Journal of Scientific Research & Reports
3(16): 2131-2149, 2014; Article no. JSRR.2014.16.002

SCIENCEDOMAIN *international*
www.sciencedomain.org

Layered Cake Clientelism: Impact on Occupational Safety in Organizational Management

Masum A. Patwary[1,2*], Kh Anisur Rahman[3] and Mosharraf H. Sarker[4]

[1]Geography and Environmental Science, Begum Rokeya University, Rangpur, Bangladesh.
[2]School of Science and Engineering, Teesside University, Middlesbrough, United Kingdom.
[3]Department of Environment, PRISM Bangladesh Foundation, Dhaka, Bangladesh.
[4]School of Science and Engineering, Teesside University, Middlesbrough, United Kingdom.

Authors' contributions

This work was carried out in collaboration between all authors. Author MAP designed the study, wrote the protocol, and wrote the first draft of the manuscript. Author KAR managed the literature searches, analyses of the study performed primary and secondary data and author MHS managed the experimental process to develop combination of quantitative and qualitative data. All authors read and approved the final manuscript.

Original Research Article

Received 23rd April 2014
Accepted 10th June 2014
Published 5th July 2014

ABSTRACT

Background: The purpose of this study was to gather and consider the views of different employer and employees involved in medical waste handling and management in Dhaka, Bangladesh where the social stratifications and behavioural attitudes are likely to be compounded to influence their subservient behaviour and clientalism attitudes impacted onto organisational behaviour. The aim of this article is to provide a discussion of the most important discoveries in our understanding of this population on their organizational behaviour and their network.
Methods: Quantitative survey for waste measurement, structured questionnaire survey and a wide range of qualitative technique was adopted to identify in-depth knowledge on occupational safety through required different sampling strategies. Collected data were analyzed and pooled together for easy of interpretation and presented in table, graphical distribution and qualitative mode of approach.
Results: Qualitative study of the perceptions and motivations that contributed to these practices revealed misunderstanding of the occupational safety in the organizational

**Corresponding author: E-mail: M.Patwary@tees.ac.uk;*

management, pooled with a culture of senior officials and subordinate relationship, and lack of responsibility and accountability leading to negative impact on organisational policy implementation while PRISM Bangladesh Foundation an NGO has developed a model on medical waste management to reduce occupational safety.

Conclusion: The present study revealed that there may be a layered arrangement of networks that inform the actions of actors involved in organizational management. Different networks may operate at each level from national governance to unofficial workers. Interaction between the networks does not appear to be constructive, with evidence of corruption, subservience and clientalism whereas PRISM activities seem to be a model, to ensure occupational safety, reduce disease transmission and finally human right.

Keywords: Medical waste; occupational safety; qualitative assessment; clientelism; subservience.

1. INTRODUCTION

More people die from diseases due to work related exposure than are killed in industrial accidents. Therefore significance of occupational health and safety as a part of organisational management has been gradually recognized [1,2], especially among the establishments where hazardous waste is being generated regularly [3]. One of the world's most dangerous occupational threats is work with hazardous waste such as infectious medical waste [4,5]. Occupational safety is a major concern in many developing countries where the hazardous waste such as medical waste has not been treated and/or managed properly [6,7].

The distribution of occupational risk and safety in terms of individual person, place and workplace characteristics have been described in the literature [8,9,10] using factorial analysis [11], variance analysis [12], multiple regression analysis [13], descriptive statistics [14] and Bayesian network analysis [15]. Quantitative risk assessment suggested widespread factors associated with occupational safety but what about the qualitative factor? Is there any problem in organisational structure? Does it appear in relation between senior officials and subordinates, such as clientalism or subservience? Therefore, it is important to understand the networks that cause occupational management. Qualitative methods need to be applied to investigate why this might be.

The purpose of this study was to gather and consider the views of different medical waste actors in Dhaka, Bangladesh where the social stratifications are likely to be compounded [5] to influence their subservient behaviour and clientalism attitudes impacted onto organisational behaviour. The aim of this article is to provide a discussion of the most important discoveries in our understanding of this population on their organizational behaviour and their network. The objective of this research was to explore the occupational safety associated with medical waste management in a developing country and try to identify the barriers to implement occupational safety policy in organizational management. A number of studies have addressed occupational risk in different occupational groups in different countries [10,4,16]. A very few number of studies have focused on occupational safety in developing country and very limited have done in Bangladesh, where occupational safety is most often reported [17]. Dhaka was chosen for this study as a typical example of a fast growing, densely populated urban area in a developing country [18] with recognised occupational health risk. Private hospitals, individual practitioners, diagnostic centres,

pathology services are a growing feature of health care provision [19] producing a huge amount of medical waste [6,7], where a large number of individuals are exposed to hazardous waste. On the other hand, heavy influx of migrants, are involved with different occupational activity such as waste collecting, scavenging, recycling, repackaging and resale where occupational accidents are now in concern. In addition, PRISM Bangladesh Foundation an NGO is working to reduce the occupational accident exposed to medical waste management in Dhaka.

2. METHODOLOGY

Quantitative structured survey to estimate the waste generation and a range of qualitative techniques such as observational approach, third person listening approach [20], formal and informal dialogue and in-depth interview, was adopted to collect data from the target groups. Fieldwork was started by social network mapping, adopting an observational approach [21] in November 2012 to February 2013. This technique is normally used in field based data collection procedures to elucidate relationships between a community and its environment [22].

2.1 Study Sample Selection

Initial observation suggested four significant and distinct target groups are exposed to medical waste;

1. Employees of the various departments in the Healthcare establishment (HCE) according to hierarchical position: a total of 150 respondents were selected from the surveyed HCEs according to representative sampling and sample allocated according to population proportionate to size.
2. Dhaka City Corporation (DCC) North and South waste collectors, to collect waste from road side bins and transport to designated dumping places: 34 respondents were selected by purposive/authoritative sampling technique and interviewed.
3. Operators at official PRISM medical waste treatment centre at Matuail, Dhaka: 33 were agreed to be participants out of 47.
4. Individuals involved in informal recycling and repacking of medical waste in the recycling industry. 20 sample representatives were selected through reconnaissance survey [18].

