workers found community verbal autopsy interesting and an informative method of collecting details on death information. Moreover, through verbal autopsy questionnaires we able to identify social factors related to death. Field level health workers perform the autopsy within their daily regular field activities. Health workers discussed the findings amongst themselves during monthly meeting about causes of deaths and were able to plan for local action plan to share in the Upazila review meeting.

One of the HI told during FGD:

"It is a social event. We meet the family members (the deceased's kin) and they welcome us cordially and offer up the required details and information related to the death."

The FGD with another AHI mentioned that*:*

"This is a way to collect maternal and neonatal deaths related information; through this we are able to understand both medical causes and social errors behind death."

Another FPI spoke:

"Verbal autopsy is a new experience to us. We never did this before; a systemic way to ask different questions related to death helps us to know details on causes of death.

During FGD, HI from one of the upazila told:

"Verbal autopsy in maternal and neonatal deaths provides scope to validate already notified death at community."

Another AHI stated that:

"In our country why maternal and neonatal death rate is high…why they die…finding out the causes of their death. We are doing this to find out the causes and probable solution to prevent maternal and neonatal deaths."

Acceptability of verbal autopsy

The field level health workers undertook verbal autopsies as part of their regular activities. They were aware of their responsibilities to perform verbal autopsy in the community. Likewise, without hesitation the community also provided information relating to death.

During FGD one of the health worker mentioned:

"Initially at the beginning of doing verbal autopsy it felt a little difficulty to ask a number of questions with the deceased family members, however, later on when we frequently carried out verbal autopsy, the instrument come to easier to me and now we can comfortably interact with the family members."

In another FGD, one of the participant mentioned:

"Maternal and neonatal deaths are occurring at our own working areas; it's our responsibility to know details on the death issue so that we could find out the solutions."

One of the FPI spoke:

"Regular verbal autopsy is so helpful to me, I can interact with my field level family planning staff on the causes of death and they can further work on that to prevent future deaths."

Upazila health and family planning officer (UHFPO) of one of the Upazila stated

"Our field level staff is committed to perform verbal autopsies within the community, they have ability to follow the questionnaire and easily interact with the local people. Our workers have very good access in the village which helps a lot in attaining the information."

Upazila family planning officer (UFPO) *of one of the Upazila told:*

"Conduction of a verbal autopsy takes time to do and our field staff are now conducting autopsies within their regular field activities which doesn't burden them. The workers accept the task in a cordial manner."

Acceptability of verbal autopsy in exploring medical and social causes of a death

Verbal autopsy in maternal and neonatal deaths is able to identify causes behind a death in the community. The autopsy related questionnaire is easily understandable by the villagers making it easy for them to respond and provide death related details information. The autopsy also explores the social factors and barriers related to a death, including delays related to decision making and transferring of the patient to the facility.

During FGD, one of the HI mentioned:

"The autopsy has a set of questionnaires on what happened during the occurrence of complications and treatment seeking history. It helps us to know the causes of a death."

During another FGD, participants stated that:

"Verbal autopsy in maternal and neonatal death explores social causes for we ask the family on different delays during decision making and transferring the patient."

One of the FPI said during IDI:

"All questions in verbal autopsy tool are related to the signs and symptoms of the patient. The deceased's family members easily remember those rather than stating causes of death."

One of the UFPO of an upazila said:

"We are discussing at the Upazila review meeting each death. We analyse the findings and assign causes of death of mother and newborn at local level.

One of the UHFPO of one Upazila stated:

"The reasons behind a death can be understandable from the verbal autopsy and health and family planning department can understand predominant causes of deaths in specific areas."

Utilization of community verbal autopsy findings

The findings from the verbal autopsies are very useful for the health workers and managers at the local and district level for planning, taking initiative based on the deaths patterns and implementation of the action plan on ground. The findings also help to prepare recommendation at the local level to share at national level for policy dialogue and take appropriate further steps.

One of health worker (AHI) mentioned in FGD:

"Death findings are shared among us in the monthly meeting at Upazila health complex and we know area specific death patterns."

During FGD in Jamalpur, one of the FPI told:

"In our family planning department, we sit once in a week, all of FPI meet in the family planning office. Verbal autopsies findings are shared and discussed among us and we inform our UFPO if anything we found to need further steps."

One of the UHFPO of one Upazila in Thakurgaon spoke:

"We use the verbal autopsy data for planning, we instruct our field staff accordingly when we know clearly why maternal, neonatal deaths are occurring in the areas. A number of health camps, awareness meeting with pregnant mothers, referral of complicated cases from community to the facility now practicing in those areas where deaths are higher, specially maternal deaths"

One of the UFPO from Jamalpur district mentioned during the interview:

"We maintained confidentiality at highest level, we never blame to anyone. Rather we try to find out what are the errors behind the death to prevent future deaths."

Whereas, DDFP of Jamalpur district mentioned:

"District review meeting on MNDR provides scope to know details of the cause of deaths in the district. I can instruct family planning department to intervene for better counselling, birth planning, antenatal care and post natal care for mother and newborn accordingly.

"Evidence based intervention are taken using the verbal autopsy in the district, it's much easier for the health department to work on area specific death reduction based on causes and contributing factors of deaths different areas within the district. NGOs participation support us to implement initiatives" - The civil surgeon from Thakurgaon reported.

Strengths

Community verbal autopsy has been performed within the exiting health system by the health and family planning department. Field level staff conducted verbal autopsies in coordination with each other. The health workers felt conducting verbal autopsy is one of the key responsibilities to address causes of deaths for they had comfortable access to households to collect data from the deceased family members. Villages found health workers to be as their own people in the community. Verbal autopsy information was kept confidential by the health workers; they submitted the data to the focal point at the Upazila health complex as soon as they collected it, and at all times a non-blaming approach was maintained. Findings were also used by the Upazila and district managers for the improvement of maternal and newborn health of the district.

During conduction of FGD in Jamalpur, one the health worker mentioned;

"We work in a team with our department and family planning department. We have an assigned specific area to do verbal autopsy, we follow it, and so there is not too much extra, overburdened work."

Another FPI in Thakurgaon mentioned:

"Respondents love to let us know the facts that happened and the complications that occurred. The community didn't hesitate to interact."

One of the UHFPO of Jamalpur spoke during interview:

"We share and discuss on causes of deaths in our medical team at the upazila health complex, it help us to take proper initiatives at the community. We can also share in the monthly health and family planning coordination meeting to the field staff so that they can also intervene in the community during field visits."

DDFP of Thakurgaon district said:

"Verbal autopsy helps for planning and implementation local action plan, it's so useful for dis-

trict improvement of maternal and newborn health status."

Challenges

Although verbal autopsy at the community level is conducted successfully to explore the causes of death, a number of challenges remain. The villagers sometimes requested aid from the government health system after they got the opportunity to discuss their issues with the government health workers. Although it is a non-blaming approach, the community had a tendency to blame the health system if the mother or newborn was treated in the facility. Most blamed the doctors and nurses. A verbal autopsy might take more time than usual which results in difficulties in concentration and recall by the respondent. It was also found that the mother found it extremely difficult to provide information in front of the father in law or mother in law, or even in front of husband on death issues. There was also the issue of recall bias in some cases when the verbal autopsy was conducted after a month. In a few cases, respondents didn't mention any maternal or neonatal complications that caused difficulty in identifying why the mother or newborn died. There was also difficulty in accessing hard to reach areas for the health workers. This was especially challenging during the rainy season. The health workers also found that the verbal autopsies were not always conducted on a regular basis. As they only happened when a death occurred they had to careful about and familiar with the questionnaire to be used for family members.

