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Editorial

Epidemiology of Vector Borne Diseases (VBDs)

Small bite big threat is slogan by World Health Organization for year 2014 duly emphasizing the killing nature of Vector-borne diseases (VBDs). Due to changes in global warming, the epidemiology of Vector-borne diseases is changing. Man-made catastrophes have shifted many tropical diseases to sub-tropical areas and new areas are being infected each day. For example Pakistan had suffered the small and very large epidemics of dengue fever since 2009.

Half of the world's population is at risk of developing VBDs constituting 17% of all infectious diseases with more than 1 million deaths annually. Important vectors are mosquitoes, flies, bugs and ticks causing malaria, dengue, yellow fever, Japanese encephalitis, Leishmaniasis, Congo Crimean hemorrhagic fever, schistosomiasis.

When we overview the morbidity and mortality associated with major vector borne diseases, 207 million cases of malaria in 2012 were reported causing an estimated 627,000 deaths. Similarly 50–100 million dengue infections occur worldwide every year. 900 million people are at risk of developing Yellow fever with an estimated 200,000 cases and 30,000 deaths worldwide each year. Japanese encephalitis signifies 68,000 clinical cases every year with 3 billion people at risk in 24 countries. The case-fatality rate among those with encephalitis can be as high as 30%. Permanent neurologic or psychiatric sequel are expected in 30–50% of those with encephalitis leading to high burden on rehabilitative services. Likewise Leishmaniasis, Crimean Congo fever also need special attention.

The need of hour is preferably health education regarding the integrated management of vector control with novel and environmental friendly techniques along with advocacy for reduction in biomass fuel usage and waste production. Agricultural countries like ours may easily counter these diseases if different behavior change interventions are applied to control the disease. We have seen a change in vector prevalence after dengue epidemic only because of political commitment.

Prof. Dr. Muhammad Shahid Iqbal

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Hospital Waste Management (HWM) Plan Implementation In Health Care Facilities In District Narowal, Punjab, Pakistan

Ejaz Mahmood Ahmad Qureshi, Seemal Vehra, Khalid Ismail, Khalid Javid and AB Tabinda

Objective: To determine the implementation status of existing HWM management plan in waste collection, transportation, storage and final disposal in health care facilities (HCF) in District Narowal.

Material & Methods: This descriptive, observational study was carried out in seven waste generating units (radiology, laboratory, dental, surgical, medical, gynecology/ obstetrics and emergency departments of the nine health care facilities (HCFs). Collected data was entered and analyzed using software Epi Info 3.5.1.

Results: Out of 9 HCFs, 8 (88.9%) facilities had prepared policy regarding hospital waste management (HWM). In 7 (77.8%) hospitals, supervision of action plan for waste management was done. Training program for staff was actively followed in 5 hospitals. Only one hospital had incinerator supervisor. Land filling, the cheapest option for waste disposal was not being effectively used. Landfill sites were available in only 3 hospitals. Although waste bins were provided for patients and visitors in all hospitals and the waste was segregated in 8 hospitals, the color coding scheme of waste collection was not properly followed. Manual/guideline on waste management was not available in most of the hospitals. The incinerator services were also found to be unsatisfactory.

Conclusion: For the safety of waste handlers, a wholehearted effort should be made with the involvement of both HCFs staff and general public. Although some efforts had been made in this regard, still there is a need to do more to improve the existing situation.

Keywords: Healthcare facilities, healthcare waste, waste management plan

Introduction

Waste generated at HCFs is a special type of waste, produced in small quantities with high potential of infection and injury. Improper handling may have serious public health consequences and hence a considerable impact on the environment.¹ In developing countries, knowledge regarding health facilities waste management in terms of collection, segregation, storage, transportation and disposal is lacking.² Studies in Pakistan showed that around 0.8-2.0 kg of waste/bed/day is produced, out of which 0.1- 0.5 kg can be categorized as risk waste.³ HCFs waste includes hazardous or risk waste and non-risk waste. The different types of risk wastes are: pathological, infectious, sharps, pharmaceutical, genotoxic, chemical and radioactive wastes while the non-risk wastes comprise of garbage like cardboard, packages and foodstuff leftovers etc.³

In recent years, medical waste disposal has created more difficulties due to repeated use of disposable needles, syringes and other similar items in most of the developing countries. Pakistan is also facing this problem. Around 250,000 tonnes of medical waste is annually

produced from all sorts of HCFs in the country. This waste is a potential risk for health care providers and patients along with environmental degradation as it has contaminated the land, air and water resources. 15 tons of waste is produced daily in Punjab.³

The quantity of bio-medical waste generated varies depending on the hospital policies and practices and the type of care being provided. According to a World Health Organization (WHO) report, around 85% of the hospital wastes were actually non-hazardous, 10% infective (hazardous), and the remaining 5% non-infectious but due to ineffective practice of segregation, waste is mixed with the result that whole waste becomes hazardous.⁴

The fact that only few studies are available regarding determination of implementation status of HWM plan especially at district level, this study was planned. This study analyzed practices and policies regarding hospital waste management at district level (District Head Quarter (DHQ) Hospital) and sub-district level (Tehsil Headquarter (THQ) and Rural Health Centers (RHCs) hospitals) and will help in prevention and control of infectious diseases in

these hospitals.

District Narowal is situated in the northeast of Punjab province of Pakistan. It has three tehsils i.e. Narowal, Shakargarh and Zafarwal. The total area of district is approximately 2,337 square kilometers. Its population is about 1,256,097 of which only 12.11% is urban. District Narowal has one DHQ, one THQ, 7 RHCs and 57 BHUs (Basic Health Units).

The main objective of the study was to determine the implementation status of existing HWM practices in waste collection namely segregation, transportation, storage and final disposal at district level and sub-district level hospitals of District Narowal.

Material & Methods

Study Design

Descriptive / observational study

Place of Study & Sample Size

All RHCs, THQ and DHQ hospitals of District Narowal

Study Population

Seven waste producing departments (medical, surgical, gynae/obs, radiology, laboratory, dental surgery and emergency departments) of nine health care facilities (RHCs, THQ and DHQ) of District Narowal

Sampling Unit

Waste producing departments of RHC, THQ and DHQ Hospitals and in-charge hospital waste management committee.

Study Duration

Six months

Data Collection Tools

Check list, interviews (with in-charges of hospital waste management committees and waste collection staff) and observation of waste generating units of RHCs, THQ and DHQ Hospitals

Methods Used For Data Collection

Information about infrastructure, waste management policy, monitoring, supervision and training of staff was taken from in-charge waste management committee of hospital.

Information about waste management practices was taken with the help of checklist and interviews of the health managers and waste handlers by using semi structured questionnaire.

Data Processing & Analysis

The frequencies of all variable were obtained and final analysis was made with the help of

computer software program Epi Info 3.1. Confidence limit of 95% was calculated using standard error of a mean and a standard error of a proportion for variables. Chi-square test was used to know association and significance between different variables with respect to outcome variables.

Ethical Considerations

Formal consent and permission was taken from concerned authority to conduct the study. Verbal consent was taken from respondents. Privacy and confidentiality was maintained at all levels in accordance with principles laid down in Helsinki Declaration of bioethics.

Results

The survey results for provision of HWM guidelines in HCFs indicated that most of the hospitals (88.9%) had prepared the policy for HWM and were following it. Hospital specific waste management had been prepared in 66% of the hospitals. Supervision and monitoring of action plan for HWM was also found to be satisfactory (77.8%). On the other hand, recycling and waste storage policy was not being followed. Funds allocated for HWM had not been spent in any of the hospitals (**Table 1**). **Table 2** shows that DHQ hospital employees had received technical training. Six nurses, 6 bearers and the same number of sanitary workers had received training whereas one medical officer, one operation theater assistant, one dental technician and one sanitary worker had received training. **Table 3** shows that 88.9% of workers had been vaccinated against Tetanus and Hepatitis B. 33% of HCFs had displayed written instructions for spillage and accidents. 44.4% of HCFs had given instructions to HWM teams regarding protective gears and clothing. Only 22.2% of HCFs had provided strong footwear to workers. The major energy source for incinerators was electricity (33%) followed by natural gas (11.1%), whereas coal was not used (**Figure 1**). All hospitals used wheel barrows for transportation of waste, while 66.6% and 22.2% used open baskets and trolleys respectively. Covered carts were not used by any hospital.