Thus a total of 237 participants were surveyed across the four groups and given a unique code number with sex (Rs1-Rs237) for each participant. The sample covered the different target groups, with a wide variety of professional experiences and hierarchical positions.

2.2 Data Collection and Analysis

Quantitative measurement of waste generation was estimated according to Patwary et al. [6]. For qualitative aspects, the researcher observed the actions and behaviours of selected participants in their usual settings, noting the routine aspects of daily life and nature of work activities. Third person listening approach [20,23] was used to find an understanding of the interaction between two or more individuals and the social environment impacting on their livelihood. An informal dialogue approach was used where formal techniques were not judged appropriate with the selected informants at times and places where the participant's interest could be obtained and retained. Formal structured interviews were arranged, as

judged appropriate in each individual circumstance through data collector. The structure was designed in accordance with occupational safety and questions divided into sub-groups: questions about type of workplace, type of waste worked with, working posture, type of working activities and duration for each activity, accidental injury and illness. Participants were informed that withdrawing from the study is up to them and consent was taken. They were assured of confidentiality and no identifying information was collected; pseudonyms have been used in this paper. The study was conducted in Bangla and than transcribed verbatim and translated into English. Most interviews were tape-recorded. Four participants refused to be recorded and extensive notes were taken during their interviews.

To understand the perceptions and to extract meaning, textual data was analysed using hermeneutical [24,25] and discourse techniques [26] and these were combined in a grounded theory approach [27]. The interviews were coded and categorised by the author, himself as a native person, several time to create a system of thematic classification [28]. A process of theoretical validation was undertaken to ensure that the units of classification (themes, issues, concepts) were sensitive to the informants' narratives. Three stages of thematic analysis were conducted. First, themes were extracted from the transcripts; second, these themes were categorised and organised; and finally, an interpretive analysis yielded a theoretical explanation of the occupational safety associated with medical waste management.

Besides these strategies, authors' personal experiences (First and third author working on this issues from scientific point, and first and second author who are the first initiators to manage medical waste in Dhaka, Bangladesh are working on the same issue from implementation level since 2004) and secondary information were used to better interpretation of the primary data and illustration and comparison of the result. The results are presented descriptively and discussed by the researcher's own subjective judgment. The chosen methods acknowledge the complexity of the interactions between and within the different groups of participants and their interactions with the surrounding environment and the general population [29].

3. RESULTS AND FINDINGS

3.1 Current Medical Waste Management System

The waste generation rate in the study area is shown in the Table 1. The total waste is being generated in the study area is 49±5 tons from identified 1012 HCEs by the survey where hazardous waste is 13±2.5 tons and non-hazardous is 36±3.75 tons. Out of the generated 13±2.5 tons of hazardous medical waste, 5 tons is being collected by the PRISM using specially designed covered van with different chambers for each type of waste from the HCEs and transport to the Matuail medical waste treatment centre for safe management and disposal.

In the study area, subject populations accept PRISM waste treatment operators; HCE employees, DCC waste operatives and waste recycling operatives were observed to handle and manage hazardous medical waste manually. No proper medical waste management system was observed from waste generation sources to final disposal. In most case there was no management system in the organisation. DCC waste operatives were collected the medical waste and transport to the general waste dumping site near the city area.

Table 1. The medical waste generation rate in the Dhaka City

Area	Total waste ton/day	Hazardous ton/day	Non-hazardous ton/day
DCC	49±5	13±2.5 (25%)	36±3.75 (25%)
DNCC	22.75	6 (26%)	18 (74%)
DSCC	27	7 (27%)	20 (73%)

Average waste generation rate 1.63kg/bed/day in the surveyed HCEs. DCC (Dhaka City corporation area); DNCC (Dhaka north City Corporation); DSCC (Dhaka south City Corporation).

At some stage in the medical waste management and disposal, a significant amount of medical waste is being collected by the recycling operatives through waste scavengers and waste operatives. During the entire route from waste generation at source to disposal, nobody was found to be concerned on occupational health risk or occupational safety and they are performed this hazardous work as their daily general work except PRISM treatment plant worker. PRISM workers are performing their work according to PRISM medical waste management guideline which has been developed in the context of Bangladesh according to "Safe management of wastes from health-care activities" by WHO.

3.2 Knowledge on Occupational Safety

Many (72%) senior officials are familiar with occupational safety as they reported having received a basic training or part of the training on occupational health and safety from government (very few) and non-government organisations (NGO) particularly mentioned PRISM (most of them). But they were not concerned to apply the occupational health and safety policy in their premises. More specific lack of awareness was noted relating to occupational safety of individuals working in their premises in comments Rs 14 [Male, Aged 31], "everybody (waste operatives) knows their work and how to perform their duties [medical waste handling] perfectly" with no indication in his voice that how everybody knows. Rs164 [Male, Aged 35] was one of many who did not consider it administrative responsibility to ensure occupational safety "…operatives should be aware when they perform their duty, we can't monitor them at every moment" while Rs16 [Male, Aged 33] considered that "…it (accident) could be happened at any time in anywhere, not only in our premises.....if they [operatives] are not personally concern what can we do."

Surprisingly, most of the waste operatives (65%) were not familiar with occupational safety in regards occupational health risk. For example one waste operatives, [Rs132, Male, Aged 32], astonished view was "what is occupational safety! I don't understand", while another [Rs136, Male, Aged 33] answered dismissively "…why do we need occupational safety? We are not kid. My boss told me how I can perform my duties to handle… (medical waste)".

They could also detect their mangers lack of interest to ensure occupational health and safety in the way in which it was enforced [Rs124, Female, Aged 36] *"...even they [senior* management] don't aware us on it [occupational safety] .... They asked to make sure about the duties [medical waste handling]".

