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Planning Emergency Education Programmes For Boko Haram Internally Displaced Persons in Damare Refugee Camp of Adamawa State, Nigeria

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Abstract: Learning environment is a fundamental tool for child protection even under emergency situations. The purpose of this study was to determine the planning of learning environment, education personnel, learning and education policy in emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State. Four research questions and four hypotheses guided the study. The population of the study comprise of sixty (60) male and female humanitarian workers in damare refugee camp. All the sixty (60) humanitarian workers were utilized for the study. Data was collected using planning emergency education programmes for boko haram internally displaced persons questionnaire (PEEPBHIDPQ) consisting of twenty (20) items on a five-point Likert response scale of strongly agree, agree, no opinion, disagree and strongly disagree. Descriptive statistics of mean and standard deviation were used for answering the research questions and z-test was also utilized for testing the hypotheses at 0.05 level of significance. The findings of the study were that learning environment inclusion, education personnel provision, learning activities promotion and education policy coordination strengthening were not applied in planning emergency education programmes in boko haram internally displaced persons in damare refugee camp of Adamawa State. The study concluded that the four domains in planning emergency education programmes were not applied for boko haram internally displaced persons in damare refugee camp. Recommendations of the study included that Federal, State and local governments, NGOS, donor and international aid agencies should include all the domains in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

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Keywords: Planning Emergency Education Programmes, Boko Haram Internally Displaced Persons, Damare Refugee Camp, Adamawa State.

1. Introduction:

The past five years saw complex humanitarian emergencies that became house hold names and created the growing interest in emergency education in the North East Zone (Badau and Oluweselu, 2015). By the year 2014, Boko Haram insurgency had left a large number of the population of Adamawa, Borno and Yobe states as refugees in damare refugee camp of Adamawa State. Most of the displaced refugees were from six Local Governments -Gwoza, Madagali, Michika, Gombi, Hong, Mubi North and Mubi south (Adamawa State Emergency Management Agency, 2015).

These local Governments which were at the centre of complex humanitarian emergencies, suffered massive internal population displacements. Statistics regarding boko haram internally displacements are less readily available. This is partly

because there has been less access to and assistance for internally displaced populations. Most of this internally displaced persons (RPS) lived in camps or settlements similar to those refugees but others live in the homes of their relatives or alongside, normal populations where they are less conspicuous and more difficult to quantify (National Emergency Management Agency, 2015). Many of them were displaced by boko haram insurgency and were settled in damare refugee camp of Adamawa State.

The victims of boko haram insurgency are people who have been through heart breaking, sometimes appalling suffering. Yet in camps and Settlements, villages and towns all over Adamawa state, they very often look to education as there major or even their only hope for a decent future. All programmes for refugees and displaced conflict-



affected populations as well as disaster victims, are considered emergency education programmes.

An emergency is a crisis situation created by conflicts or disaster which have destabilized, disorganized or destroyed the education system, and which require an integrated process of crisis and post-crisis support (IIEP, 2012). Education in emergencies can be defined as a set of project activities that enable structured learning to continue in times of acute crisis of long-term instability (Nicolai, 2003). It is education that protects the wellbeing, fosters learning opportunity, and nurture the overall development (Social, emotional, cognitive and physical) of children affected by conflicts and disasters (Kadiri, 2007). Schooling is the greatest hope for a life that will transcend the poverty that breeds violence which in turn intensifies poverty. Education allows these people to overcome despair.

Education is the fundamental right of all children in all situations. In a displaced situation like boko haram insurgency, children are frequently denied this right, they are also denied opportunity to develop and acquire the skills, knowledge and competence to better cope with the prevailing difficult circumstances and to contribute to other families and communities (Badau, 2012).

It is only through emergency education that children can cope with displacement situations. Children expose to violence, and aggressions need to be educated in basic societal values, to develop a sense of respect towards each other and other populations and banish prejudices in order to live in a mixed community, thus reducing tension (Kadiri, 2007). The planning of emergency education in displaced situations can develop a positive attitude which is important to confront such situations.

It is also vital to develop a curriculum that best cater for the need of crisis-stricken population and to ensure that no social group are excluded or denied the right to education. The planning must make a gallant effort to keep education alive during the crises. Classes are sometimes held in the open air, in homes and basements or in damage buildings of various kinds. All stakeholders should, therefore, be involved in the planning of emergency education for boko haram displaced persons. Restoration of access to education should be one of the brightest priorities of internally displaced persons as it provides hope for the future. Emergency education can thus be seen as an investment in solution to crises as well as being the fourth pillar of humanitarian response alongside nourishment, shelter and health services (midttum, 2000). Planning emergency education programmes includes developing mutual understanding, collaborative, inter-communal dialogue and social reconstruction between people for educating children

in conflict crises and disaster situations (IIEP-UNESCO, 2006).

Kotite (2012) reported that each step of planning emergency education programme from sector diagnosis through the monitoring of implement action strategies should identify the core vulnerabilities of the education sector crises. Through this process, the vulnerabilities can be reduced through capacity gap analysis, strategic planning, policy formulation and ensuring that risk reduction indicators are included in monitoring and evaluation frameworks.

Badau (2012) used a survey method to conduct a research on management of education in emergency situations in crises communities of Numan, Loko, Dumne, Garkida and Gurki in Adamawa state. The findings of the research indicated that children had access to emergency education, resources were not provided, the curriculum activities were supported and capacity building was not carried out by governments, NGOS, donor and international agencies in emergency education programmes.

Badau (2008) pointed out that applying the principles of managing education under emergency situations is in terms of damages caused by the entire education system. The damages are also caused in terms of access, resources, curriculum and coordination of education system.

Badau & Oluweselu (2015) also conducted a study on the management of emergency peace education programmes for boko haram internally displaced persons in yola refugee camp of Adamawa State, Nigeria. The findings of the study reveal that access, resources, curriculum and capacity building were not provided in emergency peace education for boko haram internally displaced persons in yola refugee camp of Adamawa State. INEE(2004), UNESCO(2006), UNICEF,2006), IIEP/WORLD BANK, (2003) and Sinclair (2003) grouped the domains of planning emergency education programmes under emergency situations into learning environment, education personnel, learning and education policy coordination. These domains are presented inform of standards that must be met or that can be measured as an indicator of success in planning education programmes under emergency situations. The domains are education should be “inclusive” while the standard or indicator would be whether inclusiveness can be observed with success in planning emergency education programmers as in education is inclusive(Sinclair, 2003).