Discussion

The proper management of hospital waste depends on organization and administration

Table 1: Provision of HWM guidelines in health care facilities in District Narowal (n=9)

Sl. No.	Variable	Freq	%age
1.	Manual/guideline on waste management prepared and followed	8	88.9%
2.	Hospital specific waste management plan prepared	3	33.3%
3.	Effective recycling policy	6	66.7%
4.	Coordination with pollution control boards	0	0.0%
5.	Standard waste storage policy	1	11.1%
6.	Procedures for collection and handling of wastes in hospital provided	0	0.0%
7.	Job descriptions of hospital waste supervisory staff prepared and followed	1	11.1%
8.	Funds allocated for hospital waste management spent	3	33.3%
9.	Equipment required for waste management purchased and properly maintained	0	0.0%
10.	Supervision and monitoring of action plan for waste management done	1	11.1%
11.	Supervision and monitoring of action plan for waste management done	7	77.8%
12.	Training for HWM staff conducted	5	55.6%

along with adequate legislation, financing and active participation of trained and informed staff. All individuals exposed to hazardous waste are potentially at risk of developing diseases like Hepatitis B, C, HIV/AIDS, injuries etc. The main groups at risk are members of medical profession, patients in the hospitals, visitors to the hospitals, workers involved in hospital related activities (laundry, waste handlers and transporters) and workers in waste disposal facilities such as landfills or incinerators including scavengers.

Present study was conducted to know existing practices in the implementation of HWM plan at district and sub-district levels. The results of this study exhibited better scenario than the study conducted by Farzadkia et al in 2009 who reported that many of hospitals in Iran have neither a satisfactory waste disposal system nor a waste management and disposal policy.⁴

As far as the collection, segregation, transportation and storage of waste was concerned it was quite evident from the results of the study that all types of waste including general, infectious, chemical and microbiological were collected but the colour coding system of waste collection after segregation was not properly adopted in 40% of the hospitals. In contrast to this, Rasheed et al (2005)⁵ reported in their study that 25% of the hospitals were segregating sharps, pathological waste, chemical, infectious, pharmaceutical and pressurized containers at source, while Wazir et al (2005)⁶ described that although waste segregation point was clearly marked and separate enclosures were available for hazardous and non-hazardous wastes, these were

practically not utilized. Similarly separate services for disposal of infectious & laboratory waste were not used in the majority of hospitals. The persons responsible for loading the trucks were not given any sanitary training and were not even wearing any special protective equipment. This finding of the study corresponds with the study conducted by Wazir et al. (2005), who reported that the Cantonment Board vehicle was without any cover or protection and sanitary workers loaded the waste manually.⁶

Even in the absence of protective gears, clothes and long boots if the waste handlers are vaccinated for Hepatitis B and Tetanus, the possibility of getting infection becomes remote. In the present study, vaccination status of the sanitary workers was found satisfactory as eight (88.9%) hospitals' workers were vaccinated. This corresponds to the findings of study conducted by Wazir et al (2005) who reported that (81.0%) sanitary workers were vaccinated against tetanus and typhoid.⁶

Conclusion

Safe and effective management of waste is not only a legal necessity but also a social responsibility. Lack of concern, motivation, awareness and cost factor are some of the problems faced in the proper hospital waste management. Apathy to the waste management is a major issue in the practice of waste disposal. Effective communication strategy is imperative keeping in view the low awareness level among different categories of staff in the health care establishments regarding biomedical waste management. Proper collection and segregation

Fig-1: Energy source for the operation of incinerator in health care facilities in District Narowal

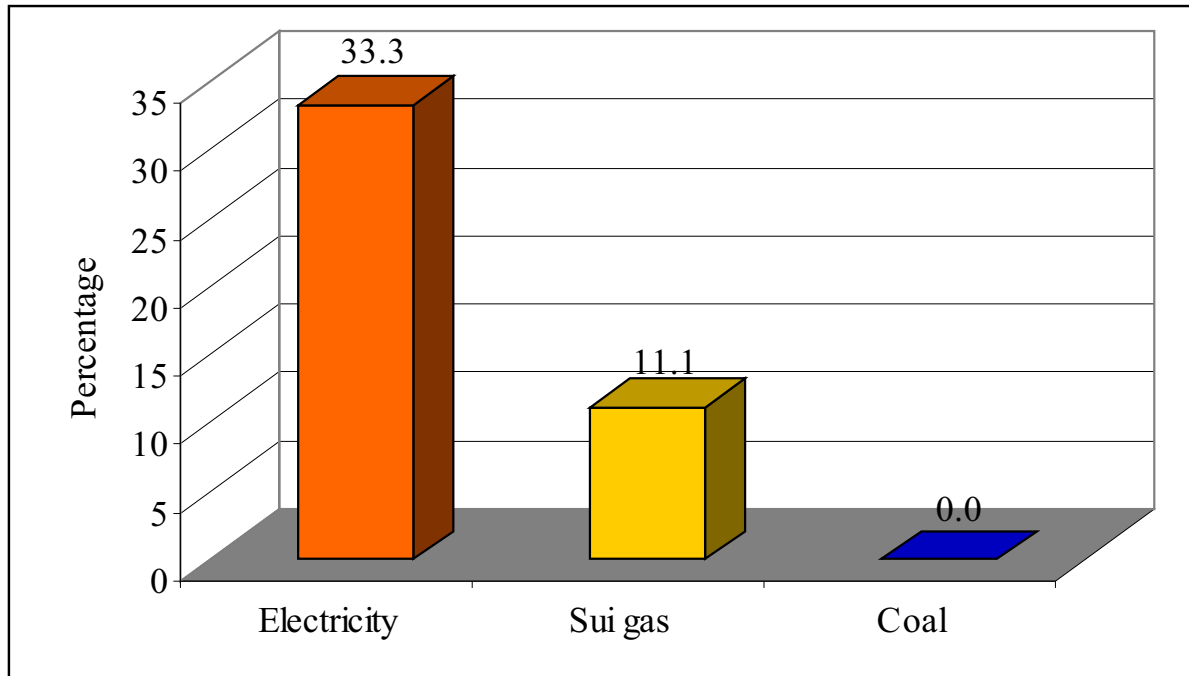
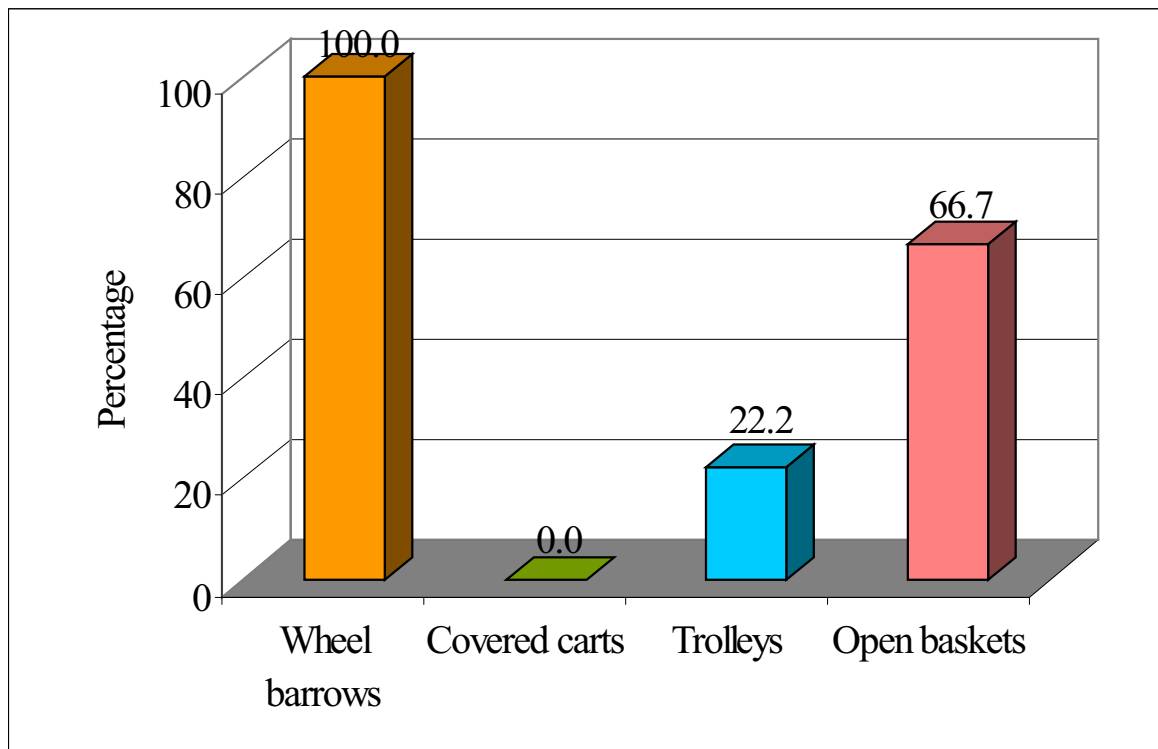


Fig-2: Mode of transportation of waste within the hospital in health care facilities in District Narowal



of biomedical waste is important. At the same time, the quantity of waste generated is equally important. A lesser amount of biomedical waste means a lesser burden on waste disposal

work, cost-saving and a more efficient waste disposal system. Hence, health care providers should always try to reduce the waste generation in day-to-day work in the hospital.