One of HI mentioned during FGD:

"Time is a factor. Usual a verbal autopsy takes 30-45 minutes, however, in some cases it takes more than 45minutes and the respondent finds it difficult to concentrate for that period of time."

"*We found the mother sometimes felt shaky to talk about the detailed information in front of her father in law or mother in law, and sometimes even in front of her husband. The reason might be there are family members social barriers behind the death they did not want to surface.*" - Reported a FPI.

One of the health workers spoke in the FGD:

"Sometimes we faced challenges to get right the respondent in the household when we visit the home to do a verbal autopsy. Then we have to wait until main respondent comes or have to go there another time if the respondent is absent on the day."

On this issue, another HI said:

"A few times, we found the household locked when we visited, they went somewhere else. In those cases we needed to go again to visit the household."

"I have seen a number of verbal autopsies in the field with my health workers. If the death notification has been delayed, our health inspector has sometimes to visit the household after many months to conduct the verbal autopsy. Then there are many challenges for respondents to remember the issues related to what health care seek actions took place during the complications of mother or newborn." - One of the UFPO spoke during interview.

"We go the household at least after a week, usually after 10 days of a death. When the death issues are discussed the mother or father or other family members become emotional. We know death is always sensitive and at any point the family may lose their nerve. It's challenging to interact within the emotional environment." - One of the health workers stated during the FGD.

Another UHFPO stated:

"During discussing a maternal death or neonatal verbal autopsy, I have found a few cases, where there was a scarcity of information, especially related to complications where it is difficult to understand what actually happened to the mother or newborn before the death."

Discussions

In our study, we have found that the verbal autopsy at the community is conducted by the government field level health workers. Members from the deceased's family know the health workers as the health workers are from the same community and also work there. Mostly the respondents smoothly answer the questions and happily provide their time. Health workers use a structured questionnaire for maternal, neonatal death or still birth. In all cases, they were assigned by the Upazila MNDR focal point to do VA they report back to same focal point after the completion of the autopsy and submit the VA form.

Maternal death review has been conducted in many other countries [10, 17-25]. In selected districts, India has conducted maternal and perinatal death inquiry. [26] Death review has also been undertaken to some extent in Bangladesh on ma-

ternal and neonatal death [27, 28]. Community based death review (verbal autopsy) is an excellent method to explore the medical causes and factors contributed women deaths through interview of the deceased family in the community [29]. One study mentioned that verbal autopsy can be an appropriate and cost-effective tool as it uses a retrospective interview of family members about the circumstances leading to the cause of death [30].

In our study, the government field level health workers are responsible for the conduction of the autopsy. They do this by carrying out other interviews with the deceased's family members who were present before the death or knew the events taking place before the death occurred. The community VA is conducted at least after seven days of the death occurring in the community; usually it takes place between the 8th days to 21st day. The study on maternal death review mentioned similar approaches to our study [31]. We have found that the verbal autopsy adopted a non-blame approach and also maintained strict confidentiality and anonymity. This also followed the WHO 2004 response to maternal death review (MDSR) in 2013 [30, 32].

The findings from verbal autopsy specify circumstances that lead to death and also delays within the community. These were raised in the review meeting and used to prepare action plans to improve the health system. Similar results were found in a study conducted in Tamil Naru, India [33]. Verbal autopsy is a method of ascertaining probable causes of a death based on an interview with primary caregivers about the signs, symptoms and circumstances preceding that death [34].

Our study mentioned that sometimes it is difficult to know the causes of death from the verbal autopsy, especially data coming from community. Another study has also mentioned about reliability and validity of verbal autopsy data [35].

Major strengths were found to be having a team from the health and family planning department to conduct the verbal autopsy using government tools and strictly maintaining non-blaming approaches. One study mentioned similar findings as strength; however the study also mentioned some of the weaknesses of the approach such as blaming, the health provider's knowledge and skill, inadequate skill resources. All these are challenges for low income countries [23]. However, some of the challenges in the community identified in this study can be readily overcome or minimized though comprehensive planning and initiatives from the Upazila and district health managers.

Verbal autopsy in maternal, neonatal deaths and still births at the community has been identified as a valuable instrument to identify causes of deaths. Interaction with the community people by the field level health workers intensifies its importance in determining the factors related to causes of deaths, including delays. Health managers at the district level use the findings to develop action plans to further improve maternal and neonatal health services. Thus, the findings and outcomes of community verbal autopsy in MNDR could contribute in the reduction of maternal and neonatal mortality in Bangladesh.

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Knowledge, attitudes, and practices in oral health among pregnant women

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Abstract

Objective: analyze knowledge, attitudes, and practices in oral health among pregnant women during prenatal care.

Methods: descriptive, cross-sectional, study with a quantitative approach and a non-probabilistic convenience sample consisting of 25 pregnant women receiving prenatal care, carried out at the Family Health center in the town of Bonito de Santa Fé, Paraíba, Brazil. Data collection took place in October 2011, by means of a validated form, and data were analyzed with simple descriptive statistics.

Results: knowledge on oral health were regarded as insufficient, since 60% of participants were unaware of dental plaque and 84% were unaware of periodontal pathology; only dental caries proved to be an oral disease known by most of the pregnant women (84%). Regarding the attitudes and practices in oral health, 76% did not visit the dentist within the gestational period and 69% properly clean the oral cavity.

Conclusion: the results indicated poor knowledge on the theme oral health during pregnancy and also that pregnant women have attitudes and practices either positive or negative in this regard. This reveals the need for adopting strategies that enforce the proposed oral health care in the Family Health Strategy.

Key words: primary health care, oral health, pregnancy.

Introduction

The Family Health Strategy (FHS) emerged in 1994, having an alternative health care model as a basis, in order to search for comprehensive care and aimed at the population's health needs. Since then, the characteristics of its work process involve a multiprofessional practice (physicians, nurses, dental surgeons, and others) along with families from defined locations, intervening on the risk factors for the population concerned[1].

This way, the focus lies on actions aimed at health for children, women, men, oral health care, fight against diseases such as leprosy and tuberculosis, among others. Thus, among the intervention strategies, we highlight those designed for pregnant women, who must be followed-up by a multiprofessional health care team, because pregnancy is a period of transformations involving physical and psychic changes[2].

Although these changes are usual, they cause discomfort and require adaptations from pregnant women regarding physiological and psychological changes to cope with the process of pregnancy, childbirth, and motherhood. Among so many changes, we highlight those concerning oral health[2-4].

In the case of dental care during pregnancy, beliefs and myths have involved the binomial mother/child. Dental care actions are regarded as harmful and contraindicated. Therefore, interest in the topic came up with the exposure of taboos surrounding pregnancy and oral health, barriers to the implementation of a prevention program for pregnant women, hindering the feasibility of actions and positive outcomes[5].