2. Statement of the Problem:

It is clear that planning emergency education programmes can be part of the solution to boko haram insurgency displacement and that the absence of such education will be destabilizing locally and may be a

threat to the national and state security. The people life's and their education system have been disrupted. The population special needs are emergency education if it is to recover from the insurgency and build a better future. These study focused on learning environment, education personnel, learning and education policy coordination as domains of planning emergency education programmes. It was carried out to determine the extent to which domains of planning emergency education programmes were applied in damare refugee camp of Adamawa State.

3. Purpose of the Study:

The purpose of the study was to assess: The extent to which learning environment was included in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State, assess the extent to which education personnel provision was strengthened in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State, assess the extent to which learning activities were promoted in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State, and to assess the extent to which education policy coordination was drawn in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

4. Research Questions:

The following research questions were raised to guide the study;

What is the extent of learning environment inclusion in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

What is the extent of education personnel provision strengthening in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

What is the extent of learning activities promotion in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

What is the extent of education policy coordination strengthening in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

5. Hypotheses:

The following hypotheses were formulated to guide this study using 0.05 level of significance for decision-making.

H0: There is no significant difference in the opinions of male and female humanitarian workers on the inclusion of learning environment in planning emergency education programmes for boko haram internally displaced persons in the damare refugee camp of Adamawa State.

H0: There is no significant difference in the opinions of male and female humanitarian workers on the provision of education personnel for emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

H0: There is no significant difference in the opinions of male and female humanitarian workers on the promotion of learning activities in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

H0: There is no significant difference in the opinions of male and female humanitarian workers on strengthening education policy coordination in planning emergency education programmes for boko haram internally displaced persons in the damare refugee camp of Adamawa State.

6. Methodology:

The design used for the study was a descriptive survey. The population of the study was made of all the sixty (60) humanitarian workers comprising of the ministry of education officials, volunteer teachers, religious bodies, donor agencies, international aid agencies, state emergency management agency and national emergency management agency personnel (Adamawa State Emergency Agency Profile, 2014). All sixty (60) humanitarian workers comprising of 30 females and 30 males were utilized for the study.

The researcher developed a close ended questionnaire with twenty (20) items tagged planning of Emergency Education Programmes for Boko Haram Internally Displaced Persons Questionnaire (PEEP BHIDPQ) with a five-point Likert response scale ranging from "strongly disagree" "Disagree" "No opinion" "Agree" "Strongly Agree". The questionnaire was based on the four domains in planning emergency education programmes for internally displaced persons. These include learning environment, education personnel, learning activities and education policy coordination. A total of 20 items were developed to collect the relevant data. Content validity was determined by two validators from Science Education Department, Modibbo Adama University of Technology Yola, Nigeria. The

reliability of the instrument was determined through a pilot test which gave a Cronbach alpha reliability coefficient of 0.65. The researcher administered the instrument during a pilot test and also handled the main administration. Sixty questionnaires representing one hundred (100%) percent were returned. The research questions were answered using mean and standard deviation. SPSS version 17 was used for testing hypotheses. The decision point for research questions was that when the mean is 2.5 and above, indicated agree and below 2.5 is disagree. Testing the hypotheses was that when z- calculated is higher than z- critical, the hypotheses is rejected. But when z-calculated is lower that z-critical, the hypotheses is not rejected.

7. Results:

The result of data analysis are hereby presented and they follow the order in which the research questions and hypotheses were raised.

Research Question 1: What is the extent of learning environment inclusion in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

Table 1: Mean and Standard deviation of Male and Female humanitarian workers responses on learning environment inclusion in planning emergency education programmes for Boko haram internally displaced persons in damare refugee camp of Adamawa State

Planning Emergency Education Programmes for learning environment inclusion	X1 N=30		X2 N=30		μ	Remark
	\bar{X}_1	σ_1	\bar{X}_2	σ_2		
Access to quality and relevant education opportunities	3.46	0.50	3.28	0.90	3.37	Agree
Learning environment are secure and safe	2.76	0.85	2.68	1.07	2.72	Agree
Promote the protection and the psychosocial well-being	1.87	1.13	3.00	0.93	2.44	Agree
Educational facilities promote the safety and well-being	3.00	0.99	2.65	1.01	2.82	Agree
Educational facilities are linked to health, nutrition, psychosocial and protection services.	2.78	0.87	2.67	0.97	2.72	Agree
Overall mean	2.27				Agree	

Source: Field Work,
X1 for male humanitarian workers
X2 for female humanitarian workers

The data in Table 1 above shows that the overall mean (2.27) indicate disagreement by respondents. This means that learning environment was not included in planning emergency education

programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

Research question 2: What is the extent of education personnel provision in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

Table 2: Mean and Standard deviation of Male and Female humanitarian workers responses on education personnel provision in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Planning emergency Education Programmes for education personnel provision	X1 N=30		X2 N=30		μ	Remark
	\bar{X}_1	σ_1	\bar{X}_2	σ_2		
A sufficient number of appropriately qualified education personal are recruited	1.99	0.89	1.99	0.87	1.99	Disagree
Educational personal are recruited through a participatory and transparent process from different ethnic groups	1.80	1.03	2.22	1.02	2.01	Disagree
Recruitment is based on selection criteria reflecting diversity and equity	1.70	0.62	2.04	0.78	1.87	Disagree
Education personnel have clearly defined conditions of work and are appropriately compensated	2.84	0.83	2.37	0.94	2.60	Disagree
Support and supervision mechanisms for education personnel function effectively	1.80	1.70	2.29	0.85	2.05	Disagree
Overall Mean	2.10				Disagree	

Source: Field Work,
X1 for male humanitarian workers
X2 for female humanitarian workers

The data in Table 2 above shows that the overall mean (2.10) indicates disagreement by respondents. This means that education personnel were not provided in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp in Adamawa State.