Table-2: Training given to HWM teams in HCFs in District Narowal

Sr.#	Name of Hospital	Training Given to HWM Staff						
		MO	Nurse	OTA	Dental Technician	Sanitary Inspector	Bearer	Sanitary Worker/ Sweeper
1.	DHQ Hospital Narowal	1	6	1	1	1	6	6
2.	RHC Qila Ahmadabad	1	2	1	0	0	1	2
3.	RHC Shah Gharib	0	2	1	0	4	0	2
4.	RHC Sankhtra	0	2	1	0	4	2	2
5.	RHC Zafarwal	0	6	0	0	0	0	3

Table-3: Prevention and safety in health care facilities in District Narowal

Sr.#	Variable	Freq	%age
1.	Hospital waste accessibility to scavengers	0	0.0%
2.	Written instructions in case of spillage/ accidents available	3	33.3%
3.	Protective gears and instructions about their use provided to HWM workers	4	44.4%
4.	Protective clothing provided	4	44.4%
5.	Workers provided strong footwear	2	22.2%
6.	Workers vaccinated against Tetanus	8	88.9%
7.	Workers vaccinated against Hepatitis B	8	88.9%

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Psychosocial Determinants Of Increasing Old Homes In Urban Community of Lahore, Pakistan

Muhammad Wali, Anum Afsar, Anum Amin, Anum Anwar, Anum Mehmood, Hania Amin, Hafiz Abdul Ghafar, Hafiz Ghulam Muhudin and Hafiz Mehmood

Objective: To determine the association between various psycho-social factors and increasing old homes in urban community of Lahore, Pakistan.

Material & Methods: This population based case-control study with 1:1 case to control ratio was conducted in Lahore urban community from May 2010-July 2010. A total of 100 persons (50 cases and 50 controls) were recruited in the study. Selection was made on laid down criteria from adult population living in urban community of Lahore after taking due consent. Interviews were conducted through a pretested questionnaire by a 9 member team of 4th year MBBS students of King Edward Medical University, Lahore, under direct supervision of Department of Community Medicine, KEMU. Data was collected, compiled and analyzed through SPSS version 13.

Results: Overall 55% were males and 45% were females. Among cases living in old homes mostly were females (70%), in the age group 60-70 years (74%), and highly educated (64%). In bivariate analysis, increasing old homes in Lahore, Pakistan was found more related with lack of personal hygiene (OR 7.534, 95% CI=3.079-18.436) followed by lack of son (OR 7.167, 95% CI=2.589-19.840), lack of nursing care at home (OR 6.451, 95% CI=2.685-15.500), intolerance for elders (OR 5.031, 95% CI=2.116-11.961), immediate rest after dinner (OR 3.765, 95% CI=1.410-10.051), aggression (OR 3.188, 95% CI=1.403-7.241), communication gap (OR 2.935, 95% CI=1.296-6.647), feeling of deprivation (OR 2.912, 95% CI=1.290-6.571) and mental stress at home (OR 1.808, 95% CI=1.933-10.558). However after multivariate analysis while controlling all other listed risk factors, increasing old homes in urban community of Lahore, Pakistan was found to be significantly related with immediate rest after dinner (OR 3.832, 95% CI=1.340-10.957) and mental stress at home (OR 4.409 95% CI=1.250-15.554).

Conclusion: Increasing old homes in urban community of Lahore, Pakistan was found to be significantly associated with constipation, immediate rest after dinner, joint family system, lack of exercise, obesity, poverty, smoking, excessive intake of spicy food, apathy, mental stress at home and sharing of responsibility.

Key words: Old homes, psychosocial determinants, urban, community

Introduction

Homes where old people live and looked after¹ are increasing in Pakistan. Many NGOs have established such old homes but traditional family system is getting weaker due to breakdown of joint families system to nuclear families.² If unchecked, it will create more problems because in joint family system loving atmosphere of house among members gives security and recognition to old people.

Multiple studies carried out in the past revealed the association of aggression³ alcohol intake⁴ anxiety⁵ & communication gap⁶ with increasing old homes. Many studies highlighted the association of abroad settling of families with the problem.^{7,8,9,10} One study revealed that apathy, poverty and trend of going abroad^{11,12,13} were increasing the old homes in Pakistan. Constipation,¹⁴ dieting,¹⁵ dusty environment,¹⁶ family illiteracy,¹⁷ financial stress¹⁸ and high fat diet¹⁹

were associated with the problem. Multiple studies indicated that depression^{20,21}, apathy^{22,23} smoking,^{24,25} lack of exercise,^{26,27} and joint family system^{28,29} were increasing the number of old homes. Immediate rest after dinner,³⁰ introvert personality,³¹ irregular timings of meal,³² lack of personal hygiene,³³ lack of regular intake of fruits³⁴ and lack of regular intake of vegetables³⁵ were also found to be enhancing the problem. One study highlighted that loneliness at home,³⁶ mental stress at home,³⁷ depression,³⁸ asset distribution among family members,³⁹ lack of exercise⁴⁰ and smoking⁴¹ were increasing the old homes in Pakistan. Other rare causes were lack of personal hygiene,⁴² lack of sound sleep,⁴³ lethargy,⁴⁴ obesity,⁴⁵ overcrowding in houses,⁴⁶ peer pressure,⁴⁷ excessive intake of spicy food,⁴⁸ and terrorism.⁴⁹ Type A personality,⁵⁰ negative impact of media,⁵¹ feeling of deprivation,⁵² incompatibility in life style,⁵³ intolerance for

elders,⁵⁴ lack of nursing care at home,⁵⁵ lack of son,⁵⁶ and loss of blood relations⁵⁷ were found aggravating the problem in different studies. It has been described that pressure from daughter in law for shifting,⁵⁸ quarrelsome habit of elders,⁵⁹ sharing of responsibility,⁶⁰ undue interference in family matters,⁶¹ and westernization⁶² were strongly linked with increasing old homes. Increasing old homes is emerging as a major social & economical issue in urban communities. Little work has been done in finding the association of various psycho-social factors with increasing old homes in our community, therefore justifying the dire need to conduct this study.

Material & Methods

A case-control study was conducted to identify various psycho-social factors associated with increasing number of old homes in Lahore urban community from May 2010 to July 2010. Study population was divided into two groups. Case group included adult patients (age >60 years) living in old homes who were not suffering from any other major medical or surgical illness and were fulfilling the criteria laid down for living in old homes.¹ The control group comprised of healthy adults who were not living in old homes or suffering from any other major medical or surgical illness. 50 cases and 50 controls were selected. Eligible cases were randomly selected, while a systematic random sampling approach was used to recruit study controls. Written consent was obtained from all selected study subjects. Data was collected by interviews, conducted by the 4th year MBBS students of King Edward Medical University Lahore, using pretested and close ended questionnaire, while keeping all ethical & social considerations in mind. Data collection was supervised by the staff of Department of Community Medicine King Edward Medical University, Lahore.

Data entry and analysis was done by statistical software SPSS version 13 at computer lab of KEMU. After describing the demographic characteristics as frequencies, simple & multivariate logistic regression was used to calculate odds ratios and 95% confidence intervals.