There is increasing evidence that oral health promotion over pregnancy is crucial, and this kind of care is provided by women's health services, a priority issue for primary health care (PHC). The importance of oral health promotion becomes apparent when we identify a high prevalence of dental needs over pregnancy and a continued demand to deal with these problems that affect babies[6-9].

Promoting dental care within the gestational period can minimize oral problems and this helps deploying an effective self-care. For these reasons, it is worth highlighting the importance to address the theme. Pregnant women's care must meet the needs for treatment and it also has to encourage health promotion[10].

Given the above, it is crucial to understand this population's needs and behaviors, represented by questions such as: Are pregnant women assisted in primary care aware of the oral pathologies? Do these women consider satisfactory their own oral health? What are their attitudes in face of preventive oral health care actions?

This study takes the assumption that Nursing students need to know about the pregnant women's oral health, an issue that receives little attention and assistance within this life period. At the FHS, the oral health of these patients takes a unique importance in prenatal care consultations, when, by means of anamnesis, it is possible to identify changes, seeking health promotion and prevention actions aimed at oral pathologies.

There is a need for improving knowledge in order to provide pregnant women with a better assistance concerning their oral health over prenatal care. It is known that the gestational period represents a unique time, when women are more receptive to new information that can enable a healthier prospect for themselves and for the future lives contained in their wombs.

So, we aimed to analyze the knowledge, attitudes, and practices in oral health among pregnant women receiving prenatal care at the FHS.

Methods

Descriptive, cross-sectional, study with a quantitative approach carried out with pregnant women followed-up during prenatal care at the Family Health center in the town of Bonito de Santa Fé, Paraíba, Brazil. This is a small town with an area of 228 km² and an estimated population of 10,806 inhabitants. Then, the FHS was providing 47 women with prenatal care[11].

For selecting pregnant women, we adopted a non-probabilistic convenience sample, according to predefined inclusion and exclusion criteria. Only 25 (53.2%) out of the 47 women receiving prenatal care when the study was carried out were included as study subjects, since they met the inclusion criteria: a) being over 18 years old; b) having no mental condition; c) being duly enrolled in the town's Prenatal Care Program; and d) agreeing to participate in the study by signing the free and informed consent term. The exclusion criteria were not meeting the inclusion criteria; thus, the other 22 (46,8%) women receiving prenatal care were excluded because they: a) were not over 18 years old (3 subjects); b) have some mental condition (1 subject); c) were not duly enrolled in the town's Prenatal Care Program (6 subjects); and d) have not agreed to participate in the study by signing the free and informed consent term (12 subjects).

As an instrument for collecting data, we used a form validated in 2010 by Oliveira[4], with closed questions. The following study variables were considered: a) age; b) education level; c) marital status; d) knowledge on oral problems; e) interference of oral problems with a person's general health status; f) women's observations concerning their own oral health; g) oral health problems during pregnancy; h) actions taken concerning oral hygiene; i) dental consultations over pregnancy; and j) information received on mouth and teeth care.

Data collection was conducted in October 2011 during wait for or at the end of prenatal care consultation, scheduled by nurses from the FHS. Pregnant women were informed beforehand about study objectives, form application, data destination, and that their participation was voluntary and the results are treated complying with the principles of confidentiality, thus guaranteeing the anonymity of their information. It is worth stressing that over the application of the data collection instrument, the researchers explained the specific terms of Dentistry (dental plaque, dental caries, and periodontal pathology), in order to avoid untrue results.

Data were recorded in writing in the collection instrument itself, then, they were organized in the

software *Microsoft Excel 2007*, by using simple descriptive statistics, through absolute and relative frequencies. This research complied with all ethical issues of researches involving human beings; it was approved by the Research Ethics Committee of Faculdade Santa Maria (FSM), under the Protocol 940102011.

Results

Two sociodemographic questions open the survey form: age group and educational status (Table 1). Highlighting them is relevant to the extent that oral health status is influenced by social factors, such as age, sex, age group, and schooling[8,12].

Table 1. Age group and educational status of pregnant women receiving prenatal care at the FHS. Bonito de Santa Fé, Paraíba, Brazil, 2011

Variables	*N*	%
Age group		
18-35 years	22	88
> 35 years	03	12
Educational status		
No study	01	04
Complete Primary Education	03	12
Incomplete Primary Education	10	40
Complete High School	03	12
Incomplete High School	03	12
Complete Higher Education	03	12
Incomplete Higher Education	02	08

Source: Prepared by the authors.

As for the age group, 22 (88%) out of the 25 selected pregnant women were at the age group from 18 to 35 years, with a prevalence of young women as found by a similar survey that aimed to evaluate the perception of oral health status among a group of pregnant women, by applying the General Oral Health Assessment Index (GOHAI)[13].

Despite the young age, data indicate an apparently positive situation, because another study pointed out that young mothers have a higher propensity to incorporate healthy habits[5]. Also, the prevalent age group in this research may be regarded as appropriate for a low-risk pregnancy. Age > 35 years is regarded as a factor for high-risk pregnancy; the most favorable age group for pregnancy ranges from 20 to 30 years[14].

Nevertheless, the question remains: Is the younger age group actually more likely to receive information? After all, in this study, we observed that most subjects do not have access to it, perhaps due to low education level and to cultural factors strongly marked in the Northeastern Brazil.

Regarding educational status, 14 (56%) out of the 25 selected pregnant women had few schooling years. It is noteworthy that only 3 (12%) of them had complete Higher Education, while most had only complete Primary Education, i.e. they had a low education level. Data related to few schooling years were also found in similar surveys carried out in Sousa, Paraíba, Brazil, and in Araraquara, São Paulo, Brazil, although these towns are from different regions and have different realities[4, 13].

Educational status constitutes an indicator of greater or lesser demand for prenatal and dental consultations, with better oral health prognoses among the pregnant women having a higher education level. Therefore, the literature recognizes that low education level is a risk factor concerning oral health[8, 12, 15].

Considering exposure, it is up to the multiprofessional health care team responsible for providing the pregnant women with care to adapt language to their education level, since communication between the parties and understanding of guidelines is key for a healthy development of the binomial mother/child[16]. This adaptation leads to greater trust between the professional and the pregnant woman, providing the stimulus to self-care, an excellent opportunity to conduct a survey and provide treatment and preventive education on many illnesses, covering oral pathological processes, as well as beliefs, myths, and fears related to dental care during prenatal care[17].

It is also worth mentioning that the women participating in this study were asked about their contact to the dental surgeon after their pregnancy was confirmed. Data showed that only 6 (24%) out of the 25 pregnant women stated to have sought the dentist once. Other studies had similar data in this regard[5, 10, 18]. The literature also warns that there is a culture that discourages dental care during pregnancy and such a devaluation corroborates health professionals' views, beliefs, attitudes, and behaviors, causing a limited provision of care, as well as low demand and poor adherence by women[5, 18].

It is noteworthy that being provided with assistance by the health care team at the FHS and, particularly, by the dental surgeon, within the gestational period is a must to the binomial mother/child, because prenatal dental care advocates for health promotion, grounded in the philosophy of intrauterine dentistry, where education starts with the baby still in mother's womb by means of her awareness of the importance of oral health[5, 8].