Research Question 3: What is the extent of learning activities promotion in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

Table 3: Mean and Standard deviation of Male and Female humanitarian workers response on learning activities promotion in the planning of emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Planning emergency education Programmes for learning activities promotion	X1 N=30		X2 N=30		μ	Remark
	\bar{X}_1	σ_1	\bar{X}_2	σ_2		
Culturally, socially and linguistically relevant curriculum are used	2.49	1.11	2.78	0.93	2.64	Agree
Formal and non-formal education are provided appropriate to the particular context and needs of learners	2.16	1.08	2.66	0.88	2.41	Disagree
Educational personnel receive periodic, relevant and structured training according to the needs and circumstances	2.38	0.75	2.70	1.07	2.55	Agree
Instruction and learning processes are learner centered, participatory and inclusive	3.11	0.51	2.62	0.96	2.87	Agree
Appropriate methods are used to evaluate and validate learning outcomes	2.30	1.06	2.84	0.97	2.57	Agree
Overall Mean	2.60					Agree

Source: Field Work,
X1 for male humanitarian workers
X2 for female humanitarian workers

The data in Table 3 above shows that the overall mean (2.60) indicated agreement by respondents. This means that learning activities were promoted in planning emergency education programmes for book haram internally displaced persons in damare refugee camp of Adamawa State?

Research Question 4: What is the extent of education policy coordination strengthening in planning emergency programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State?

Table 4: Mean and Standard deviation of Male and Female humanitarian workers on educational policy coordination strengthening in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Planning emergency Education Programmes for education policy coordination strengthening	X1 N=30		X2 N=30		μ	Remark
	\bar{X}_1	σ_1	\bar{X}_2	σ_2		
Education authorities prioritize continuity and recovery of quality education	3.35	1.37	3.04	1.29	3.19	Agree
Education include free and inclusive access to schooling	2.76	0.85	2.68	1.07	2.72	Agree
Education activities take into account international and national policies	3.00	0.99	2.65	1.01	2.82	Agree
Education policies considered international and national laws, standards and plans	2.49	1.11	2.78	0.98	2.64	Agree
Education policies considered the learning needs of affected population	2.38	0.75	2.71	1.07	2.55	Agree
Overall Mean	2.78					Agree

Source: Field Work,
X1 for male humanitarian workers
X2 for female humanitarian workers

The data in Table 4 above shows that the overall mean (2.78) indicates agreement by respondents. This means that education policy coordination was strengthened in planning emergency education programmes for book haram internally displaced persons in damare refugee camp of Adamawa State.

Hypotheses 1: There is no significant difference in the opinions of male and female humanitarian workers on the inclusion of learning environment inclusion in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Table 5: Z-test difference in the opinions of male and female humanitarian workers on learning environment inclusion in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Respondents	X	$\bar{\theta}$	N	Df	Standard error	Z-cal	Z- Cri	Remark
x_1	30.2	68.6	30	28	15.128	1.315	0.345	S
x_2	10.6	40.4	30					

X_1 for male humanitarian workers
X_2 for female humanitarian workers

The data in table 5 show that z-calculated (1.315) was greater than the z-critical or table value, therefore, this hypothesis which states that there is no significant difference in the opinions of male and female humanitarian workers on the inclusion of learning environment in planning emergency education programmes has been rejected. The result showed a significant difference in the opinions of the male and female humanitarian workers on the inclusion of learning environment in planning emergency peace education programmes.

Hypotheses 2: There is no significant difference in the opinions of male and female humanitarian workers on the provision of education personnel in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Table 6: Z-test difference in the opinions of male and female humanitarian workers on the provision of education personnel in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Respondents	X	$\bar{\theta}$	N	Df	Standard error	Z-cal	Z- Cri	Remark
x_1	5.40	3.028	30	28	0.184	2.608	1.98	S
x_2	1.29	1.195	30					

X_1 for male humanitarian workers
X_2 for female humanitarian workers

In table 6, the z-calculated was 2.608, while z-critical was 1.98. Since z-calculated was higher than z-critical, the null hypothesis was rejected. The result of the z-test showed that there is a significant difference in the opinions of male and female humanitarian workers on the provision of education personnel in planning emergency education programmes.

Hypotheses 3: There is no significant difference in the opinions of male and female humanitarian workers on promoting learning activities in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Table 7: Z-test difference in the opinions of male and female humanitarian workers on promoting learning activities in planning emergency education programmes for boko haram internally displaced persons in the damare refugee camp of Adamawa State.

Respondents	x	$\bar{\theta}$	N	Df	Standard error	Z-cal	Z- Cri	Remark
x_1	22.14	58.431	30	28	14.321	1.93	0.92	S
x_2	6.80	20.120	30					

X_1 for male humanitarian workers
X_2 for female humanitarian workers

In table 7, the z-calculated was 1.9 while t-critical was 0.92. Since the z-calculated was more than z-critical, the null hypothesis was rejected. Thus, the difference in the opinions of the two groups was significant.

Hypotheses 4: There is no significant difference in the opinions of male and female humanitarian workers on education policy coordination strengthening in planning emergency education programmes.

Table 8: Z-test difference in the opinions of male and female humanitarian workers on strengthening coordination of education policy in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

Respondents	X	$\bar{\theta}$	N	Df	Standard error	Z-cal	Z- Cri	Remark
x_1	2.40	1.025	30	28	0.283	2.10	1.13	S
x_2	1.05	0.335	30					

X_1 for male humanitarian workers
X_2 for female humanitarian workers

The z-calculated in table 8 showed a value of 2.10 while z-critical was z-1.13. Thus, the z-calculated was far above the z-critical which rejects the null hypotheses. This indicates that there is a significant difference between the opinions of the two groups.

To sum up: The research questions answered and hypotheses tested in the study showed:

1. That learning environment was not included in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.
2. That education personnel were not provided in planning emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.
3. That learning activities were not promoted in planning emergency education programmes boko haram internally persons in damare refugee Camp of Adamawa State.
4. That the coordination of education policy was not strengthened by governments, non-governmental organizations, donors and international agencies in emergency education programmes for boko haram internally displaced persons in damare refugee camp of Adamawa State.

8. Discussion:

The findings of the study were discussed in relation to the four domains of planning emergency education programmes as raised in the purpose of the study.

The findings in table 1 showed that research question 1 was agreed by the respondents. This means that learning environment was included in planning emergency education programmes in damare refugee Camp. These findings are consistent with table 5 which rejected the hypotheses. Badau (2012) among others found out that children had access to emergency education in the crises communities of Numan, Loko, Dumne, Garkida and Gurki in Adamawa state.