Few waste operatives found to be familiar with occupational safety in the HCEs under the PRISM waste management program and PRISM waste treatment centre. One PRISM waste treatment worker of many answered when asked about occupational safety [Rs209, Male, Aged 32] "...we know what is occupational safety from training what we have received before starting our job and therefore, we always use PPE during our work". Another [Rs232,

Female, Aged 36] added, "...as we received training so that we follow the rules when we do work with medical waste".

On the other hand, some operatives who have received no training seemed to have a better appreciation of the importance than their managers, as illustrated by the comment of one [Rs131, Female, 34] that "…if I get any training on this [occupational safety] like PRISM worker, I think I can do this job without any uncertainty and can avoid accident and illness from medical waste handling." None of the recycling operatives was found to be familiar with occupational safety.

3.3 Priority and Acceptance

Most of the senior manager's intention was found to be unenthusiastic to accept responsibility. This was illustrated by Rs19 [Male, Aged 36] who indicated that once the waste workers was recruited as a waste operatives, it was no longer the organisational responsibility to monitor and ensure of occupational safety, "when we recruited them it has been told that they have to do their work with this situation [with contaminated and infectious medical waste]. Now it is their responsibility to self protect from any risk". Managers were also uncommitted to their responsibility to protect their employees. Rs164 [Male, Aged 35] was one of many who did not consider it his responsibility to ensure occupational safety "…we can't supply them any protective equipment, as they are getting paid they should buy their personal protective equipment if they think they are in risk to work with medical waste".

Participants' perceptions concerning occupational safety, suggests that they see it as an extra burden for the administration. These observations suggests that occupational safety was not accepted by the managerial level as a central activity of the organisations, and thus that the costs should be borne by someone else. An expression of extra-ness can also be seen in the provision of job roles. In most of the surveyed HCE, there was no particular section or person assigned responsibility to ensure occupational safety. Even where an individual was assigned responsibility for monitoring accidental injury or illness of the employees it was often considered to be a minor aspect of their duties, referred to as an unimportant work. DCC officials are aware on this issue but were not found to be interested to discuss on it. None of the owners or official in-charge found in the sampled waste recycling industry was familiar with occupational safety resulted dearth of occupational safety in the sampled industry.

Not surprisingly, like their managers, waste operatives also placed the responsibility for occupational safety elsewhere [Rs46, Male, Aged 34] ".... we just do it [medical waste handling] as we have been told. It is not our duty to think on it [occupational safety].it is the matter of boss". The attitude held by operatives towards occupational safety frequently and not unexpectedly reflected the views of their managers. Some operatives argued that occupational safety was not part of the administrative policy from their employers as they thought they were being paid for [Rs151, Male, Aged 37] "… we are getting paid therefore it is our responsibility to ensure self protection" and another [Rs78, Male, Aged 34] "….. they (employers) didn't tell me that they will ensure my occupational safety, so why should they do this for me? It will be extra burden for them so why should they bother?" Many operatives appeared to ensure occupational safety were low value. This attitude was illustrated very clearly by one respondent [Rs151 Male, Aged 44], observed by a third person listening using the English word "bother" and emphasising his lack of enthusiasm for the task with dismissive body language in conversation with his other workmate; respondent [Rs147, Male, Aged 24];

[Rs 147]: Why are you collecting this sharp [sharp medical waste] item by your hand?
[Rs 151]: So what! Otherwise how I can do that without my hand! [Laughing].
[Rs 147]: Why don't you use any gloves or any equipment?
[Rs 151]: It will take extra time to do this simple work, I am used to handle this and there is no difference to use gloves.
[Rs 147]: Why?
[Rs 151]: One day I asked boss to give a set of gloves, he provides me a used [second hand] set of gloves. I asked him why he gave me used gloves, he annoyed and replied 'it is expensive, department will not spent any extra money to give you this'. Therefore, I don't bother to do this work manually.

Similar phrases used by other respondents included [Rs152, Female, Aged 36] time consuming, [Rs143, Male, Aged 26] no difference, [Rs144, Female, Aged 29] meaningless labour, [Rs156, Male, Aged 32] no benefit, [Rs155, Male, Aged 43] extra cost.

Views expressed explicitly in interviews often implied that both managers and staff consider to ensure occupational safety to be uneconomical while semiotic analysis sheds some further light on participants' perceptions concerning occupational safety, suggesting that they see it as an extra burden.

Whereas PRISM high official said "...This is the strict rules for the waste collector and treatment operators that they cannot start work before receive training. Not only that they have been ordered to obey the rules every moment". This official attitude may help to reduce the occupational safety.

3.4 Relationship among the Employees

It was observed and revealed from the discussion among the HCE, DCC and recycling employees that in many case formal rules of the organisation or organisational behaviour did not work in the study area where occupational safety was omitted, mislaid and lost. Managers and subordinates were observed in a relationship to each other to access their personal benefit. Individual has to look for informal ways to achieve their personal benefit from each other. In some case managers were more interested to do their work by their subordinate. One respondents [Rs145, Male, Aged 40] "...they do respect us, try to keep good relation with us therefore they do our personal work without any question". Another added Rs19 [Male, Aged 36] they do our personal work to save their job. They also obey our order. It is their duty to obey our order. So, if we ask them for work even personal or official, risky or general work, they do without any question. They don't bother about occupational safety. They try to keep good relation with us by obeying our orders. They recognise themselves as a lucky person keeping a good relation with the boss."