Thus, there is a need for emphasizing the relevance of regular dental consultations; whether these women are within the gestational period or not, after all, the consultation takes place both when there is an oral health problem and a preventive action aimed at it. So, it is important to provide the first programmatic dental consultation, an indicator of dental care coverage, which enables stimulating the provision of a continued treatment for the population concerned. Another factor is introducing new forms in the Primary Care Information System (SIAB) aimed at pregnant women's dental care, demonstrating the interest and need for such coverage.

Therefore, the results point out the frailty related to knowledge, attitudes, and practices regarding oral health among this audience.

As for the information received on mouth and teeth care during pregnancy, 19 (76%) said they were not instructed, while 6 (24%) selected pregnant women said they were. The results once observed are similar to those from other investigations, where about 80% of pregnant women were not properly instructed with regard to their oral health care[10, 14, 19]. However, data differed from those of another study where 85% reported receiving general oral health information[4].

Given the results, we highlight data concerning the demand for dentists by pregnant women, a factor that partially explains data found on the unawareness once emphasized.

The results suggest that the multiprofessional health care team working in the town under study provides little information on oral health within the gestational period, a fact that requires further attention. Thus, the issue must be addressed in prenatal consultations, by means of an assistance combining the efforts by a physician, dental surgeon, and nurse, key professionals primary of the health care team at the FHS. Therefore, we emphasize the need for joint efforts and resources in an attempt to overcome this frailty.

As for the professional responsible for providing information about dental problems and oral health prevention and promotion, we emphasize that the knowledge obtained by the pregnant women regarding the theme oral health mostly comes from nursing care. This fact may reflect a current reality – interdisciplinarity, which must be explored, since this involves the entire health care team when approaching themes of interest to the community[8].

Pushing these inquiries forward, we highlight women's knowledge regarding oral health problems in Table 2.

Table 2. Knowledge on oral health among pregnant women receiving prenatal care at the FHS. Bonito de Santa Fé, Paraíba, Brazil, 2011

Oral problems	*N*	%
Dental plaque		
Yes	10	40
No	15	60
Dental caries		
Yes	21	84
No	4	16
Periodontal pathology		
Yes	4	16
No	21	84

Source: Prepared by the authors.

Regarding dental plaque, 15 (60%) selected pregnant women said they have no knowledge on the subject. This percentage leads to a question: Has the issue of oral hygiene been addressed during prenatal consultations? Despite this, a study has also shown data as critical as those found by this survey[4].

Therefore, the result is critical, since dental problems play a major role during pregnancy. When a pregnant woman seeks a dental surgeon, this professional must provide all relevant information regarding the periodontal factors related to pregnant women's oral health, enabling clarification and subsequent adoption of oral care actions required to prevent dental plaque and other dental problems. Such information, however, must be conveyed in in clear and accessible language[17]. Another indispensable issue is encouraging pregnant women to seek dental services, which can also provide the needed information.

Concerning the issue dental caries, 21 (84%) selected pregnant women said they had some knowledge and 4 (16%) of said they did not. Similar results were found in other surveys[4, 13].

Since this is the problem most commonly found in the oral region, as well as that dentists address the most, the general population seems to have greater knowledge about it, including pregnant women. Nevertheless, dental caries still constitutes a major barrier in the area of oral health, and it is quite common during pregnancy.

Their repercussions range from discomfort to mutilation, with major psychological and aesthetic consequences[20]. Dental caries require the work by a multidisciplinary health care team, which must act in a preventive way by means of actions introduced within the first gestational trimester, using educational methods and relying on the participation and integration of related areas[4, 21].

Concerning periodontal pathology, 21 (84%) pregnant women reported not knowing it. Similar results were found by another survey on the topic and they may be related to a poor approach to the issue in prenatal care consultations or by dental surgeons[4].

Also regarding periodontal pathology among Brazilian pregnant women, surveys point out a prevalence that ranges from 10.1% to 100%[22-23]. Some contributing factors to this health problem are: inadequate teeth cleaning and low education level[24]. There is a need to be alert about this illness, because it is highly incident worldwide and commonly associated with pregnancy, constituting a potential cause of maternal eclampsia, premature birth, and low birth weight[7-8, 13, 25-26].

This context highlights the importance that health professionals recognize the pathology, as well as the woman herself; it is a must that pregnant women seek proper dental treatment if needed, preferably within the second gestational trimester. Knowing the cited oral pathological processes is crucial to take health prevention and promotion actions during pregnancy[4, 21].

Other information explored in this survey referred to the influence of oral problems on a person's overall health. Thus, 18 (72%) pregnant women reported that oral problems affect their overall health status, in turn, 7 (28%) do not recognize or are unaware of this relationship.

Although they are rather positive than negative, such percentages are a matter of concern, because failure to recognize the association between overall health status and oral health may indicate that a pregnant woman does not seek dental care, due to insufficient information about its availability or even the lack of training of some professionals at the FHS with regard to the pregnant women's oral health[27].

Given the above, it is worth stressing that a poor oral health status tends to impair a pregnant woman's health, as well as her child's health, something which requires quick interventions[7,26].

In terms of their own oral health, 16 (64%) participants claimed it was good; 8 (32%) said it was mean; and 1 (4%) pointed out it was great. The results demonstrate a pregnant woman's positive perception, however, a study on the oral health status perception among pregnant women in the town of Araraquara, São Paulo, Brazil, found out that 42% of them rated it as "good" or "excellent" and 46% as "mean", differing from the values observed in this investigation[13]. As for oral problems during pregnancy, 13 (52%) participants said they did not have them and 12 (48%) said they have, pointing out as the most affected regions the gum (8%) and teeth (40%), perhaps indicating gingivitis, dental caries, or teeth mobility associated with periodontal pathology. Such results corroborate other studies, which evidence oral changes in some pregnant women, especially illnesses that occur in the gum[13, 28].

Regarding actions taken to provide oral hygiene, as participants could select more than one alternative, 35 analysis units were generated; thus, 24 (69%) analysis units referred to brushing teeth with toothbrush, fluoride toothpaste, and water; 6 (17%) were related to using dental floss or toothpick; and 5 (14%) involved mouthwash.

During pregnancy, keeping healthy teeth involve the same actions required from a non-pregnant woman, so, addressing the need for a good oral hygiene stands out over prenatal care. Some of these actions are: avoiding the consumption of sugary foods; brushing teeth at least three times a day observing the correct use of toothbrush and dental floss; and using fluoride toothpaste also to brush the tongue, because bacteria are deposited in it. Finally, there is a need to not forget visiting the dentist on a regular basis and asking her/him to provide teeth cleaning[24].

However, what we see is that there are deficiencies in the implementation of oral health in the FHS, as it was possible to include in a survey conducted in São Paulo. The study showed that users were unable to use the health care services in oral health. "Some dissatisfaction were detected: the constant changing of the dentists in the team - compromising the link, lack of patients' autonomy in relation to their own oral health, as the way how it is applied the equity principle to prioritize the cares"[29].

In the end, left to the prerogative of the knowledge, attitude and practice related to maternal aspects contributing to maternal and child health are elements affected by the mother's education and training, as evidenced by a study on the knowledge, attitude and practice of exclusive breastfeeding among mothers in two semi-urban areas a Baby Friendly Hospital Initiative (BFHI) designated Hospital in Lagos State, Nigeria[30, 31].