Results

Among cases living in old homes mostly were

females (70%), in age group 60-70 years (74%) and highly educated (64%). In the control group majority belonged to males (80%), in age group 60-70 years (66%) and illiterate (28%). (**Fig. 1, 2 & 3**)

In bivariate analysis the psychosocial factors which were found significantly associated with increasing number of old homes in Lahore, Pakistan were lack of personal hygiene (OR 7.534, 95% CI=3.079-18.436) followed by lack of a son (OR 7.167, 95% CI=2.589-19.840), lack of nursing care at home (OR 6.451, 95% CI=2.685-15.500), intolerance for elders (OR 5.031, 95% CI=2.116-11.961), immediate rest after dinner (OR 3.765, 95% CI=1.410-10.051), aggression (OR 3.188, 95% CI=1.403-7.241), communication gap (OR 2.935, 95% CI=1.296-6.647), feeling of deprivation (OR 2.912, 95% CI=1.290-6.571) and mental stress at home (OR 1.808, 95% CI=1.933-10.558).

Alcohol intake, anxiety, depression, dusty environment, family illiteracy, haste, high fat diet, introvert personality, lack of incentives, lack of regular intake of fruits, lack of regular intake of vegetables, lack of regular prayers, lack of sound sleep, lethargy, narcotic use, negative impact of media, peer pressure, residence in industrial area, sense of insecurity, terrorism, type A personality, abroad settling of family, apathy, asset distribution among family members, criminal background of parents, incompatibility in lifestyle, loneliness at home, loss of blood relations, misbehavior of family pressure from daughter in law for shifting, quarrelsome habit of elders, undue interference in family matters & westernization were not significantly associated with depression. (**Table 1**)

Multivariate logistic regression model was used to control for possible confounding effect. It was observed that there were some changes between the crude odds ratios and the adjusted odds ratios. After controlling for all the factors studied the strongest statistically significant association was exhibited by immediate rest after dinner (OR 3.832, 95% CI=1.340-10.957) and mental stress at home (OR 4.409 95% CI=1.250-15.554).

Other not significantly associated factors included alcohol intake, aggression, anxiety, communication gap, depression, dieting, dusty environment, financial stress, family illiteracy, haste, high fat diet, introvert personality,

irregular timing of meals, junk food, lack of incentives, lack of interest, lack of personal hygiene, lack of regular intake of fruits, lack of regular intake of vegetables, lack of regular prayers, lack of rest after lunch, lack of sound sleep, lethargy, male dominance, narcotic use, negative impact of media, overcrowding, peer pressure, residence in industrial areas, sedentary lifestyle, sense of insecurity, terrorism, type A personality, abroad settling of family, asset distribution among family members, criminal background of parents, feeling of deprivation, incompatibility in lifestyle, intolerance for elders, lack of nursing care at home, lack of son, loneliness at home, loss of blood relations, misbehavior of family, pressure from daughter in law for shifting, quarrelsome habit of elders, undue interference in family matters and westernization. (Table 1)

Discussion

The determinants of increasing old homes in Pakistan are complex and can differ from country to country or even from one community to another. Many psycho-social factors determine the increasing number of old homes in Pakistan. Our results showed that the risk of increasing old homes in Pakistan increased with immediate rest after dinner³⁰ and mental stress at home³⁷ which are consistent with current body of knowledge.

Many studies showed the relation between aggression,³ alcohol intake,⁴ anxiety,⁵ communication gap,⁶ abroad settling of families,^{8,9,10} trend of going abroad,¹³ dieting,¹⁵ dusty environment¹⁶ family illiteracy,¹⁷ financial stress,¹⁸ high fat diet,¹⁹ depression,^{20,21,38} introvert personality,³¹ irregular timings of meal,³² lack of personal hygiene,^{33,42} lack of regular intake of fruits,³⁴ lack of regular intake of vegetables,³⁵ loneliness at home,³⁶ asset

distribution among family members,³⁹ lack of sound sleep,⁴³ lethargy,⁴⁴ overcrowding in houses,⁴⁶ peer pressure,⁴⁷ terrorism,⁴⁹ type A personality,⁵⁰ negative impact of media,⁵¹ feeling of deprivation,⁵² incompatibility in lifestyle,⁵³ intolerance for elders,⁵⁴ lack of nursing care at home,⁵⁵ lack of son,⁵⁶ loss of blood relations,⁵⁷ pressure from daughter in law for shifting,⁵⁸ quarrelsome habit of elders,⁵⁹ undue interference in family matters,⁶¹ westernization⁶² and increasing old homes in Pakistan. But our research shows no such relation.

Conclusion

Living in old homes was found more among females, in the age group of 60-70 years and highly educated ones. The identified determinants of increasing number of old homes in urban community of Lahore, Pakistan include immediate rest after dinner and mental stress at home.

Limitation of the study

As the exposure and outcome were assessed almost simultaneously in this study, temporal association between increasing number of old homes in urban community of Lahore, Pakistan and factors studied could not be adequately established which can be remedied by conducting a cohort study in a similar population.

Acknowledgment

We, the group members, are thankful to the community's co-operation for data collection, and the staff of computer lab at King Edward Medical University, Lahore for extending nice assistance regarding data entry & analysis. We are indebted to the staff of Community Medicine Department, KEMU for overall help, guidance, training and supervision.

Fig 1. Age distribution

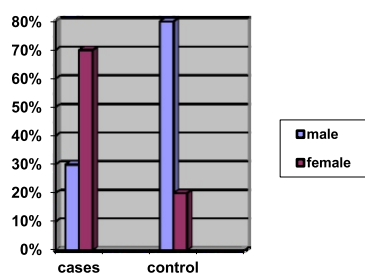


Fig 2. Gender distribution

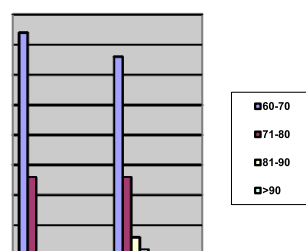


Fig 3. Education distribution

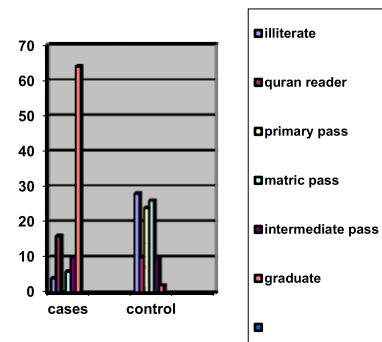


Table. 1. Multivariate logistic regression analysis of effect of psycho-social factors on increasing old homes in Lahore urban community.

Socio-demographic Factors		Increasing old homes		Bivariate Analysis			Multivariate Analysis		
				Crude Odds Ratio	95% CI		Adj. Odds Ratio	95% CI	
		Case n=50	Control n=50		Lower	Upper		Lower	Upper
01	Aggression	68.0%	40%	3.188	1.403	7.241	2.336	.791	6.900
02	Alcohol intake	2%	6%	0.320	0.032	3.184	.522	.047	5.788
03	Anxiety	74%	56%	2.236	0.962	5.197	.905	.283	2.899
04	Communication gap	68%	42%	2.935	1.296	6.647	3.825	1.470	9.952
05	Constipation	12%	40%	0.205	0.073	0.569	.167	.053	.530
06	Depression	36%	44%	0.716	0.321	1.599	.995	.405	2.441
07	Dieting	18%	44%	0.279	0.112	0.696	.371	.127	1.087
08	Dusty environment	34%	48%	0.558	0.249	1.250	.836	.335	2.083
09	Financial stress	36.8%	58.1%	0.039	0.063	0.032	.654	.256	1.672
10	Family illiteracy	68%	76%	0.671	0.278	1.618	.819	.317	2.115
11	Haste	20%	28%	0.643	0.254	1.626	.749	.258	2.177
12	High fat diet	32%	40%	0.706	0.311	1.603	.744	.290	1.905
13	Immediate rest after dinner	86%	62%	3.765	1.410	10.051	3.832	1.340	10.957
14	Introvert personality	40%	42%	0.921	0.415	2.043	1.077	.463	2.505
15	Irregular timings of meals	28%	36%	0.691	0.297	1.610	1.000	.388	2.573
16	Joint family system	46%	76%	0.269	0.114	0.632	.234	.091	.606
17	Junk food	10%	26%	0.316	0.103	0.969	.425	.114	1.582
18	Lack of exercise	24%	56%	0.248	0.105	0.584	.233	.083	.652
19	Lack of incentives	26%	30%	0.820	0.342	1.966	1.179	.277	5.008
20	Lack of interest	54.5%	48.7%	0.629	0.810	0.405	1.249	.284	5.492
21	Lack of personal hygiene	78%	32%	7.534	3.079	18.436	7.929	2.850	22.058
22	Lack of regular intake of fruits	18%	22%	0.778	0.291	2.082	1.235	.341	4.465
23	Lack of regular intake of vegetables	30%	22%	1.519	0.617	3.745	1.408	.462	4.290
24	Lack of regular prayers	30%	40%	0.643	0.281	1.472	.515	.178	1.490
25	Lack of rest after lunch	20%	48%	0.271	0.111	0.658	.481	.169	1.366
26	Lack of sound sleep	30%	34%	0.832	0.359	1.930	5.120	.787	33.316
27	Lethargy	26%	42%	0.485	0.208	1.130	1.171	.202	6.783
28	Male dominance	12%	42%	0.188	0.074	0.477	.259	.049	1.385
29	Narcotics use	6%	18%	0.291	0.074	1.147	.161	.023	1.112
30	Negative impact of media	38%	42%	0.846	0.380	1.885	.619	.208	1.839
31	Obesity	16%	40%	0.286	0.111	0.735	.132	.026	.668