Obviously, employees who were found to be motivated and dominated by their immediate senior authority rather than self motivation were also unaware of the occupational safety and giving priority to their boss. It was observed that operatives get involved in doing personal work with their boss during official hour. They often see the boss's room, with information about the people who are against him [the boss] and clarify himself as a subservient. They have no interest to know and aware about the administrative policy and decision. They thought their senior officials will do if anything is necessary. One particular respondent [Rs121, Female, Aged 33] believed, "Our boss knows what would be the best for us. If they realize it [occupational safety] is needed for us than they will definitely do this for our better

life." On the other hand some waste workers, such as [Rs131, Female, Aged 34; Rs152, Female, Aged 36; Rs132, Male, Aged 32] were clarify their position by fatalistic view with subservient attitudes "...it is fate for the people like us who are lower class employees, so we don't bother about occupational safety as we have to do this work. We are bound to our manager." One particular respondent [Rs132, Male, Aged 32] was found to be worried to save his job rather than to ensure occupation safety by saying, "I have to save my job first. If I ask for occupational safety, possibly I will lose my job. Therefore, I have no interest whether the occupational safety is ensured for me or not, even I have no interest to discuss on this issue". Due to lack of knowledge they thought that this is job benefit rather than job policy as their job right. One particular respondent replied when asked [Rs152, Female, Aged 36] added, "Job security is main important than the benefit received from job. If I don't have job what is the result whether the health and safety is ensured or not. I need to keep good contact to save my job first. I don't want to disturb my manager to ask any unwanted or disturbing matter". One respondent [Rs13, Male, Aged 29] answered when asked how can keep you good contact with the manager, "I will do anything whatever my boss tell me, even it is out of my duty, such as personal work or any dangerous work..... I always try to please my boss by obeying his order. In returns he always favours me. I don't want to lose my relation with the boss by asking any unrealistic question like occupational safety. If I injured my boss permits me to take day off, so why should I bother for occupational safety. This is meaningless to me." In some case operatives were concerned about their promotion. They know if they denied their boss order they could not get promotion. By answering in this regard one respondent [Rs155, Male, Aged 43] replied, "...boss will be annoyed and possibly my promotion will be held up". Attitudes toward safety on medical waste handling and management were found to be less important. Most of the employees answer was found to be similar which is reflected on the previous views. This means there is a lack of knowledge on professionalism as well as job policy. Employees are more motivated by their senior officials rather than self motivation.

3.5 Lack of Knowledge on Legislation

Interviews with senior managers suggested that the low priority given to occupational safety regarding medical waste management due to lack of government rules and enforced regulations, as illustrated by the views of respondents [Rs 145] and [Rs 150] "we have no particular legislation on occupational safety". While Bangladesh has a number of relevant occupational health legislation under DGHS (1965) in place requiring each organisation to have an occupational safety Policy. Senior management had no knowledge of their establishment's requirement to have an occupational safety policy. This was best illustrated by a senior manager's incorrect comment [Rs166, Male, Aged 38] "...the present occupational health policy states that every organization should maintain of their safety rules but we do not have any legislation specifically for occupational health and safety".

3.6 Layered Structure of Individual Groups Involved with Medical Waste

The present study revealed that there is a potential undetectably network that structured by the different individual agent from the diverse stage to make the situation worse which was indicated by Patwary et al. [30,31].

3.6.1 Accountability and responsibility of the managers

None of the actors have observed to practice about proper management. The managers in HCEs failed to demonstrate an understanding of the importance of correct procedures for waste management and were unaware of relevant legislation. Because of this, and because of a lack of empathy with operatives, managers offered little or no training or PPE to their staff. The attitude of managers led to a lack of awareness among the operatives and a feeling that time and effort spent on waste management was pointless. Comments from HCE employees revealed a rigid 'superior-subordinate relationship'. Observation suggested that there was a high power distance between superior and subordinates and centralized and non-participatory decision making processes, with cycles of flattery-command and Tui-Apni which do not foster good organizational performance. In this type of organisation the superior expects a high level of respect from his subordinates, but they do not respect their juniors and do not distinguish between the capable and the incapable, so long as each appears to follow every order without questioning. In turn, the employees lack professionalism and mutual respect. They pay more allegiance to their bosses than to their duty in a culture of patronage and clientelism that rewards loyalty rather than efficiency and is self-serving rather than addressing public agendas [22,31]. This type of organisation may be associated with attributes such as ritualized work practices, and shifting responsibility to others.

3.6.2 Illicit economy and national concern

As reported by Atkins et al. [32] most of the institution and organisation are politicized in Bangladesh as in other developing countries. Political pluralism in Bangladesh has led to jostling for political power in public institutions and local authorities [32]. This may explain why proper collection and safe disposal of medical waste is given such a low priority by the local authorities. Some officials and trade unions collect not only daily profit from the illegal waste selling, but also promote this illicit economy by their involvement; a portion is also allocated to party leaders. Important party leaders dominate the labour associations, and have a key role in illegal operation. Such operatives may not pay appropriate attention on their own duties to the senior management, but are beyond reproach because of their political connections. Control of labour unions gives operatives rent-seeking opportunities, including proceeds from illicit trade and of contraband goods such as infectious medical waste selling.

The present study revealed that there may be a stacked arrangement of networks impacting on the actors involved in waste disposal. At the top of the stack are the agents of national governance. At the bottom are scavengers and unofficial recycling operatives (Fig. 1). Different networks operate at each layer and interaction between the networks does not appear to be constructive, with evidence of corruption, subservience and clientalism.

The present study approached among the lower, middle and senior managerial layers in HCEs and their interaction with the employees involved in waste handing (the operative layer).