Through the results obtained here, we emphasize that the aim of this study was achieved, since they provide relevant insights on knowledge, attitudes, and practices in oral health among pregnant women at the FHS during prenatal care.

The selected pregnant women showed to have a poor knowledge on the issues related to oral health during pregnancy and they also have attitudes and practices either positive or negative in this regard, something which reveals the need for adopting strategies that enforce the proposed oral health care in the Family Health Strategy.

Participants also point out that PHC still does not seem to be able to comply with the principles of the Brazilian Unified Health System on a consistent basis, particularly with regard to the provision of a comprehensive health care, corroborating the need to review the work process at the FHS. Health education actions may be useful to encourage women to deploy self-care measures, which reflect on an improved care for their babies, minimizing the repercussions of the lack of information on oral health among them.

We hope that this article can contribute to move forward in the search for providing a comprehensive health care over the gestational period, with practices aimed at a better nursing care, as well as a better assistance by the other health care team members, so that the binomial mother/child can enjoy the benefits of a good oral health.

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Drug induced exfoliative dermatitis in children

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Abstract

Objective: Exfoliative dermatitis is an inflammatory skin disease characterized by generalized erythema and scaling that is induced by different diseases or medications.

Method: In this article we describe 16 children with drug induced exfoliative dermatitis which were recorded during 9 years (2004-2013) in the pediatric infectious disease ward and clinic of Imam Reza hospital (Mashhad Iran).

Results: Anti epileptics were the most common offending medicines for drug induced exfoliative dermatitis (68.7%) and antibiotics were the second group (26.6%). Erythroderma (100%), scaling (100%), fever (93%) and generalized lymphadenopathy (87%) were the most common signs. Eosinophilia was seen in 31% of them. Five of the patients were admitted with initial diagnosis of Kawasaki disease. The mean interval between consumption of the responsible drug and appearance of drug induced exfoliative dermatitis was 20 days. The mean length of erythroderma was 25 days. One of the patients died with nosocomial septic shock.

Conclusion: Drug induced exfoliative dermatitis should be considered in children with erythroderma and generalized exfoliation and as a differential diagnosis of Kawasaki disease.

Key words: Exfoliative dermatitis, Erythroderma, Children

Introduction

Drug induced cutaneous reactions are the leading type of adverse drug reactions in hospitalized children. In outpatient settings 2.5% of children who receive a medicine, and up to 12% of whom treated with an antibiotic experience this problem. Drug induced exfoliative dermatitis is a sever erythematous scaly cutaneous disorder which involves total or near total body surface. Malaise, pruritis and a chilly sensation are the most frequently noted symptoms. Fever and hypothermia lymphadenopathy, hepatomegaly, splenomegaly and foot edema are other clinical signs. Mild anemia, leukocytosis, eosinophilia and elevated ESR are common laboratory findings. Drug induced exfoliative dermatitis is an uncommon dermatologic problem, especially in children, it accounts for about 1% of all hospital dermatologic admissions and the mean age at onset is 55 years. This dermatitis can be a life threatening condition by its complication such as infections and fluid and electrolyte abnormalities (1-5).

Method

In this case series we describe the clinical and laboratory findings of 16 children with drug induced exfoliative dermatitis which we have prospectively recorded their data during 9 years (2004-2013) in the pediatric infectious disease ward and clinic of Imam Reza hospital (Mashhad Iran). In this study a case of drug induced exfoliative dermatitis is a child with acute onset erythroderma accompanied by generalized scaling after receiving a medicine for more than one week but less than 3 months.

Results

The mean age of patients was 8.5 years and 43% of them were girls. Anti epileptics were the most common offending medicines (68.7%) and carbamazepin was the most blamed single drug (33.3%), antibiotics were the second common group (26.6%) and Co-trimoxazole was the most frequent antibiotic that caused drug induced exfoliative dermatitis (13.3%). Underlying atopic dermatitis was present in four cases (25%) (Table 1).

Erythroderma and generalized exfoliation (according to our case definition) were present in all patients, also almost all of them were febrile (15/16) and had generalized lymphadenopathy (14/16). Splenomegaly and conjunctivitis each was seen in half of patients. Hepatomegaly was seen in five patients.

Table 1. The offending drugs in 16 children with drug induced exfoliative dermatitis

Medicine	NO (%)
Carbamazepine	5(31.2)
Phenytoin	2(12.5)
Lamotrigine	2(12.5)
Co-Trimoxazole	2(12.5)
Phenobarbital	1(6.2)
Sodium valproate	1(6.2)
Penicilline	1(6.2)
Nalidixic Acid	1(6.2)
Floxetine	1(6.2)
Total	**16(100)**

Eosinophilia was seen in 31% of the cases. The mean interval between consumption of the responsible drug and appearance of exfoliative dermatitis was 20 days. Eleven (69%) of patients were hospitalized (five of them with initial diagnosis of Kawasaki) and the rest were treated in the clinic with close follow up. From the five children suspected to Kawasaki disease, the vasculitis was confirmed by ecstasies of coronary artery in one child and was excluded by clinical and laboratory findings in others. The child with confirmed Kawasaki was receiving carbamazepin (since 2-3 months ago), therefore exfoliative dermatitis could be drug induced or an unusual manifestation of Kawasaki in this patient. Systemic corticosteroid was given to all patients. The mean length of erythroderma was 25 days in our patients. Unfortunately one patient died with nosocomial septic shock (Table 2).

Table 2. The clinical and laboratory characteristics of 16 children with drug induced exfoliative dermatitis

	Number of patients (%)
Age(mean)	8.5(year)
Female/Male	7/9
Fever	15(93.7)
Scaling	16(100)
Conjunctivitis	8(50.0)
lymphadenopathy	14(87.5)
Hepatomegaly	5(31.2)
Splenomegaly	8(50.0)
ESR(mean)	11
Eosinophilia	5(31.2)
Steroid therapy for ED	16(100)
Hospital admission	11(68.7)
Length of hospital stay (mean)	20(day)

Discussion

Skin rashes are one of the common daily problems in pediatrics clinics. Up to 72% of acute cutaneous eruptions in children are related to viral disorders. Medicines are a common cause of pediatric rashes as well (6). Drug induced rashes are one of the most common medicine side effects in children. Khaled etal have retrospectively reported 90 children (mean age 6.9 years) with cutaneous drug reaction. The clinical patterns were maculopapular eruption (57.7%), acute urticaria (16.6%), fixed drug eruption (14.4%) and erythema multiform (2.2%). The responsible drugs were antibiotics (55.5%), non-steroidal anti-inflammatory drugs (18.8%) and antiepileptic (11.1%). Betalactams were the most common antibiotic cause (32/90; 35%)(7). A Canadian active surveillance network for hospitalized adverse drug reactions (2005-2008) has registered 326 cutaneous adverse drug reactions from ten pediatric teaching hospitals across Canada (>75% of Canada's children). The reactions were sever in 65.6% of cases (erythema multiform, DRESS, serum sickness, Stevens-Johnson and toxic epidermal necrolysis). The leading causes of drug reactions were L-asparaginase (16%), amoxicillin (8.3%), co-trimoxazole (7.2%), carbamazepine (4.9%) and lamotrigine (3.7%).