These findings of research question 2 and table 2 indicated disagreement by the respondents and there is a significant difference in the opinion of male and female humanitarian workers on education personnel provision for emergency education programmes. This confirms the assertion of Sinclair (2002) and Agbotte (2004) that financial/material/human resources during emergency education programmes were inadequate. It was supported by Kotite (2012) that school teachers had no access to complete set of text books, teachers guide, hand books and motivational materials for field trainers, supervisors, head teachers and teachers. Therefore, the finding that education personnel were

not provided for emergency education programme is not far from reality.

There was agreement by respondents and significance difference in the opinions of male and female humanitarian workers on learning activities promotion in planning emergency education programmes as indicated by the finding of research question 3, table 3 but hypotheses 3 table 7 indicated a significant difference in the opinions of male and female humanitarian workers. This is not consistent with Badau (2012) who found out that emergency education programmes supported curriculum activities for crises communities in Adamawa state. This was corroborated by Pigozzi (1999) and Mittun (2000) who expressed that curriculum activities did not conform to normal national education programmes and that the federal and state government, NGOS and donor agencies did not support curriculum activities for boko haram internally displaced persons in Yola refugee Camp of Adamawa state.

The finding in respect of research question 4, table 4 show agreement by respondents and hypotheses 4 table 8 indicated that significant difference exists in the opinions of male and female humanitarian workers on education policy coordination strengthening as agreed with the assertions of UNESCO (2001) which state that the training of head teachers and senior teachers as mentors who can provide school support to nearby trained or untrained teachers is inadequate.

This was not supported by the IIEP - World Bank (2003) which opined that the coordination of education policy was not strengthened through federal, state and local government's efforts to provide security for education programmes in conflict-affected areas. Priorities include the strengthening of the federal and state ministry of education and state universal basic education Boards through its initiation of a national dialogue on education policies (Badau, 2008). Thus, it can be concluded that the Federal, state governments, NGOS, donor and international agencies did not include learning environment, educational personnel provision, learning activities promotion and education policy coordination strengthening in planning emergency education programmes for boko haram internally displaced persons in damare refugee Camp of Adamawa state.

9. Recommendations:

The following recommendations came out of the findings of the study

1. The Federal, State, Local Governments, NGOS, donor and international aid agencies should include learning environment in planning emergency

education programmes to all boko haram internally displaced persons in damare refugee camp for continuity and hope for the future.

2. Education personnel should be provided by federal, State, and local governments, NGOs, international aid and donor agencies for boko haram internally displaced persons in damare refugee camp of Adamawa State.

3. Learning activities for boko haram internally displaced persons in damare refugee camp should be promoted by federal and state ministries of education, federal and state emergency management agencies, donor and international aid agencies.

4. The coordination of education policy for boko haram internally displaced persons in damare refugee camp should be strengthened for all affected population in the damare refugee camp.

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References

- 1-Adamawa State Emergency Management Agency, (ASEMA, 2014).Adamawa State emergency Profile. Adamawa State planning commission.
- 2- Agbotte, A. (2004). The management of internally displaced persons: "The Benue experience". A paper presented at the national conference of Directors and Head of Disaster Management Organizations in Nigeria, 6-7 July.
- 3- Badau, K.M. (2008). Planning and Management of Education under Emergency Situations for Achievement Education for All (EFA) goals by the year, 2015 in Nigeria. *Dougire Journal of Education*.8, pp6574.
- 4- Badau, K.M (2012). Management of education in an emergency situation: A case study of Numan, Loko, Dumne, Garkida, and Gurki in Adamawa state of Nigeria. *Journal of Science, Technology and Education*. 1 (2), 4 7-53.
- 5- Badau. M &Oluweselu, A. (2015).Management of Emergency peace Education Programmes for Boko Haram internally Displaced persons in Yola Refugee Camp of Adamawa State, Nigeria. *Journal of Social Science Studies*, 2(1), 36-44.
- 6- Interagency Network for Education in Emergencies (INEE), (2004). *Minimum Standards for Education in Emergencies, Chronic Crisis and Early Reconstruction*. Paris: IIEP.
- 7- Kadiri, D. (2007).Promoting Peace Education through Non-formal Adult Education in Nigeria. In
- 8- Bukar K. W (2007) *issues in Education Theory and Practice*. Yola: Alari Communication Ltd.
- 9- Kotitie, P. (2012). *Education for Conflict Prevention and Peace Building: Meeting the Challenges of the 21stCentury*.Paris: IIEP.
- 9- Mittun, O. (2000). *Education in Emergency and Transition Phase. Still a right and of need*. OSLO: Norwegian Refugee Council Nicolai, (2003). *Education in Emergency: A tool kit for starting and managing education in emergencies*. London: Save the children
- 10- National Emergency Management Agency, (2015).National Emergency Management Agency Profile. Abuja: National Planning Commission.
- 11- Nicolai, S. (2003). *Education in Emergency: A tool kit for starting and managing education in emergencies*. London: Save the children.
- 12- Pizozi, M. (1999).*Education in Emergencies and Reconstruction in Emergency Situation, Analysis of strategies and Practice*. Paris: UNESCO Publication.
- 13-Sinclair, M. (2002).*Planning Education in an Emergency. Fundamentals of Education Planning*. No. 73.
- 14- UNESCO, (2006).*Guide for Planning Education in Emergency and Reconstruction*. Paris IIEIP.
- 15- UNICEF, (2006). *Education for emergencies: A resource tool kit*. New York: UNICEF

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Tool Development to Measure Dyspnea among Patients with Advanced Cancer Stage

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Abstract: Dyspnea is a distressing symptom of terminal cancer patients. Lack of an appropriate assessment tool for dyspnea disturbs the establishment of proper management. The purpose of this study was to develop a reliable and valid measure which assesses the multidimensional nature of dyspnea among patient with advanced stage of cancer. The tool was administered by the principal investigator to the participants. The developed dyspnea scale contains 12 items under three domains; these domains are 'Physical triggers', 'psychological triggers', and 'environmental triggers.' It is recommended to apply the tool in with different types of advanced cancer disease for more psychometric confirmation.