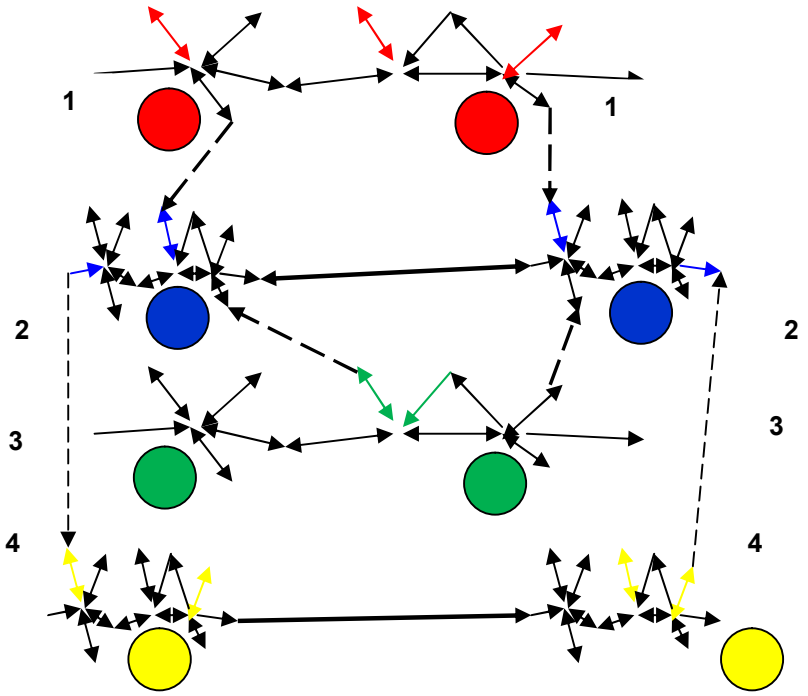

Fig. 1. Different networks operate at each layer

1 Governmental agent; the supreme position in a red colour, 2 NGO, International donor agencies, Academics, the second position as well as donor and implementing position in blue color,3 HCE managers and owners; the green colour who are the main actor to manage occupational safety,4 Waste operatives, scavengers, recycle operatives; in yellow colour who can change their behavioural position without any notice or concern.

4. DISCUSSION

The present study revealed that the existing situation in the organisational management is a culture of subservience with lack of knowledge, responsibility and accountability or ethics. The main assumption of this study is that subservient culture affects administrative culture in the management system. Within these theoretical backgrounds, organisational administrative culture is seen as the thinking pattern, attitude and belief system as an employers, administrators and boss towards employees. Given this background, this study addresses the following theoretical questions- (a) what is the situation of the administration in organizational management? (b) What is the nature of interpersonal relationships among the employees? (c) What is the relationship between administrative culture and subservient attitude? This paper tries to answer the above questions by relying on two theoretical foundations in organisational culture. First, “culture is what organization has”, and second “culture is what organization is” [33].

Job insecurity is related to higher frequency of occupational safety [34], and may affect daily life [35]. The threats of job loss and worsening of working situation is associated with stress, depression [36], and physical disturbances [37] and leads to an increase in adverse behaviours [38]. Increased probabilities of occupational safety have been reported regarding

workers with flexible forms of employment [39,40]. The present study has confirmed and extended this observation by qualitative research among the sampled respondents in the study area through different attitudes.

The present study exposed that senior officials do not follow standard policy while making administrative decisions and procedures. Most often administrative decisions are influenced by informal sources than formal rules such as personal connection. Senior officials, managers and head of the organisations are concerned with their positional status and building subservient attitudes. In this sense administrative decisions are not 'impartial' and 'objective' but highly personalized. Lack of knowledge to common administrative rule allows shifting responsibility to others. These characteristics support the subservient view.

In consequence, it is 'nightmare' for employees to received occupational safety from their administrator as they thought the present situation is their fate. The research revealed that the subservience attitude in the sampled organisations is characterized by values that may be termed bureaucratic-subservient.

On the other hand, managers show 'clientelistic' attitudes towards their subordinates while allocate their duties. In the studied organisation, personal and informal relations are more important than formal official relations in the administrative level. Subordinates try to please superiors whom they think as 'job saver' in the organization. In such a circumstance, an employee feels at home inside the office. An official relation is converted into personal relation. One can get personal support from ones colleagues and superiors while one is in trouble by using official relations. For example, it is common scenario in the study area for an official to use discretionary powers to dispense favours to staff, based on feelings and personal relationships irrespective of prescribed rules and regulations. This attitude to grant favours under the excuse of official work to solve individual problems is a result of the current clientelistic work culture. Similarly, most of the unqualified, corrupted and dishonest employees follow each and every order of their bosses without questioning.

This study revealed that the most important challenge in the study area is to change its administration from clientellism to universalism. Organisational administration and attitude is needed to develop its own administrative culture in the context of new public management and good governance.

4.1 Model of PRISM on Medical Waste Management

A wide range of procedures is practicing for medical waste management in the world depending upon their own situation. PRISM Bangladesh Foundation an NGO, has been working to manage hazardous medical waste properly for more than a decade in Bangladesh and developed a new approach to reduce occupational accident and disease in the context of occupational safety.

4.1.1 Organizational management

The word 'medical waste' is now a common term among the individuals as well as general peoples who are involved with this hazardous waste generation and handling in Bangladesh. Before the last decade, the scenario was different and horrifying. The significant achievement of PRISM team members and scholars is that they have made this change to introduce the word 'medical waste'. Later they have also aware the people that how much this waste is hazardous and risky for the environmental health. PRISM developed a simple

but effective environment-friendly model to manage the medical waste and to reduce occupational accidents. In this approach, the organizational management is described in details and occupational safety is ensured. Therefore, the occupational safety is not impacted due to organizational management. PRISM developed this approach among the collaboration with government, public, private, development organizations and NGOs. In the management approach, PRISM has prepared a guideline to execute the operations. DCC has allocated one acre (0.405 hectare) of land in Matuail, outskirt of the capital city of Bangladesh to establish medical waste treatment centre in different required forms.