27	Overcrowding in homes	22%	44%	0.359	0.150	0.858	.678	.159	2.890
33	Peer pressure	20%	14%	1.536	0.533	4.422	28.968	3.235	259.422
34	Poverty	16%	58%	0.138	0.054	0.354	.060	.013	.282
35	Residence in industrial area	28%	42%	0.537	0.233	1.237	2.713	.458	16.056
36	Sedentary life style	46%	72%	0.331	0.144	0.760	.364	.091	1.451
37	Sense of insecurity	42%	50%	0.724	0.329	1.594	1.002	.268	3.744
38	Smoking	12%	44%	0.174	0.063	0.481	.109	.025	.478
39	Spicy food-excessive intake	24%	54%	0.269	0.114	0.632	.257	.071	.926
40	Terrorism	76%	60%	2.111	0.892	4.994	.918	.272	3.099
41	Type A personality	38.0%	52.0%	0.565	0.255	1.254	.439	.124	1.550
42	Abroad setting of family	32%	16%	2.471	0.994	6.463	4.266	.987	18.441
43	Apathy	30%	38%	0.699	0.304	1.607	.254	.071	.901
44	Assets distribution among family members	36%	34%	1.092	0.480	2.484	1.887	.543	6.558
45	Criminal background of parents	16%	8%	2.190	0.615	7.808	1.529	.294	7.951
46	Feeling of deprivation	60%	34%	2.912	1.290	6.571	1.151	.328	4.040
47	Incompatibility in life style	40%	22.4%	2.303	0.957	5.540	1.822	.486	6.831
48	Intolerance for elders	62%	24.5%	5.031	2.116	11.961	11.671	2.563	53.158
49	Lack of nursing care at home	74%	30.6%	6.451	2.685	15.500	2.156	.560	8.302
50	Lack of son	50%	12.2%	7.167	2.589	19.840	5.745	1.372	24.051
51	Loneliness at home	46%	32.7%	1.757	0.777	3.973	1.195	.355	4.024
52	Loss of blood relations	22%	8.2%	3.173	0.935	10.770	1.376	.216	8.757
53	Mental stress at home	74%	38%	1.808	1.933	10.558	4.409	1.250	15.554
54	Misbehavior of family	52%	42.9%	1.144	0.654	3.190	.386	.106	1.404
55	Pressure from daughter in law for shifting	26%	28.6%	1.389	0.362	2.129	.864	.270	2.767
56	Quarrelsome habit of elders	22%	14.3%	1.692	0.596	4.803	1.589	.384	6.576
57	Sharing of responsibility	10%	36.7%	0.191	0.064	0.570	.169	.034	.845
58	Undue interference in family matters	22%	20.4%	1.100	0.419	2.886	1.395	.368	5.288
59	Westernization	38%	30.6%	1.389	0.603	3.198	1.198	.413	3.470

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Frequency, Pattern and Outcome of Health Care Associated Infections (HCAI) in Patients Admitted in the Surgical Units of a Teaching Hospital in Lahore

Muhammad Ali, Rabia Arshed Usmani, Taskeen Zahra Sajid and Malik Shahid Shaukat

Objective: To estimate the frequency, pattern and outcome of health care associated infections in patients admitted in surgical units of a teaching hospital.

Material & Methods: A descriptive cross sectional study was conducted in all four surgical units of Jinnah Hospital Lahore from 15th June to 15th August 2011. 304 patients admitted in the surgical indoor for more than 48 hours who did not have any clinical evidence of infection, at time of admission, were included in the study by simple random sampling. Data was entered and analyzed using SPSS version 18.0.

Results: 58 (19.1%) out of 304 patients acquired HCAI. 15 (25.9%) patients developed wound infections; abscess developed in 5 (8.6%) patients, cellulitis in 2 (3.4%), 10 (17.24%) developed pneumonia, 2 (3.4%) developed GIT infections and 7 (12.06%) had blood stream infections. 47(81.1%) patients recovered from HCAI. *S aureus* was most frequently isolated pathogen.

Conclusion: The frequency of HCAI was 19.1%; UTI, surgical site infection and hospital acquired pneumonia were the common infections. Most of them recovered. Patients admitted in hospitals are at a risk of acquiring HCAI from different sources. Adherence to the simple preventive guidelines and active surveillance to monitor changing infectious risks is recommended.

Keywords: Health Care Associated Infection (HCAI), frequency, pattern, outcome, surgical units

Introduction

Health Care Associated Infection (HCAI) is defined as an infection occurring in a patient during the process of care in a hospital or other health-care facility which was not present or incubating at the time of admission. This includes infections acquired in the hospital, and also occupational infections among staff of the facility. Most of the HCAI become clinically apparent during hospitalization; however the onset of disease can occur in a hospital or after a patient being discharged. If the incubation period is not known, the signs and symptoms of infections that develop in 48 hours or more after admission are arbitrarily considered HCAI.¹ Overall 80% of HCAI are health care associated urinary tract infections (UTI), surgical site infections (SSI), hospital-acquired pneumonia (HAP), ventilator-associated infections (VAP), and health care-associated blood stream infections (BSI) which spread by contact, vehicle, airborne, and/or vector borne routes with contact transmission being the most important and frequent. These infections are caused by bacterial, viral and fungal pathogens. In one study, *E. coli* (20.1%) and *S. aureus* (17.8%) were the most frequent single pathogens causing HCAI in mixed patient

populations, thus reflecting the fact that UTI and SSI are the most common type of infections encountered. Other key pathogens were: *Pseudomonas* spp. (11.5%), enterobacteriaceae (10.6%); *Candida* spp. (6.7%); enterococci (6.5%); *Acinetobacter* spp. (5.8%); and coagulase-negative staphylococci (5.3%). All infections have high morbidity and mortality. The risk to acquire HCAI is universal and pervades every health-care facility and system worldwide, but the true burden remains unknown in many nations, particularly in developing countries.

Data from the International Nosocomial Infection Control Consortium and WHO suggests that not only the risks and incidences of health-care-associated infection are significantly higher in developing countries, but its effect on patients and health-care systems is severe and greatly under estimated. Several countries in Eastern Mediterranean Region have prevalence rates of HCAI between 12% and 18%.^{1,2}

Public sector hospitals of both large and small cities of Pakistan are facing multifaceted problems including health care associated infections. Frequent occurrence of multi-resistant-bacteria leading to economic loss, bear

a high health care cost. The increased use of drugs, the need for isolation and the use of additional laboratory and other diagnostic procedures add to the imbalance between resource allocation for primary and secondary health care by diverting scarce funds to the management of potentially preventable conditions.

The objectives of the following study were to estimate the frequency, pattern along with the etiological agents and outcome of health care associated infections among patients admitted in the surgical units of Jinnah Hospital, a tertiary care hospital in a metropolitan city, Lahore.

Material & Methods

This was a hospital based cross sectional descriptive study. Data was collected between 15th June & 15th August 2011, to measure frequency, pattern and outcome of hospital acquired infections in all four surgical units of Jinnah Hospital, Lahore. 304 patients, male and female age above 16 years, admitted in four surgical units for more than 48 hours with no evidence of infection at the time of admission were included by simple random sampling. Patients referred from other hospitals, with evidence of infection & the patients diagnosed to have community-acquired infections were excluded from the study.