To cite this article

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Keywords: Dyspnea; tool development; cancer

1. Introduction and Background:

Dyspnea is one of the most distressing symptoms of terminal cancer patients. It is frequent and difficult to manage during the advanced cancer stages. However, there has been considerably less emphasis in the literature on the appropriate characterization and management of this symptom compared to other cancer-related symptoms, such as pain. It is defined as a subjective experience of breathing discomfort that consists of qualitatively distinct sensations that vary in intensity (Al-Ghabeesh & Ahmad, 2012; Ben-Aharon, 2008). It is frequently described by patients with terms such as fatigue upon breathing, air hunger, suffocation, choking or heavy breathing (Al-Ghabeesh & Ahmad, 2012).

Patients usually have multiple causes for dyspnea, including chronic disease (heart failure, neuromuscular disease, etc.); acute, superimposed illness (pneumonia, pulmonary embolism, etc.); and cancer-induced complications (tumor growth, bronchial obstruction, pleural effusions) (Ahmad, Alasad & Nawafleh, 2010; Dardas & Ahmad, 2015). Other causes are anemia, ascites, anxiety, and depression. Hence, cancer patients with dyspnea should undergo a comprehensive assessment. The main target of the assessment and therapeutic intervention is the patient's expressed intensity of dyspnea rather than the objective findings of disease. The prevalence of dyspnea has been reported to be around 50% among population with cancer (Dudgeon, 2001). This proportion figures up to 90% in patients with advanced cancer (Reuben, 2010).

Lack of an appropriate assessment tool for dyspnea seems to disturb establishment of management strategy. Some scales evaluating the intensity of dyspnea subjectively, such as Borg's scale (Borg, 1998) and the Visual Analog Scale of dyspnea (Atkin, 1969), are simple and widely used, but multidimensional assessment cannot be achieved with them. Some other scales, which objectively measure physical effort evoking dyspnea, such as Hugh-Jones scale. The purpose of this study was to develop a reliable and valid measure which assesses the multidimensional nature of dyspnea among patient with advanced stage of cancer.

This scale should comprise multidimensional aspects. It should be self-rating because dyspnea is subjective. In addition, the scale should be easy and simple to be completed by patients troubled by dyspnea, be evaluated not by physical effort evoking dyspnea, but by perceived dyspnea itself so that even bedridden patients can complete it. Have its reliability and validity in cancer patients confirmed, and be sensitive to clinical changes due to treatment or progression of the disease over time.

2. Literature Review:

The experience of dyspnea includes four categories: 'Triggering factors' included circumstances contributing to dyspnea, which comprised physical, psychosocial and environmental triggers (Stulbarg & Adams, 2000; Ahmad & Dardas, 2016). The psychological distress of cancer patients is mainly characterized by anxiety and depression

(Ahmad, 2015). It is reported that lung cancer patients had higher emotional distress than those with other cancers, and that patients with advanced disease were particularly emotionally vulnerable (Tanaka et al, 2002; Tawalbeh & Ahmad, 2013; Alslman, Ahmad, Bani Hani, Atiyeh; 2015). Many studies have shown significant correlations between dyspnea and psychological status (Al-Ghabeesh & Ahmad, 2012; Dardas & Ahmad, 2014).

It is hypothesized that there might be several aspects of dyspnea; however, few studies about subtypes of dyspnea in cancer patients have been done. Furthermore, an appropriate assessment tool for dyspnea in this population has not been established. Available scales are not appropriate for understanding the etiologies and establishing a therapeutic strategy for them. Some scales evaluating the intensity of dyspnea subjectively, such as Borg's scale (Borg, 1998) and the Visual Analog Scale of dyspnea (Atkin, 1969), are simple and widely used, but multidimensional assessment cannot be achieved with them. Some other scales, which objectively measure physical effort evoking dyspnea (Medical Research Council Committee, 1965; American Thoracic Society, 1978; McGavin et al, 1978), are not feasible for patients whose activity is limited by other symptoms or disability. They are sometimes not useful because perceived dyspnea has not always been found to be correlated with the results of exercise tests and respiratory function tests (Burdon et al, 1983; Stoller et al, 1986; Maler et al, 1987). Development of a new measure is crucial to investigating the etiology and establishing a therapeutic strategy for dyspnea (Bruera et al, 1998). The scale should: 1) comprise multidimensional aspects; 2) be self-rating, because dyspnea is subjective; 3) be easy and simple enough to be completed by patients troubled by dyspnea; 4) be evaluated not by physical effort evoking dyspnea, but by perceived dyspnea itself so that even bedridden patients can complete it; 5) have its reliability and validity in cancer patients confirmed; and, 6) be sensitive to clinical changes due to treatment or progression of the disease over time.

3. Conceptual Definition:

Dyspnea is derived from the Greek dys: meaning painful or difficult and pneuma meaning breath and is used to describe a variety of sensations experienced when breathing is difficult, uncomfortable, or labored or when the subject feels a need for more air. This sensation of breathlessness is experienced by healthy individuals under stress and patients with a wide spectrum of diseases. It is multifactorial being influenced by many modifying factors (e.g. psychological, social) and is clearly distinct from other symptoms like tachypnea and hyperinflation.

The American Thoracic Society defined dyspnea as: 'a term used to characterize a subjective experience of breathing discomfort that is comprised of qualitatively distinct sensations that vary in intensity. The experience derives from interactions among multiple physiological, psychological and behavioral responses (Stulbarg & Adams, 2000).

4. Measurement Framework:

It is important to identify and employ a conceptual framework for determining what is to be operationalized, it is equally important to identify and employ a measurement framework to guide the design and interpretation of the measurement (Waltz, Stickland & Lenz, 2005). The two major framework for measurement are the norm-referenced and the criterion-referenced approaches.

A norm-referenced approach is employed when the interest is in evaluating the performance of a subject relative to the performance of other subjects in the same well-defined comparison or norm group. Our scale is 12-item norm-referenced measure of the dyspnea experienced by patients with advanced cancer stages. The scores on each item in the scale range from 1 to 5 points, depending on the patient's degree of agreement with the item. A high score indicates high level of dyspnea for that item, and a low score indicates low dyspnea level. The maximum total score is 60 and the lowest possible score is 12 points. The value for a given person takes on meaning when it is considered in light of the scores obtained by other patients who responded to the same tool.