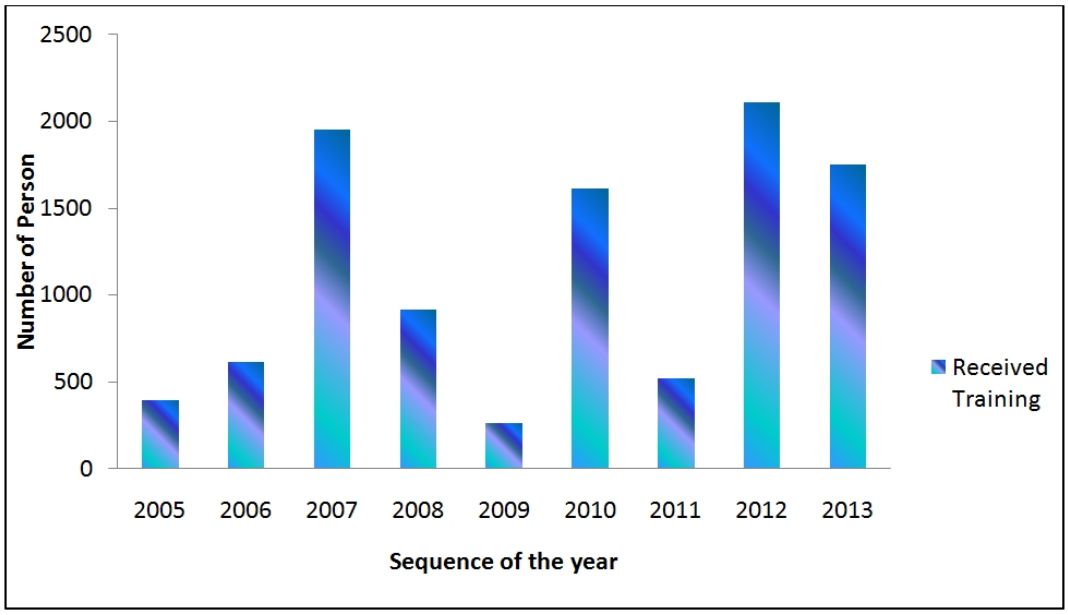

Fig. 2. Number of people received training according to year

In this approach, PRISM conducted necessary training among the relevant individuals according to hierarchical position in different HCE who are under the medical waste management program with PRISM to increase awareness and appropriate in-house management of medical waste (Table 2). PRISM has already trained 10121 individuals in 478 HCE since 2005 to 2013 which is chronologically increasing (Fig. 2).

At the same time public awareness campaign is also executing to keep up the health and safety. The field survey indicated that, occupational accidents are now decreased in stages (Fig. 3).

4.1.2 Waste segregation, collection and transportation

PRISM has developed a model to collect segregated hazardous waste (excluding radioactive waste) from each HCE through specially designed vehicles (covered van) to transport the waste for treatment and management at Matuail medical waste treatment plant. Under the program, each HCE has designated in-house storage of medical waste in the designated colour-coded bin according to WHO. Waste is being stored into the specified bin. Segregated waste is collected and placed in the covered van by the trained waste operatives of PRISM. Covered van is specially designed in different chambers for different waste storage during

the transportation. During this activity, individuals are all time equipped with PPE (personal protective equipment) supplied by PRISM to protect occupational accident. Not only that, individuals are always in medical check up whether they are affected by any disease or not. They are suggested to report if they feel physically unwell at any time. During the duty, they are strictly restricted to take any food. At the end of the duty the operators are advised to change their uniform and take a bath according to the guideline. Thus the occupational safety is now ensured and occupational accidents are now decreased. Due to this successive operation, the Directorate of Environment (GoB) has declared that the HCE in the Dhaka City Corporation area should ensure their waste treatment through PRISM as they have accepted this model. Therefore the number of HCEs is increasing in every year under this project (Fig. 4).

Fig. 3. Training program on medical waste handling

The HCEs under the program are currently using the government approved colour-coded bin bag which helps to identify the hazardous and non-hazardous wastes. Hazardous waste must be packed to protect from possible occupational accidents and disease from exposure to waste. Sharp items are generally stored in separate refuse receptacles. This represents best practice and ensures, at minimum, compliance with current regulations which reduces the occupational accidents and makes the management cost effective. The facilities of

Matuail medical waste treatment centre is given below (Table 3); with a number of pictorial data set (Fig. 4).