The data was collected on pre-tested questionnaire after taking permission from the hospital and verbal consent from the patient. The questionnaire consisted of patient's socio-demographic characteristics; e.g. age, gender, purpose of hospital admission, patient's diagnosis at time of admission, catheterization, status of surgical wound, presence of abscess or cellulitis, urinary tract infection (with positive urine culture), respiratory infection (with development of cough and purulent sputum in case of pneumonia) and blood stream infection (with patient having fever, chills or hypotension; recognized pathogen in the blood of the patient and pathogen not related to an infection at another site; and is isolated from at least two blood cultures drawn on separate occasions from a patient with intra-vascular device). All the routine investigations such as complete blood count, blood sugar level, urine analysis, chest radiograph and culture reports (if already done) were noted from patient file. The relevant investigations including the cultures were

performed according to the clinical presentation of patients. The frequency of presence of infection was assessed by number of patients who were found to have infection; the pattern of infection was determined by the type of acquired infection and etiological agents and outcome was categorized recovered or not recovered. Data was entered and analyzed on statistical program SPSS Version 18. Full confidentiality was ensured.

Results

304 adult patients admitted in surgical units in Jinnah Hospital during 15th June to 15th August 2011, were studied for frequency, pattern and outcome of health care associated infections. The age ranged from 17 to 79 years with a mean of 42 years, 192 (63.2%) were male while 112 (36.8%) were female. Among them 30 (9.9%) were illiterate, 226 (74.3%) had formal education less than ten years while 48 (15.8%) had formal educational of ≥ 10 years. 87 (28.6%) were single, 217 (71.4%) were married. Mean income was 15000 ± 3000 . (**Table 1**).

HCAI was seen in 58 (19.1%) patients. Pattern (type & organism) observed was UTI in 17 patients (29.3%), surgical site infection in 15 (25.9%), soft tissue infection in 7 (12.06%) with abscess developing in 5 (8.6%) and cellulitis in 2, whereas 10 patients (17.24%) developed pneumonia, and 2 (3.4%) had GIT infections. Remaining 7 patients (12.06%), developed blood stream infections.

Urinary tract infection was in 17 (29.3%) patients. On urine culture, the pathogens detected were: *Escherichia coli* in 5 patients, *P. mirabilis* in 2 patients, *Klebsiella pneumoniae* in 02 patients, *P. aeruginosa* in 3 patients, coagulase negative staphylococci in 01 patient, *Staphylococcus aureus* in 1, enterococcus in 2 patients and *Candida albicans* in 1 patient. All patients who had UTI were catheterized. (**Table 2, 3, 4**)

Hospital acquired pneumonia was observed in 10 (17.2%) patients. The identified pathogens in such patients were streptococcus pneumoniae in 2 patients, staphylococcus aureus in 1 patient and coagulase negative *S. aureus*. In remaining 07 patients, 05 had infection with gram negative rods and in 02 patients the pathogens responsible for consolidation (pneumonic patch) during hospital stay were *Klebsiella* and *Pseudomonas aeruginosa*. (**Table 3, 4**)

Soft tissue infection was found in 7 (12.06%) patients, 02 had cellulitis and 05 had abscess. Surgical site infection was observed in 15 (25.8%). Organisms detected in these patients were *S. aureus*, *Pseudomonas aeruginosa* and *Escherichia coli*. Bloodstream infection was detected in 12.06% patients. The organisms identified on blood cultures were coagulase negative staphylococci and *Staphylococcus aureus*, *Enterococci faecalis*, *Klebsiella pneumoniae* and *Enterobacter aerogenes*. The source of such bloodstream infections were intravenous cannulae and central venous line. All such pathogens were detected in blood on culture and sensitivity (blood for C/S). (Table 3, 4)

02 (3.4%) patients developed watery and mucoid diarrhea during hospitalization. The stools of these patients were sent to laboratory for culture and stool assay (for hospital acquired infection by *Clostridium difficile* toxin) which was positive. Most of the patients recovered (81.1%); 11 (18.9%) patients did not recover, least recovery recorded in patients with blood stream infections (28.6%). (Table 5)

Discussion

Infections acquired by the patients during their hospital stay are also discussed under the umbrella of HCAI. These infections are becoming increasingly problematic for hospitalized patients. World Health Organization reports that up to 15% of hospitalized patients suffer from infections associated with health care infections.⁴

In this study, the overall frequency of HCAI in Jinnah Hospital Lahore is 19.0%, which is lower than the previous studies conducted in Pakistan, where the frequency of HCAI was 29.1% by Sheikh et al and 39.1% by Muhammad et al, both conducted in tertiary care hospitals in Hyderabad and Karachi respectively. Relatively higher frequencies were attributed to the fact that both the studies were exclusively on intensive care unit patients, whereas mixed studies show that in developing countries like India and Brazil, hospital-wide prevalence of HCAI varied from 5.7% to 19.1% with a pooled prevalence of 10.1 per 100 patients (95% CI 8.4-12.2) while high income countries had prevalence of health care associated infections not more than 7.1% with 80% and more of such

HCAI occurring in non ICU wards of the hospitals.^{1,5,6}

UTI was the most frequent HCAI in this study. Urinary catheters being one of the sources of infection, in this study all patients having UTI were catheterized. The urinary tract infection was observed in 17 (29.2%) patients. *E. coli*, *K. pneumoniae*, *P. aeruginosa*, *Candida spp* and *P. mirabilis* were isolated. In a study conducted by Farat Ullah and his co workers, UTI was in 33.9% patients, age ranging from 22-45 years and women being most frequently affected with *E. Coli* most frequent causative agent, similar to following study.⁷

The second most frequent HCAI in this study was found to be surgical site infection (SSI) in 25.9% patients. Like the other studies, the most frequent causative agent was *S. aureus* (53.3%) followed by *P. aeruginosa* (26.7%) and *Escherichia coli* (20%). SSIs are the third most frequently occurring infections in the hospital setting. SSI are the most frequently occurring HCAI in middle and low income developing countries with a pooled incidence of 11.8 per 100 patients undergoing surgical procedures. NNIS of Iran also shows that from 2007-2011 the percentage SSI infection was 26.8%.⁸ Higher rates of SSI are probably because it can be identified easily according to clinical criteria. SSI incidence reached 30.2% in the surgical unit of a university hospital in Brazil. Similarly, 30.9% of pediatric patients acquired an infection following surgery in a teaching hospital in Nigeria, adversely affecting the benefits of the surgery.¹ Similar results were depicted in the studies conducted in middle and low income countries where *S. aureus* was the most frequent cause of both SSI and BSI but gram-negative rods were also isolated.⁹

Other infectious site was BSI (blood stream infection). Bloodstream infection (BSI) is a leading, emerging infectious complication among critically ill patients overall, representing about 15% of all health care associated infections and affecting approximately 1% of all hospitalized patients. Common causative organisms for bloodstream infection identified in our study were coagulase negative staphylococci (42.8%) and *Staphylococcus aureus*, *Enterococci* *Enterobacter aerogenes* and *K. pneumoniae* each contributing 14.3% to the infection. Similar pathogens were shown in

Table 1: Socio-demographic characteristics of patients with Health Care Associated Infections admitted in surgical units of Jinnah Hospital Lahore during study period (n=304)

Socio-demographic Characteristics	Frequency	%age
Age of the patients*		
15-29 Years	41	13.5
30-44 Years	81	26.6
45-59 Years	156	51.3
>60 Years	26	8.6
Sex of the patients		
Male	192	63.2
Female	112	36.8
Educational Status of the patients		
Illiterate	30	9.9
Formal Education < 10 years	226	74.3
Formal Education $\geq$ 10 years	48	15.7
Marital status of the patients		
Single	87	28.7
Married	217	71.4
Occupation		
Unemployed	05	1.6
Housewife	91	29.9
Government / Private Employed	96	31.6
Self Employed	112	36.8
Monthly family Income PK Rupees (per month):**		
$\leq$ 10,000PKR	63	20.7
10001- 20000	135	44.4
20001- 30000	86	28.3
>30000	20	6.6

*Mean age of the patient 42 years **Mean monthly income in PKR 15000

Table 2: Frequency of patients developing Health Care Associated Infections in the surgical units of Jinnah Hospital Lahore during study period (n=304)