Exfoliative dermatitis is mainly an adult problem. In one of the largest studies of erythroderma in patients of all age groups out of 80 patients with erythroderma, only seven were children (3). Yuan has reported 82 patients of erythroderma; the Mean age was 53.4 years with just two patients younger than 10 years, the most common cause was pre-existing dermatosis (72.0%, mainly psoriasis), followed by drug reactions (17.0%, most of them Chinese traditional herbal medicines). Itching, fever, lymphadenopathy, hepato-splenomegaly, elevated ESR and Eosinophilia were recorded in 93.9%, 37.8%, 25.6%, 3.6%, 63.% and 20.% of patients in this series (8).

Erythroderma is not a common disorder in the neonatal and infantile period (0.11% of the patients in pediatric dermatology unit) and is etiologically different from older children. In a group of 20 cases of early life erythroderma from India, the causes were infections (40%), ichthyosis (25%), atopic dermatitis (15%), seborrheic dermatitis

(10%) and unidentified (10%)(9). Pruszkowski and colleagues reported 51 neonates and infants with erythroderma; they didn't include erythroderma with blister formation. The etiologies of erythroderma in their group were immunodeficiency (30%), ichthyosis (21%), Netherton's syndrome (18%), eczematous or papulosquamous dermatoses (20%) and unknown origin (5%)(10). In neonatal erythroderma, ceftrioxane and vancomycin are common causes (3). Al-Dhalimi has reported 42 cases of erythroderma in the first year of life (mean age 3 months). The main underlying causes were ichthyoses (31.5%), seborrheic dermatitis (21.4%), atopic dermatitis (14.3%), undetermined (9.5%) Staphylococcal scalded skin syndrome (7.14%) and immune deficiency (4.8%)(11).

Sarkar has reported 17 children with erythroderma (mean age 3.3 years), the leading cause was medicine (29%, mainly antiepileptics and antibiotics) followed equally by genodermatoses, psoriasis and staphylococcal scalded skin syndrome (SSSS) (each one 18%). Fever, lymphadenopathy and hepatomegaly were present in 53%, 18% and 12% of this group respectively. In comparison to our study, although Sarkar's series is not just drug induced erythroderma but in the medicine related part of his patients, anticonvulsants and antibiotics are the main drugs which is similar to our results, the rate of fever, lymphadenopathy and Splenomegaly is much higher in our cases (3). Newell etal reported 32 children (mean age 8.9 years) with anticonvulsant hypersensitivity syndrome from Kansas. Phenytoin, carbamazepin and phenobarbital were the most common implicated drugs. The mean duration of anticonvulsant therapy before onset of symptoms was 3 weeks (20 days in our cases). Fever and rash were seen in all patients (similar to our results), while lymphadenopathy and eosinophilia was registered in 84% and 56% of the cases (87% and 31% in our series). Systemic steroids and IVIG were used in 59.4% and 16% of the children respectively (100% and 6.2% in our study) (12).

Kawasaki is an important differential diagnosis for childhood drug induced exfoliative dermatitis. In our case series 5 of the children were admitted with provisional diagnosis of Kawasaki. Although prolonged fever and rash is common between drug induced exfoliative dermatitis and kawasaki, but history of medicine consumption, generalized lymphadenopathy (instead of localized), scaling at the first days of rash (instead of scaling after defervescence), generalized desquamation (instead of perianal scaling in febrile phase and periungual desquamation after defervescence) and normal ESR are in favor of drug induced exfoliative dermatitis instead of Kawasaki. Mantadakis has reported a 16 months boy with prolonged fever and rash within 4 weeks treatment with phenobarbital. He gradually developed criteria for Kawasaki (strawberry tongue, palms and soles erythema and bilateral non-purulent conjunctivitis) and was treated (two times) with IVIG (each time 2g/kg) without a typical clinical response. ESR and CRP were normal in this boy (5 mm/h and 0.7 mg/dl respectively). He had bilateral multiple cervical lymphadenopathy and developed generalized desquamation after defervescence (13). Hicks has reported a four years old boy with prolonged fever, rash, conjunctivitis, strawberry tongue, palmar erythema and unilateral cervical lymphadenopathy who was treated as Kawasaki but the final diagnosis changed to carbamazepin induced drug induced hypersensitity syndrome and the patients disorder recurred after re-use of the medicine (14).

Conclusion

Drug induced exfoliative dermatitis should be considered in children with erythroderma and generalized exfoliation and also as a differential diagnosis of Kawasaki disease.

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Benefits of Physical Activity to Diabetics

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Abstract

Into diabetics, diabetic neuropathy can be as a result of irregular glycemy for a long time period and physical inactivity. Into instable glycemy patients feel tired, without enthusiasm, no motivation that after follow complains, this is reason of physical inactivity. The aim of study is improving glycemy rates primary, improvement of muscular force and improvement of diabetic neuropathy signs. In study are involved 45 patients with diabetes mellitus that has signs of neuropathy, different ages, 30 persons of working group and 15 persons group control. Those patients were followed for one month, glycemy, neuropathy signs, muscular force and subjective condition, before application of physical activity. All working group has gain positive results as well in decreasing glycey rates, improvement of neuropathy signs, improvement of musical force and subjective condition. The quality of life is improved with motto be active live life.

Key words: Physical activity, Diabetics, glycemy.

Introduction

Diabetic Neuropathy to diabetics is as a result of irregular glycemy for long period of time and physical inactivity. Patients with diabetes with irregular glycemy feel tired, without enthusiasm, without motivation and this is the primary reason of inactivity, and later those symptoms will be seen at the patients.

Goal

The aim of the study is improvement of glycemy values, improvement of muscular strength, improvement of diabetic neuropathy signs, and overall improvement of quality of life.

Material and Methodology

This study was implemented in Service of Endocrinology and Physiatrist, University Clinical Center in Kosovo, Pristina. A confirmation and prior approval of patients was taken by explaining the aim of study. Study has include 45 patients with diabetes mellitus type 1 and 2 of different ages, 30 of them working group and 15 controlled group (that are treated only by drug therapy) were was don psychological preparation and training based on standard protocol of physical activity for patients with diabetes mellitus.

Working group were followed for one month: glycemy, muscular strength (manual test 0-5), neuropathy signs and subjective condition (from 1-4 good, 5-7 very good, 8-10 excellent) before and after physical activity that was applied by free exercise, steptredmil and progressive load exercise.

Study has not included patients with serious: malignant arterial hypertension, cardiac insufficiency, cerebrovascular insult, renal insufficiency, retinopathy proliferative. In order not to cause serious complication because chance of the prospect of tracking all these complications was technically not possible and reason of not provoking eventual deterioration, we had made a choice of patients with diabetes mellitus without those complications.