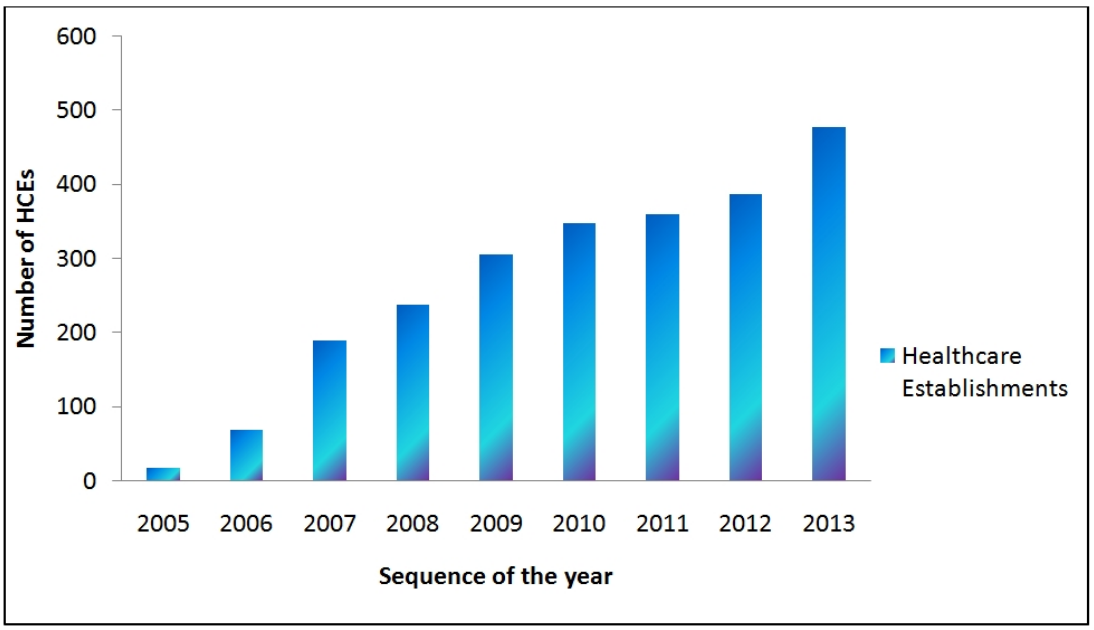

Fig. 4. Healthcare establishments under the project according to year

Table 2. Total number of HCEs and people received training according to year

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Healthcare Establishments	17	68	190	237	306	348	360	387	478	
Total Participants	391	612	1952	917	262	1612	518	2071	1703	10038
Nurse and Paramedics	123	182	637	152	83	633	41	567	499	2917
Lab Technicians	39	47	305	73	32	94	45	272	288	1195
Ward boy	73	98	278	201	35	296	95	326	137	1539
Cleaner	107	185	558	429	73	492	295	724	558	3421
Admin Staff	35	67	120	36	28	69	23	160	202	740
Doctor and Owner	14	33	54	26	11	28	19	22	19	226
PRISM Treatment Project								36	47	83
Driver								5	7	12
Waste Collector								9	13	22
PRISM treatment Plant Worker								22	27	49
Total Participants	391	612	1952	917	262	1612	518	2107	1750	10121

Fig. 4. Matuail treatment centre facilities

Table 3. Matuail treatment centre facilities

Safe collection and transportation facility		Capacity	Number of vehicles
Specialized collection vehicle		3tons	5
Specialized collection vehicle		1.5tons	2
Final treatment and disposal facility			
Autoclave		2500kg/hour	1
		1500kg/hour	1
Incinerator		135kg/hour	1
		60kg/hour	1
Chemical disinfection unit		$1m^3X3$	1
Deep burial	for amputed body parts	6"x8" x16"	8 pits
	for sharps	6"x8" x16"	4
Shredding machine for recyclables		200kg/hr	1

The primary target of medical waste management is to cure the health of the population. To meet these goals, management systems must be embraced fully by local city authorities in collaboration with both the public and private sectors. However, in developing countries such as Bangladesh, employees from low class to high officials were busy to obey and satisfy the senior official's order rather than the job responsibility or accountability due to their job security, promotion in job and other benefits. This practice of culture is a pervasive patronage to subservient culture through interpersonal relationship among the employees affecting organisation behaviour.

Does subservience and clientelism really matter to ensure occupational safety as a part of organisational management? On the basis of the above discussion the conclusion seems to be an obvious. There is insufficient evidence in the literature for a possible cause of ignorance to ensure occupational safety in organisational structure in Bangladesh. This study is so far the first evidence that subservient attitude and senior-subordinate relationship may cause of barrier to ensure not only occupational safety execution but also other official rules and norms in the organisational structure. This practice of culture is not only threat in the study area but in all other city like Dhaka where this type of culture is being practiced. The study revealed that occupational safety culture must be regarded as something a policy ''is" rather than ''has". Managers' and employees' behaviour should be changed as an organisational behaviour in a frame conditions for the development of organisational attitudes.

5. CONCLUSION

Attitudes to organisational policy cover willingness to report incidents [41,42] which was unseen in the present study. This factor seems to be one of the most important factors in explaining organisational behaviour. Waste operative's attitude can give a scenario that how concerned they are about occupational safety. It has been debated that employee attitudes are one of the most important indicator of occupational safety climate and organisational behaviour. Individuals normally receive some introductory training in terms of specific job tasks and skills that are required for safety and organizational policies and practices when they recruited which was absent in the study area.

Occupational safety is strongly associated with job satisfaction. Employees, who are satisfied with their jobs, have a relatively lower accident involvement rate than those who dislike their

job [43] and vice versa. Working pressure and stress is linked with organisational safe behaviour [44] which may influence organisational behaviour [45]. In the present study it was observed that employees were always in pressure and in stress to follow their boss command. Cooperation and working conditions can distinguish that how people are concerned about their work. Management's safety attitude regarding safety culture which is the important factor influencing organisational behaviour can cover to ensure occupational safety. Thus, to minimize the potential risks and apply health and safety procedure it is necessary not only to identify the structured network, but also identify how the network is structured.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Marhavilas PK, Koulouriotis DE. A risk estimation methodological framework using quantitative assessment techniques and real accidents' data: application in an aluminium extrusion industry. Journal of Loss Prevention in the Process Industry. 2008;21:596–603.
2. Håvold JI, Nesset E. From safety culture to safety orientation: validation and simplification of a safety orientation scale using a sample of seafarers working for Norwegian ship owners. Safety Science. 2009;47:305–326.
3. Appleton J, Ali M, Healthcare or Health Risks? Risks from Healthcare Waste to the Poor. Water Engineering and Development Centre Loughborough University, Leicestershire, LE11 3TU UK; 2000.
4. Papadopoulos G, Georgiadou P, Papazoglou C, Michaliou K. Occupational and public health and safety in a changing work environment: An integrated approach for risk assessment and prevention. Safety Science. 2010;48:893-949.
5. Patwary MA, O'Hare WT, Sarker. Occupational accident: an example of fatalistic beliefs among medical waste workers in Bangladesh. Safety Science. 2012;50:76-82.
6. Patwary MA, O'Hare WT, Street G, Elahi KM, Hossain SS, Sarker MH. Quantitative assessment of medical waste generation in the capital city of Bangladesh. Waste Management. 2009;29:2392–2397.
7. Patwary MA, O'Hare WT, Street G, Elahi KM, Hossain SS, Sarker MH. Health and safety perspective on medical waste management in a developing country: A case study of Dhaka city. Flexible Automation and Intelligent Manufacturing, 19th International Conference University of Teesside, Middlesbrough, TS1 3BA, UK; 2009. ISBN: 978-0-9562303-2-4.
8. Salminn S. Relationship between injuries at work and during leisure time. Accident Analysis and Prevention 2005;37:373–376.
9. Attwood D, Khan F, Veitch B. Can we predict occupational accident frequency. Process Safety and Environment Protection 2006;84:208–221.
10. Papadakis GA, Chalkidou AA. The exposure–damage approach in the quantification of occupational risk in workplaces involving dangerous substances. Safety Science, 2008;46(6):972–991.
11. Dedobbeleer N, Beland F. A safety climate measure for construction sites. Journal of Safety Research. 1991;22:97–103.
12. Janicak CA. Fall related deaths in the construction industry. Journal of Safety systems in the United States. Journal of Safety Research. 1998;33:337–354.