Frequency of patients developing Health Care Associated Infections	Frequency	Percentage
Yes	58	19.07%
No	246	81.3%
Total	304	100%

Table 3: Pattern of Health Care Associated Infections in patients admitted in surgical units of Jinnah Hospital, Lahore (n=58)

Type of Infection	Frequency	Percentage
UTI	17	29.3%
Surgical Site Infection	15	25.9%
Hospital Acquired pneumonia	10	17.24%
Soft tissue infection (Abscess and Cellulitis)	7	12.06%
Blood stream infections	7	12.06%
GIT	2	03.4%
Total	58	100%

studies conducted by Sheikh et al & Muhammad et al where frequency of blood stream infections was 22.7% and 27% respectively, more than found in the current study (12.06%). All such pathogens were detected in blood on culture and sensitivity (blood for C/S). Similar results were depicted in the studies conducted in

middle and low income countries which showed *S. aureus* being the most common organism for BSI but contradicts the cross-sectional study conducted in ICU patients admitted in a tertiary care hospital in Rawalpindi by Akhtar et al where organisms causing BSIs were *P. aeruginosa* (31.6%), *E. coli* (31.6%), *Streptococcus*

pneumoniae (21.1%), and *K. pneumoniae* (10.5%). This may be due to fact that ICU-acquired infection rate is five to ten times higher than hospital-acquired infection rates in general ward patients. Various trends also show *Klebsiella pneumoniae* as emerging blood stream infection.^{3,9,10}

The study shows that 55.3% of infections were due to gram negative pathogens, 42.5% were due to gram positive organisms and 2.12% were due to *Candida* spp. The most frequently isolated organisms from HCAI were *S. aureus*, *Pseudomonas aeruginosa* and *E. coli*. This is in agreement with previous studies from Pakistan which show that gram negative infections are on the rise. Interestingly, although *S. aureus* is found to be most frequent etiological agent in non-ICU setting, overall gram negative pathogens contributed to more than half of the HCAI.³

Most of the patients recovered (81.1%); the recovery percentage was slightly higher than in the study by Sheikh et al, where 23.5% patients admitted in general surgery wards didn't recover from HCAI.⁵ Recovery was least recorded in patients with BSI (28.6%) followed by SSI and

hospital acquired pneumonia (20% each), UTI (17.6%) and soft tissue infection (14.3%).

Conclusion

From the above descriptive study it was found that the admitted patients in the surgical units are at a risk of developing Health care associated infections. The most common Health care associated infections among the patients were UTI, hospital acquired pneumonia, surgical site infections and blood stream infections. The frequency of HCAI was 19.1%. Most of the patients recovered. A proper reporting and surveillance system should be set up so that exact figures of HCAI can be recorded. It is, therefore, recommended that the standard pre and post operative protocols shall be strictly followed so that full benefits of surgical interventions can be experienced with decrease in the disease burden and cost.

Limitations of the study

Inabilities to include other wards and hospitals, and follow up of the patients after discharge were the limitations of the studies due to resource constraint.

Table 4: Pattern Of Health Care Associated Infections in patients admitted in surgical units of Jinnah Hospital, Lahore (N=58)

Type of Infection	Organism	Frequency	Percentage
UTI	<i>E.coli</i>	5	29.3%
	<i>P.aeruginosa</i>	3	17.6%
	<i>P.mirabilis</i>	2	11.8%
	<i>K.pneumoniae</i>	2	11.8%
	<i>Enterococcus</i>	2	11.8%
	<i>Coagulase-ve S.aureus</i>	1	5.9%
	<i>S.aureus</i>	1	5.9%
	<i>C.albicans</i>	1	5.9%
Total		17	100%
Hospital Acquired Pneumonia	<i>S.pneumoniae</i>	2	20%
	<i>S.aureus</i>	1	10%
	<i>K.pneumoniae</i>	3	30%
	<i>P.aeruginosa</i>	2	20%
	<i>Coagulaseve S.aureus</i>	2	20%
Total		10	100%
Surgical Site Infection (SSI)	<i>S.aureus</i>	8	53.3%
	<i>P. aeruginosa</i>	4	26.7%
	<i>E. coli</i>	3	20%
Total		15	100%
Blood Stream Infections (BSI)	<i>Coagulase-ve S.aureus</i>	3	42.8%
	<i>S.aureus</i>	1	14.3%
	<i>Enterococcus faecalis</i>	1	14.3%
	<i>K. pneumoniae</i>	1	14.3%
	<i>Enterobacter aerogenes</i>	1	14.3%
Total		7	100%

Table 5: Outcome of patients with Health Care Associated Infections in surgical units of Jinnah Hospital, Lahore (n=58)

Health Care Associated Infections	Outcome of patients with HCAI in surgical units		Total
	Recovered	Not Recovered	
UTI	14(82.4%)	3(17.6%)	17
Surgical Site infection	12(80%)	2(20%)	15
Hospital Acquired Pneumonia	8(80%)	2(20%)	10
Soft tissue infection(Abscess & cellulites)	6(85.7%)	1(14.3%)	7
Blood Stream Infection	5(71.4%)	2(28.6%)	7
Gastrointestinal	2(100%)	----	2
Total	47(81.1%)	11(18.9%)	58(100%)

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Impact of Religious Education on the Awareness of Marital Rights in Married Women of 30-50 Years Age

Mussab Ahmad, Maaz Ahmad, Ahmed Bilal, Ali Asad Khan and Ali Tipu

Objective: To determine the impact of religious education on the awareness of marital rights in married women.

Material & Methods: This cross sectional study was conducted in the urban community of Lahore from 1st June to 31st July 2005. 50 cases were randomly selected. The criterion for selection of cases and controls was that they should be married women between the age of 30 and 50 years. A questionnaire was prepared, pre tested and then interviews were conducted. Data was collected, compiled and analyzed using Epi info 3.5.1.

Result: Due to religious education women were found aware of the marital rights of separate home, authority at home and their personal freedom but had no knowledge of their marital rights of haq mehr, khula, respect from their family, earning for her family, freedom of expression, her social interactions and gatherings with other married women and her monthly expenses. Association of religious education with the awareness of rights of separate home and personal freedom was significant whereas no role of religious education in awareness of rights of freedom of expression and respect from her family could be discovered.

Conclusion: Religious education among married women plays a notable role in creating awareness regarding some of the marital rights of women.

Key words: Marital rights, religious teachings, married women, Pakistan.

Introduction

In the light of basic ideology of Islam and Pakistani culture, rights of married women include rights of haq mehr, khula/ divorce, respect from her family, her individual entity, personal freedom, authority at home, attending women social gatherings, establishment of social interactions with other women, freedom of expression and pocket money.¹ Since the birth of Islamic Republic of Pakistan women are being deprived of their fundamental rights.¹ Basic cause of this situation is centered at their low education level resulting in unawareness about their rights and so their inability to raise voice for their rights. As far as sources of awareness of marital rights are concerned, religious teachings are considered to play a significant role² but only few previous studies are available on this specific topic.

One study conducted in Dec 2001 revealed the unawareness of rights of social interaction and social gatherings in married women of Pakistan. This study also emphasized on the unawareness about right of respect from family and personal freedom.³ An article published in Dawn news paper discussed that half of women of villages were unaware of rights of Haq Mehr, Khula, and 80% were unaware of rights of personal freedom and individual entity.⁴ A research conducted by UN in Pakistan found that 50% women were battered and 90% were abused verbally by men.⁵

Absence of comprehensive data about the effect of religious education on awareness of marital rights raises the need to conduct a study on this issue thereby enlisting various sources which serve in increasing religious education so that useful suggestions can be made.

Material & Methods

This cross-sectional study was conducted in urban population of Lahore from 1st June to 15th July 2005 to find out impact of religious education on the awareness of marital rights of women (aged 30-50 yrs). A random sampling technique was used & 50 married women were included in the study. They were interviewed after taking verbal consent through a self-administered and pre-tested questionnaire regarding awareness about their basic marital rights. Data was collected, compiled and analyzed.