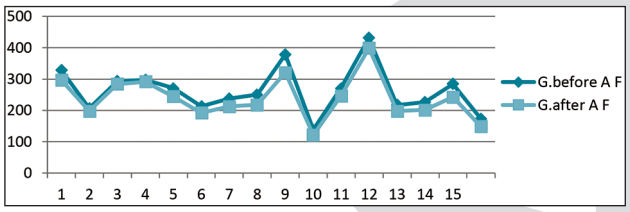
Determination and data measurement

Blood for examination was taking from fourth finger after cleaning with water and soap. The second blood drop was taken for examination and evaluation was done in mg/dcl. Subjective condition was valued based in data of patients with evaluated points from 1 to 10 (evaluation was done based on answers of patients 1, 2, 3 – weak, 4, 5, 6 – good, 7, 8 – very good 9, 10 – excellent). Muscular strength was defined based on manual test with grade of 0-5 based on Lowett (grade 0 tell that does not have muscular activity, grade 1 muscular activity is on trail and through palpation can be noticed, grade 2 muscular activity can be developed if the earth gravitation is avoided, grade 3 muscular contraction is

possible without earth gravitation and can be noticed through palpation, 4 muscular contraction can afford full move without connection of earth gravitation, grade 5 tell that muscle can afford full move and despite maximum resistance of therapist. Physical activity was implemented in three phases: Phase of warming, activity phase (exercise, walking, step-treadmill, and bicycle) and phase of cooling.

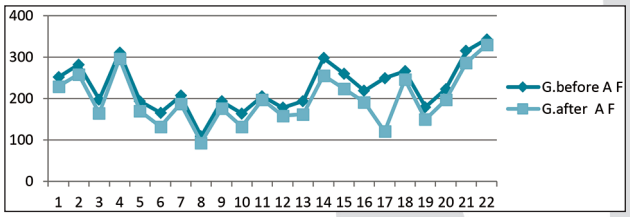
Results

Results of the study consist on the collected data.



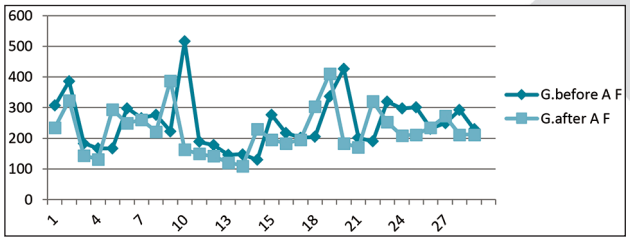
Graphic 1. Glycemy before and after physical activity, diabetes type 1 - male

The graph show reduction of glycemy values after physical activity from 1.021 mg/dl.



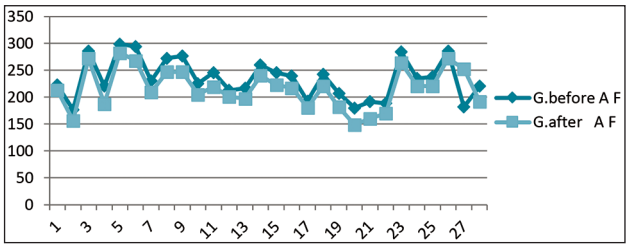
Graphic 2. Glycemy before and after physical activity, diabetes type 2 - male

Reduction of the glycemy values can be noticed from 1660 mg / dl. At this group there were not noticed any differences in glycemy values that are statically important



Graphic 3. Glycemy before and after physical activity – diabetes type-1 – female

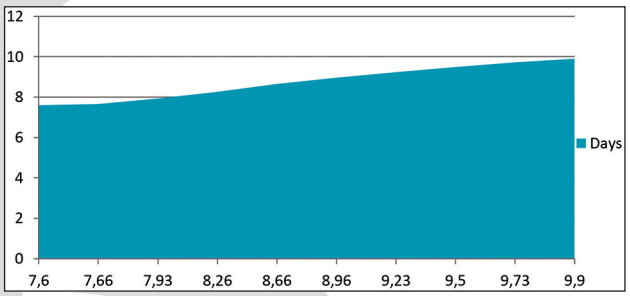
Graphic shows that are reductions on glycemy values before physical activity from 1.459 mg/dl.



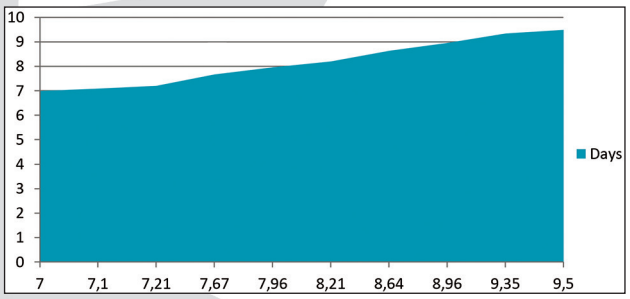
Graphic 4. Glycemy before and after physical activity – diabetic type 2 – female

Graphic shows that there are reductions on values form 1.894 mg/dl after physical activity.

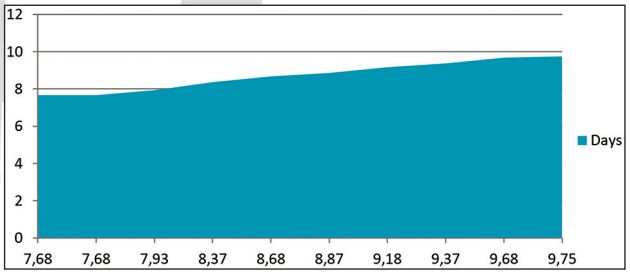
Subjective state



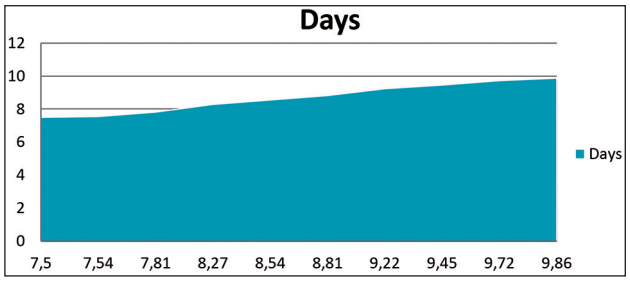
Graphic 5. Subjective state to patients with diabetes mellites type 1 - female