13. Gillen M, Baltz D, Gassel M, Kirsch L, Vaccaro D. Perceived safety climate job demands and coworker support among union and non union injured construction workers. Journal of Safety Research. 2002;33:33–51.
14. Kines P. Case studies of occupational fall from height. Cognition and behaviour in context. Journal of Safety Research. 2003;34:263–271.
15. Martin JE, Rivas T, Matias JM, Taboada J, Arguelles A. A Bayesian network analysis of workplace accidents caused by falls from height. Safety Science. 2009;47:206–214.
16. Mure S, Demichela M. Fuzzy application procedure (FAP) for risk assessment of occupational accidents. Journal of Loss Prevention in the Process Industry. 2009;22:593–599.
17. Bhuiyan AJ, Haq MN. Improving occupational safety and health in Bangladesh. International journal of Occupational Environmental Health. 2008;14(3):231-233.
18. Patwary MA, Uddin LQ, O'Hare WT, Mosharraf H, Sarker MH. Social Ostracism and Criminality among Medical Waste Workers in Bangladesh: Neurobiological aspects. Journal of Scientific Research and Report. 2014;3(11):1475-1489.
19. Patwary MA, Uddin LQ, Abdul Jalil Miah M, Mosharraf H. Sarker MH. Occupational stress and addiction: possible neurobiological elucidation of medical waste related individuals. Journal of Hospital Administration. 2013;2(2):71-88.
20. Patwary MA, O'Hare WT, Karim SA, Sarker MH. The motivations of young people moving into medical waste scavenging as a street career. Journal of Youth Studies. 2012;15(5):591-604.
21. Jorgensen DL. Practical Observation: a methodology for human studies. London: Sage; 1989.
22. Patwary MA, O'Hare WT, Sarker MH. Assessment of occupational and environmental safety associated with medical waste disposal in developing countries: a qualitative approach. Safety Science. 2011;49(8-9):1200-1207.
23. Patwary MA, O'Hare WT, Elahi KM, Sarker MH. Domes and the Dead: an example of extreme fatalism among mortuary workers in Bangladesh. Kaleidoscope. 2010;4(1):10-18.
24. Myers MD. Qualitative research in information systems. MIS Quarterly. 1997;21(2):241-2.
25. Ratcliff D. Qyalitative research resource: Data analysis (Part V) [Qualitative Research File]; 1999. [Available: http://ratcliff.net/qual].
26. Crush J. The discourse of progressive human geology. Progress in human geography. 1991;15:395-414.
27. Glaser BG, Strauss A. Discovery of Grounded Theory. Strategies for Qualitative Research, Sociology Press; 1967.
28. Green J, Thorogood N. Qualitative Methods for Health Research. London: Sage, 2004;262. ISBN 0-7619-4771-X (Paperback).
29. Kyei PO. Decentralisation and poverty alleviation in rural Ghana. Perspectives from district elites and voices of the rural poor; 2000. Available:http://unpan1.un.org/intradoc/groups/public/documents/idep/unpan003042.pdf (accessed 1 May 2014).
30. Patwary MA. Quantitative assessment of mortuary waste: occupational safety and environmental health. Journal of Hospital Administration. 2012;1(1):49-60.
31. Patwary MA, O'Hare WT, Sarker MH. An illicit economy: scavenging and recycling of medical waste. Journal of Environmental Management. 2011;92:2900-2906.
32. Atkins P, Hassan M, Dunn C. Poisons, pragmatic governance and deliberative democracy: The arsenic crisis in Bangladesh. Geoforum. 2007;38:155–170.
33. Jamil I. Administrative Culture: A mode of Understanding Public Administration Across Cultures; Research in Urban Policy. JAI Press Inc. 1994;5:275-294.

34. Caruso CC. Possible broad impacts of long work hours. Industrial Health. 2006;44:531–536.
35. Sverke M, Hellgren J, Näswall K. Job Insecurity: A Literature Review National Institution of Working Life & the Swedish Trade Unions in Cooperation, Stockholm; 2006.
36. Burgard SA, Brand JE, House JS. Causation and selection in the relationship of job loss to health in the United States. Research in Job Loss and Health. University of Michigan; 2005. Available: <http://www.rwjf.org/publichealth/product.jsp?id=15004>.
37. Hellgren J, Sverke M, Isaksson K. A two-dimensional approach to job insecurity: consequences for employee attitudes and well-being. European Journal of Work and Organisational Psychology. 1999;8:179–195.
38. Domenighetti G, D'Avanzo B, Bisig B. Health effects of job insecurity among employees in the Swiss general population. International Journal of Health Services. 2000;30:477–490.
39. Saha A, Kulkarni PK, Chaudhuri R, Saiyed H. Occupational injuries: is job security a factor? Indian Journal of Medical Sciences. 2005;59:375–381.
40. Fabiano D, Curro F, Reverberi AP, Pastorino RF statistical study on temporary work and occupational accidents: specific risk factors and risk management strategies. Safety Science. 2008;46:535–544.
41. Rundmo T, Hale AR. Managers' attitudes towards safety and their behavioural intentions related to safety promotion. Safety Science. 2003;41(7):557–574.
42. Donald I, Canter D. Employee attitudes and safety in the chemical industry. Journal of Loss Prevention in the Process Industries. 1994;7:203–208.
43. Gyekye AS. Workers-perceptions of workplace safety and job satisfaction. International Journal of Occupational Safety and Ergonomics. 2005;11:289–300.
44. Mohamed S. Safety climate in construction site environments. Journal of Construction Engineering and Management. 2002;128(5):375–384.
45. Rundmo T. Associations between risk perception and safety. Safety Science. 1996;24:197–209.

© 2014 Patwary et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/3.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=589&id=22&aid=5185