5. Strategies for Designing Measurement Tool and Procedure:

Essential steps in the design of a norm-referenced measure are (1) selection of a conceptual model; (2) explicating the objectives for the measure; (3) development of a blueprint; and (4) construction of the measure including administration, item set, and scoring rules and procedures.

5.1. Explicating the Objective for the Measure:

The second step in developing a tool is explicating the objective. The behavioral objective of the tool are stated by using Tyler and Kibler approach, where the objective is composed of three components: (1) a description of the respondents; (2) delineation of the kind of behavior the respondent will exhibit to demonstrate accomplishment of the objective (3) a statement of the kind of content to which behavior relates (Waltz, Stickland & Lenz, 2005). The objective of this tool is to assess the multidimensional nature of dyspnea among patients with advanced cancer.

5.2. Blueprinting

Given a set of objectives reflecting the process or outcomes to be assessed by the measure and a content outline representative of the domain of interest, the next step is to develop a blueprint to establish the specific scope and emphasis of the measure. From the blueprint, one can readily tell the topics about which questions to be asked and the type of critical behaviors subjects will be required to demonstrate (Waltz, Strickland, & Lenz, 2005; Alasad et. Al, 2015). To assess the multidimensional nature of dyspnea among advanced cancer patient in the blueprint, the measure was spread over three domains: physical, psychological, and environmental triggers.

5.3. Construction of the Measure

5.3.1. Administration

In this study, the tool was administered by the principal investigator who developed this tool. The participants received information about the measure. The information included measure's purpose, how to record their responses to items, assurance for their anonymity and confidentiality, voluntary participation without coercion, and their right of withdrawal or refuse to participate without any penalty. In addition, participants were informed that the time to complete the scale 3 to 5 minutes. All this information was summarized in the cover letter.

The reading skills is needed to complete the scale, however for participants who are unable to read or focus a structured interview was used, the data collector was available until the participants complete the scale to explain and clarify any queries. This measure is composed of two questionnaires; the first will obtain the demographic characteristics of the participant and the second will be regarding the dyspnea scale.

Pilot testing of the instrument used to check for understanding, clarity and time required for filling dyspnea scale. Specific concerns such as item difficulty, item discrimination, internal consistency, response rates, and parameter estimation in general are all relevant.

5.3.2. Items

This dyspnea scale contains 12 items under three domains. These domains were named as 1) "Physical triggers", physical dyspnea or dysfunction of ventilation with organic causes worsened on exertion (five items), 2) "psychological triggers", affected or amplified by psychological status (four items), and 3) "environmental triggers", environmental influences mostly concerned the weather (three items).

In the first development phase, items which describe, represent and evaluate dyspnea were collected in the following ways: (a) by interviewing 22 dyspneic cancer patients closely in a clinical setting, (b) by brainstorming with 4 oncologists, 3 consultant in care palliative unit, 10 nurses engaged in palliative care unit for more than 4 years of experience, and one psychology expert in palliative patients and (c) by picking up from reported papers on dyspnea. After collecting a huge pool of items, omit the items that may: (a) be difficult for anyone to understand, that is, local dialect, jargon and vague vocabulary;(b) overlap each other, that is, linguistically synonym;(c) items are not related to objective of this tool is to assess the multidimensional nature of dyspnea; and (d) be confounded with symptoms other than dyspnea, for example, description of cough and sputum.

Inappropriate items that met the following criteria were than eliminated from the draft scale: (a) items which quite a few patients required further explanation to complete, (b) items whose correlation with VAS of dyspnea was not significant, (c) items given a rating of quite relevant /very relevant by both raters involved see below in part Validity, and (d) items whose standard deviation of response was less than 1.0. In the development phase, 101 terms were listed; most came from brainstorming and the remaining from interview and checking reviews, these items were reduced according to the criteria described above. The instrument was translated into Arabic language. A translation and back translation was carried out by linguistic professionals.

5.3.3. Scoring

The scoring of item is a 5- point Likert scale ranging from 1 (not at all) to 5 (very much). The maximum total score is 60: 25 points for "physical triggers", 20 for "psychological triggers", and 15 for "environmental triggers." The higher the score is, the more the severe the patient's dyspnea.

5.3.4. Translation

The original measure from which this tool is developed is available in English language. Thus, the modified tool that is developed in this study is translated into Arabic language in order to be used here while maintaining the meaning of the items, then it was back translated into the original language which resulted in an equivalent forms.

6. Methods:

6.1. Design

This is a cross-sectional study to assess the psychometric properties of the dyspnea scale with patients with advanced cancer disease.

6.2. Sample

A convenience sample of 30 patients with the following eligibility criteria: (a) to have been pathologically diagnosed as having cancer and to have been informed of their diagnosis, (b) diagnosed as having cancer in advanced stage (i.e. in clinical stage IIIa [un-resectable], IIIb, or IV) or recurrent stage, (c) to be 18 years or older, (d) to be able to complete the scale, and (e) agree to participate voluntarily in this study.

6.3. Setting

The sample was selected from the palliative care unit at a specialized cancer care center in Amman. It has a capacity of 180 beds and treats both adult and pediatric patients. KHCC treats over 3,500 new cancer patients each year from Jordan and the region. KHCC has established programs that focus on all stages of comprehensive cancer care: from prevention and early detection, through diagnosis and treatment, to palliative care.

7. Psychometric Analysis and Validation

7.1. Validity

7.1.1. Construct validity

Construct validity (i.e. whether each item represents and correlates with each domain) was evaluated by factor analysis followed by Varimax rotation (Ahmad, 2010). The strength of the correlation between items was evaluated by calculating Pearson's correlations. Convergent validity (i.e. the strength of the correlations between the items and aggregate, and other validated measures of dyspnea) was assessed by Pearson's correlations with VAS of dyspnea completed at the same time. Content validity was evaluated by two experts in the field.

The primary concern in determining the construct validity is the extent to which relationships among items included in the measure are consistent with the theory and concepts as operationally defined. One of the methods to assess the construct validity of an instrument is the exploratory factor analysis (Waltz, et al., 2005; Ahmad, 2014). The ultimate goal is to explain the most variance in the set of variables or items with the fewest number of factors as determined using a statistical criterion such as having an eigenvalue greater than 1.0, or the percent of variance explained.