Graphic 6. Subjective state to patients with diabetes mellites type 2 – Female

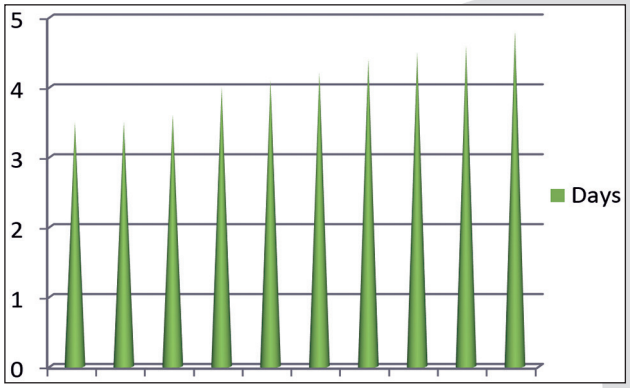


Graphic 7. Subjective state to patients with diabetes mellites type 2 – male

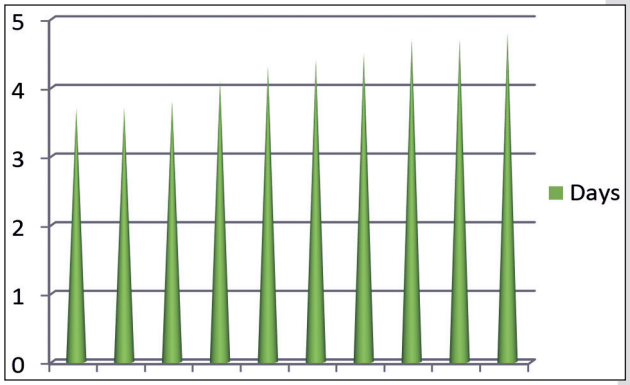


Graphic 8. Subjective state to patients with diabetes mellites type 2 – male

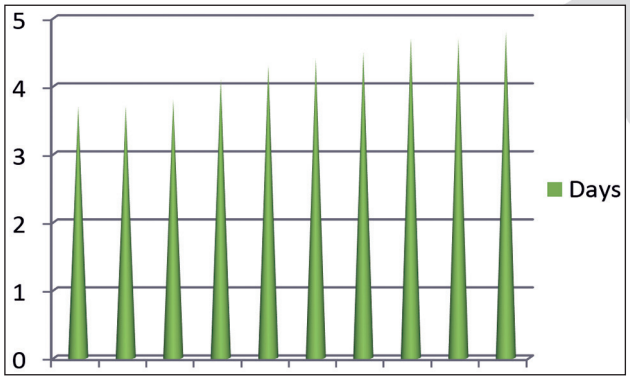
Muscular Strength



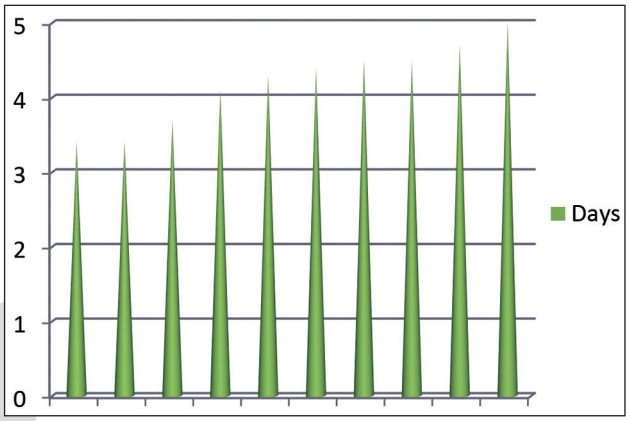
Graphic 9. Valuation of physical activity to females with diabetes mellitus type 1 in muscular strength



Graphic 10. Valuation of physical activity to females with diabetes mellitus type 2 in muscular strength



Graphic 11. Valuation of physical activity to males with diabetes mellitus type 1 in muscular strength



Graphic 12. Valuation of physical activity to males with diabetes mellitus type 2 in muscular strength

Discussion

After applying physical activity there has been a reduction in values of Glycemy in both types of diabetics and at both genders regardless of the type of activity. Change of values of Glycemy at both genders after physical activity is visible and the average difference is 2.7484 mg / dl. This difference is statistically significant ($p < 0.01$), indicating the effects of applying physical activities in the treatment strategy of the patients with diabetes mellitus. During this study, while applying the physical activity, patients were advised what therapy should they take, getting the food process, keeping the sugar stocks with them, adequate wardrobe and the way of rest.

The results state that physical activities positively affect subjective state which raises optimism and improves quality of life in general, which an important element at many patients with diabetes mellitus knows that the state of mind affects the blood sugar values. Based on the results from the study, physical activity has its benefits in improving the patient's situation in the sphere psychoemotional at both types of diabetes and two genders. Because of inactivity which comes as a result of bad mood of the patient as a result of higher values glycemy, affects the patient further followed by reduction of muscle strength, fatigue and gradually leads to muscular hypothrofia which deepens many health conditions in general. Muscular force is an important parameter in maintaining organic vitality in general, and by applying physical activity it gradually is recovered. In the study

we see that with the increase of muscular strength it results in the improvement of signs of neuropathy. After applying of physical activity for all patients, their signs of neuropathy were improved with different intensities, depending on the type and the duration of the exercise.

In the study all the suggested exercises were applied to voluntarily patients, they agreed to the exercises because they were attracted to them. Group exercises are even more effective, it had the affects psycho-emotional state, physical condition and it brings positive results day by day..

No matter the type or gender is had been proved by this study that the physical activity has a positive impact on their psycho emotional state; these results can be found in other international studies as well.

Applying Physical activity at patients with diabetes has its benefits in psycho-physical condition which increases the energy and enthusiasm of their welfare, improves the level of depression and reduces the need of getting medicine. In this context other researchers were finding the same results at the diabetics under regular insulin treatment that the sensitivity on insulin during physical activity could be improved.

Given the factors related to life and disease, the application of physical activity in everyday life also has its socio-economic benefits which increases optimism, reduces symptoms of illness, absence from work, reducing drug costs, avoidance of frequent medical visits, facilitates difficulties, economic, psychosocial between patient family and friends.

In the context of physical activity it is important to improve the quality of life and not allow that the patient feel lonely or be closed indoors, thus affecting positively his psycho-emotional situation and his life style.

Applying the physical activity reduces the risk factors, preventive measures, progress of the disease and it reduces the feeling of being ill.

Completion

Based on the results obtained in the study we concluded that:

1. Physical activity must be an integral part of the life of the patient with diabetes mellitus, aiming lowering the values of glucose.
2. Physical activity reduces feelings of depression, anxiety and restores confidence to patients.
3. Physical activity should start slowly and gradually increase in intensity in order not to get to tired or eventual deterioration of their condition.
4. Physical activity can apply to any age and at any time.
5. It represent a very attractive form of treatment for the patients and it does not requires special tools, special conditions and does not require high cost.
6. Apply physical activity to improve the quality of life.
7. Exercise – Live an active Life.

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Abstract

In this paper the instructions for preparing camera ready paper for the Journal are given. The recommended, but not limited text processor is Microsoft Word. Insert an abstract of 50-100 words, giving a brief account of the most relevant aspects of the paper. It is recommended to use up to 5 key words.

Key words: Camera ready paper, Journal.

Introduction

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Table 1. Page layout description

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Bottom margin	20 mm
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Column Spacing	5 mm

Regular paper may be divided in a number of sections. Section titles (including references and acknowledgement) should be typed using 12 pt fonts with **bold** option. For numbering use Times New Roman number. Sections can be split in subsection, which should be typed 12 pt *Italic* option. Figures should be one column wide. If it is impossible to place figure in one column, two column wide figures is allowed. Each figure must have a caption under the figure. Figures must be a resolution of 300 DPI, saved in TIFF format, width 10 cm min. For the figure captions 12 pt *Italic* font should be used. (1)

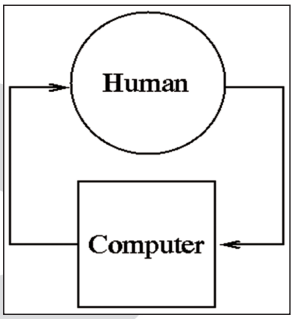

Figure 1. Text here

Conclusion

Be brief and give most important conclusion from your paper. Do not use equations and figures here.

Acknowledgements (If any)

These and the Reference headings are in bold but have no numbers.

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1. *Sakane T, Takeno M, Suzuki N, Inaba G. Behcet's disease. N Engl J Med 1999; 341: 1284–1291.*
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