Results:

Due to religious education women were found to be aware of the marital rights of separate home, authority at home and their personal freedom but had no knowledge of their marital rights of haq mehr, khula, respect from their family, earning for her family, freedom of expression, her social interactions & gatherings with other married women and her monthly expenses. Association of religious education

with the awareness of rights of separate home and personal freedom was significant whereas no role of religious education in awareness of rights of freedom of expression and respect from her family could be discovered. (**Table-1, Fig 1&2**)

Discussion

In this research, the role of religious education in awareness of marital rights of women was studied. The role of different sources of information was also studied and it was found out that in educated women newspapers played the most important role followed by parental education, television, daras, Holy Quran and madrassahs in order of preference while friends and relatives also played a notable role whereas in uneducated people parental education along with television played the leading role followed by newspapers and madrassahs and Holy Quran and radio played the least role.

As far as right of separate home is concerned religious education is seen to play a strong role which is not in accordance with the previous study conducted in December 2001.³

The awareness of right of divorce/khula is not affected by religious education which matches with the previous studies published in Daily Dawn.⁴

As far as the provision of personal freedom is concerned the results do not match with the article published by the Amnesty International Organization.³

It was observed that religious teachings have not

played a significant role in awareness of rights of social interaction and permission to attend social gatherings. These results are the same as those of previous studies.³

This study has also revealed that religious teachings do not affect the awareness about their rights of earning for their families and their monthly expenses. This factor has not been studied previously; therefore no comparison is available.

Role of religious education in increasing awareness about rights of Haq Mehr and respect from family was undefined which can be modified by increasing sample size.

Lack of religious teachings results in unawareness among the married women about their fundamental marital rights in our social setup. As religious education by print and electronic media plays an important role both in religiously educated and uneducated married women so by improving the availability of these sources awareness about the marital rights can be significantly enhanced.

Conclusion

Religious teachings play a notable role in awareness of the marital rights of separate home, authority at home, personal freedom but the role played in the case of awareness of rights of khula, haq mehr, respect from family, freedom of expression, right to attend women social gatherings and interactions, right of earning for her family and provision of monthly expenses is not effective.

Fig-1 Sources of awareness of marital rights

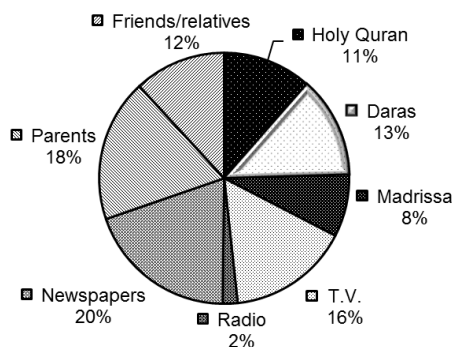


Fig-2 Role of sources of awareness (for religiously uneducated)

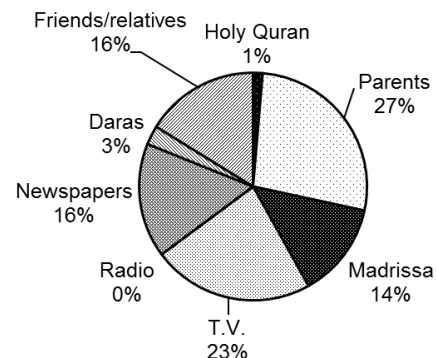


Table-1 Role of religious education in awareness regarding marital rights of women

Marital Right	Education Status	Yes	No	Total	OR (CI)
She can demand for a separate home	Educated	15	16	31	OR = 5 , C.I.(1.04-27.01)
	Uneducated	3	16	19	
	Total	18	32		
Religious education plays a major role in awareness of right of separate home.					
She has the right of Khula/divorce	Educated	26	5	31	OR = 3.78 , C.I.(0.85-17.57)
	Uneducated	11	8	19	
	Total	37	13		
Awareness of right of khula is not influenced by the religious education.					
She can demand for Haq-Mehr	Educated	31	0	31	O.R. = Undefined
	Uneducated	12	7	19	
	Total	43	7		
Role of religious teachings is undefined.					
She is given the personal freedom	Educated	18	13	31	OR = 11.76 C.I. (2.02-89.20)
	Uneducated	2	17	19	
	Total	20	30		
Awareness of right of personal freedom is strongly associated with religious teachings.					
She has the authority at home	Educated	28	3	31	OR = 5.44 C.I. (1-32)
	Uneducated	12	7	19	
	Total	40	10		
Religious education provides awareness about the authority at home.					
She is respected by the family	Educated	31	0	31	OR = Undefined
	Uneducated	18	1	19	
	Total	49	1		
Respect she gets from the family is not associated with religious education.					
She is allowed to interact socially	Educated	9	22	31	OR = 7.36 C.I. (0.80-23.7)
	Uneducated	1	18	19	
	Total	10	40		
Religious education doesn't make a notable influence on permission to interact socially.					
She can attend social gatherings	Educated	14	17	31	OR = 4.39 , C.I. (0.91-23.7)
	Uneducated	3	16	19	
	Total	17	33		
Permission to attend social gatherings is not affected by religious teachings.					
She has the freedom of expression	Educated	16	15	31	OR = 2.98 C.I. (0.75-2.52)
	Uneducated	5	14	19	
	Total	21	29		
Religious teachings do not affect freedom of expression.					
She can earn for herself and her family	Educated	16	15	31	OR = 0.96 C.I. (0.26-3.51)
	Uneducated	10	9	19	
	Total	26	24		
Awareness about earning for the family is unaffected by religious education.					
She is given her monthly expenses	Educated	25	6	31	OR = 2.43 C.I. (0.56-10.73)
	Uneducated	12	7	19	
	Total	37	13		
Provision of her monthly expenses is not associated with religious teachings.					

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Vega K. J., Pina I., Krevsky B. Heart transplantation is associated with an increased risk for pancreatobiliary disease. *Ann. Intern. Med.*, 1996 June 1; 124 (11): 980-3.

More than six authors: Parkin D. M., Clayton D., Black R. J., Masuyer E., Friedl H. P., Ivanov E. et al. Childhood leukaemia in Europe after Chernobyl: 5 year follow-up. *Br. J. Cancer*, 1996; 73: 1006-12.

Organization as author: The Cardiac Society of Australia and New Zealand. Clinical exercise stress testing. Safety and performance guidelines. *Med. J. Aust.*, 1996; 164: 282-4.

No author given: Cancer in South Africa (Editorial). *S. Afr. Med. J.*, 1994; 84: 15.

Volume with supplement: Shen H. M., Zhang Q. F. Risk assessment of nickel carcinogenicity and occupational lung cancer. *Environ. Health Perspect*, 1994; 102 Suppl. 1: 275-82.

Volume with part: Ozben T., Nacitarhan S., Tuncer N. Plasma and urine sialic acid in non-insulin dependent diabetes mellitus. *Ann. Clin. Biochem.*, 1995; 32 (Pt. 3): 303-6.

Personal author(s): Ringsven M. K., Bond D. Gerontology and leadership skills for nurses. 2nd Ed. Albany (NY): Delmar Publishers; 1996.

Editor(s), compiler(s) as author(s): Norman I. J., Redfern S. J., Editors. Mental health care for elderly people. New York: Churchill Livingstone; 1996.

Organization as author and publisher: Institute of Medicine (US). Looking at the future of the Medicaid program. Washington: The Institute; 1992.

Conference proceedings: Kimura J., Shibasaki H., Editors. Recent advances in clinical neurophysiology. Proceedings of the 10th International Congress of EMG and Clinical Neurophysiology; 1995 Oct. 15-19; Kyoto, Japan. Amsterdam: Elsevier; 1996.

Conference paper: Bengtsson S., Solheim B. G. Enforcement of data protection, privacy and security in medical informatics. In: Lun K. C., Degoulet P., Piemme T. E., Rienhoff O., Editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sept. 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992: P. 1561-5.

Dissertation: Kaplan S. J. Post-hospital home health care: the elderly's access and utilization (dissertation). St. Louis (MO): Washington Univ.; 1995.

In press: (Note: NLM prefers "forthcoming" because not all items will be printed). Leshner A. I. Molecular mechanisms of cocaine addiction. *N. Engl. J. Med.* In Press, 1996.

Journal article in electronic format: Morse S. S. Factors in the emergence of infectious diseases. *Emerg. Infect. Dis.* (Serial online) 1995 Jan. Mar. (cited 1996 Jun. 5); 1 (1): (24 screens). Available from: URL: <http://www.cdc.gov/ncidod/EID/eid.htm>

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