The data were analyzed by Principal Component Analysis with Varimax rotation, the default criterion to retain the factors was the fixed number of factors to be extracted with three factors (Dardas & Ahmad, 2014). This was selected because the initial factor extraction with eigenvalue greater than 1.0 resulted in six factors. This factor solution

extracted and rotated only three factors that had eigenvalues greater than one, results are shown in Table 1.

Rotated factor loading were examined to assess the nature of the three fixed, extracted, retained and Varimax-rotated factors. Five items had high clean loadings with factor one. Four items also had high clean loadings with factor two, three items had clean loadings with factor three.

Table 1: *Construct validity: factor loading pattern (followed by varimax rotation) in the validation phase.*

Item number and content	Factor 1	Factor 2	Factor 3
10. Narrower	0.82	0.16	-0.25
12. Stuck in the airway	0.74	0.31	0.01
4. Short of breath	0.69	0.16	-0.27
8. Shallow	0.63	-0.29	0.26
6. Panting	0.61	0.35	-0.25
7. Breathing difficulty that one doesn't know what to do	0.11	0.85	-0.19
9. Breathing may stop	0.25	0.81	-0.15
5. Accompanied by palpitations and sweating	0.38	0.67	0.01
11. As if drowning	0.45	0.65	-0.08
12. whether	-0.16	-0.11	0.94
13. room environment	-0.29	-0.01	0.91
14. Breath slowly	-0.18	-0.17	0.88
Percent of Explained Variance	27	21	14
Total Variance Explained	62%		

Although it was difficult to interpret the meaning of each factor on the basis of the wording of the questions alone, it was hypothesized that these three factors indicate the following: Factor 1, "Physical triggers", physical dyspnea or dysfunction of ventilation with organic causes worsened on exertion; Factor 2, "psychological triggers", affected or amplified by psychological status; Factor 3 "environmental triggers", environmental influences mostly concerned the weather.

The first factor, accounting for 27% of the total variance, consisted of five items, the second, accounting for 21%, contained four items, and the third, accounting for 14% consisted of three items. There were significant correlations for all pairs of the subscale. The mean value of the inter-subscale correlation coefficient was 0.48. (Table 2).



Table 2: *Inter-subscale correlation of Dyspnea Scale factors*

	Factor 1	Factor 2	Factor 3
Factor 2	.65		
Factor 3	.49	.31	
Total score	.91	.76	.75

P < 0.01

The lack of definite independence of each factor was observed in the following findings. First, there were significant inter-correlations between each factor (average 0.48). Second, some items loaded not for one, but for both two factors. This occurred may be because of small sample size.

Finally the results of factor analysis showed some factors had well loadings, but items overlapping across the factors made the extraction a difficult, this could be because of small sample size.

7.1.2. Content Validity Index (CVI)

The tool was given to two experts in the field of oncology/ palliative care to rate the relevance of the items to the objective on a 4-point Likert scale. (1) not relevant, (2) somewhat relevant, (3) quite relevant, and (4) very relevant. There was agreement about 10 items that are quite/very relevant, and 2 items somewhat relevant (items asking about the duration of nausea). The Content Validity Index (CVI) is defined as the proportion of items given a rating of quite relevant /very relevant by both raters involved (Waltz, Strickland, & Lenz, 2010). The results are displayed in table 3. For this tool, the CVI= 10/12 or 0.83 which considered an acceptable level of CVI (Dardas & Ahmad, 2014).

Table 3: *Content Validity for the 12 items of the tool judged by two experts*

	Judge 1		Score	
	(1 or 2) not/somewhat relevant	(3 or 4) quite/very relevant		
Judge 2	(1 or 2) not/somewhat relevant	2	0	2
	(3 or 4) quite/very relevant	0	10	
Total		2	10	12

7.1.3. Convergent validity

Each of the factors significantly correlated with VAS of dyspnea (average $r = 0.57$, $P < 0.001$) and with modified Borg's scale (average $r = 0.52$, $P < 0.001$). The results are shown in the Table 4.

Table 4: *Convergent validity by correlations between two Scales*

	VAS of dyspnea	Borg's Scale
Factor 1	.77	.72
Factor 2	.53	.41
Factor 3	.40	.44
Total score	.72	.67

7.2. Reliability

The attributes of reliability assessed with this tool is internal consistency (Cronbach's alpha coefficient), which is equal in value to the mean of the distribution of all possible split-half coefficients associated with a specific set of items. Cronbach's alpha coefficients of the subscale were 0.83, 0.81, and 0.94, respectively (average 0.89). It considered high (Nunnally & Bernstein, 1994). All statistical procedures were performed using SPSS version 17.

8. Limitations:

The limitations of this project are: (1)we need large sample size and heterogeneous group to generalize the pilot study results of this tool, (2) Due to the time constraint, there was no IRB form submitted to KHCC, and the patients were approached socially to fill the scale, and this is considered a limitation of this pilot study. For the future development of the tool, ethical approval should be considered in early stage of the study, (3) cross-cultural validation was also not performed. Further improvements and validation are needed.

9. Conclusion

This tool developed in this study is a brief, self-rating scale that assesses the multidimensional nature of dyspnea. Its feasibility, reliability and validity are satisfactory for clinical use, although a few problems still remain in its construction. Further study of correlated factors on this might contribute to better understanding the etiology of dyspnea and establishing a therapeutic strategy.

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References

- 1- Ahmad, M. (2014). Exploring the less Privileged Population's Knowledge and Awareness about Cancer in Jordan. *International Journal of Sciences: Basic and Applied Research (IJSBAR)*, 18 (1), 321-329.
- 2- Ahmad, M. M. (2015). Awareness about cancer in the 12 governorates of Jordan: A correlational, comparative study. *Psycho-Oncologie*, 9(1), 58-63.
- 3- Ahmad, M. (2006). Evaluation the properties of CAHS with Prostate Cancer Patients.
- 4- Ahmad, M. M. (2014). Jordanians knowledge and beliefs about cancer. *Global Journal on Advances Pure and Applied Sciences*, 4.
- 5- Ahmad, M. M. (2015). Knowledge and beliefs about Cancer Prevention and Care in Jordan. *International Journal of Medicine*, 1(1), 1-5.
- 6- Ahmad, M. M. (2010). Validation of the cognitive appraisal health scale with Jordanian patients. *Nursing & health sciences*, 12(1), 74-79.
- 7- Ahmad, M. M., Alasad, J. A., & Nawafleh, H. (2010). Nursing care and quality of life among Jordanian patients with cancer. *Leadership in Health Services*, 23(3), 233-243.
- 8- Ahmad, M., & Dardas, L. (2016). Jordan: Aspiration for a Culturally Sensitive Nursing Model. *Conceptual models of nursing: Global perspectives*. Upper Saddle, NJ: Pearson. ISBN-10, 133805751.
- 9- Alasad, J. A., Tabar, N. A., & Ahmad, M. M. (2015). Patients' experience of being in intensive care units. *Journal of critical care*.
- 10- Alasad J., Ahmad, M., Abu Tabar, N., & Ahmad, H. (2015). Nursing Student's Experiences in Critical Care Course: A Qualitative Study. *Journal of Intensive and Critical Care*. 1(1), 1-7.
- 11- Al-Ghabeesh, S., & Ahmad, M. (2012). Unidimensional and multidimensional breathlessness specific instruments for adult population: Literature review. *Journal of Natural Sciences Research*, 2(8), 1-14.
- 12- Alslman, E. T., Ahmad, M. M., Bani Hani, M. A., & Atiyeh, H. M. (2015). Health: A Developing Concept in Nursing. *International journal of nursing knowledge*.
- 13- Aitken, R. C. (1969). Measurement of feelings using visual analogue scales. *Proceedings of the royal society of medicine*, 62(10), 989.
- 14- ATS, D. (1999). Mechanisms, assessment, and management: a consensus statement. American Thoracic Society. *Am J Respir Crit Care Med*, 159, 321-340.
- 15- Benitez-Rosario, M. A., Martin, A. S., & Feria, M. (2005). Oral trans mucosal fentanyl citrate in the management of dyspnea crises in cancer patients. *Journal of pain and symptom management*, 30(5), 395-397.
- 16- Borg, G. (1998). Borg's Perceived Exertion and Pain Scales. Champaign, IL: Human Kinetics.
- 17- Bruera, E., & Currow, D. B. (2010). Interview by Sophie M. Colleau [Online publication]. *Strategies for the palliation of dyspnea in cancer, WHO Pain and Palliative Care Communications Program*. Retrieved on, 24.
- 18- Bruera, E., Schmitz, B., Pither, J., Neuman, C.M., & Hanson, J. (2000). The frequency and correlates of dyspnea in patients with advanced cancer. *Journal of Pain and Symptom Management*, 19, 357-362.
- 19- Dardas, L. A., & Ahmad, M. M. (2015). Myths and Misconceptions about Cancer: Findings from Jordan. *Medicine Journal*, 2(6), 88.
- 20- Dardas, L. A., & Ahmad, M. M. (2014). Psychometric properties of the Parenting Stress Index with parents of children with autistic disorder. *Journal of Intellectual Disability Research*, 58(6), 560-571.
- 21- Dardas, L. A., & Ahmad, M. M. (2014). Validation of the World Health Organization's quality of life questionnaire with parents of children with Autistic Disorder. *Journal of autism and developmental disorders*, 44(9), 2257-2263.
- 22- Dudgeon, D. J., Lertzman, M., & Askew, G. R. (2001). Physiological changes and clinical correlations of dyspnea in cancer outpatients. *Journal of pain and symptom management*, 21(5), 373-379.
- 23- Kugaya, A., Akechi, T., Okuyama, T., Okamura, H., & Uchitomi, Y. (1998). Screening for psychological distress in Japanese cancer patients. *Japanese Journal of Clinical Oncology*, 28(5), 333-338.
- 24- Stulbarg MS, Adams L. (2000). Dyspnea. In: Murray JF, Nadel JA, eds. *Textbook of Respiratory Medicine*. 3rd ed. Philadelphia, Pa: WB Saunders Co; 541-552.
- 25- Tawalbeh, L. I., & Ahmad, M. M. (2013). Personal resource questionnaire: a systematic review. *Journal of Nursing Research*, 21(3), 170-177.
- Tanaka, K., Akechi, T., Okuyama, T., Nishiwaki, Y., & Uchitomi, Y. (2000). Development and validation of the Cancer Dyspnea Scale: a multidimensional, brief, self-rating scale. *British journal of cancer*, 82(4), 800.



- 26- Weinberg, D. S., Inturrisi, C. E., Reidenberg, B., Moulin, D. E., Nip, T. J., Wallenstein, S., ... & Foley, K. M. (1988). Sublingual absorption of selected opioid analgesics. *Clinical Pharmacology & Therapeutics*, 44(3), 335-342.

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Simulation and Analysis of an Air Source Heat Pump Used for Washing Machine

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Abstract: This research looks into the performance of a heat pump used in washing machine without heating technology of its own. Analysis of a washing machine found in the market was also studied in the research. Then the comparison is done in order to understand how either of the two systems can be an ideal for a small family. During the experiment time, there are a couple of parameters to be considered, so the final unknown parameters can be estimated. This is how the behaviour of a system can be explained and understood. The experiment stands on the data collected at the period of two hours with each sample foreseen at every minute. The behaviour and performance of heat pumps has been analyzed in this paper. During the trial, the ambient temperature was between 26.5 - 27.9 °C by setting the highest temperature the heat pumps to be at 55 °C. Washing machine which can be bought from the market has also been analyzed to check the performance in terms of consumption of electric power. And finally the comparison of this two systems has been taken place.

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Keywords: Air Source Heat Pump, Washing Machine, Comparative Analysis.

1. Introduction:

Heat pumps generally draw heat from the cooler external air (Bengtsson, Bergheland, & Renström, 2014). In other word, a heat pump is a machine or device that moves heat from one location (the 'source') at a lower temperature to another location (the 'sink' or 'heat sink') at a higher temperature using mechanical work or a high-temperature heat source (Cengel, Yunus, Michael, & Boles, 2008). As the principle of a heat pump is to move heat from one place to another, it is capable of heating (warming) substances in what is called a heat sink as well as of cooling a hot material, thus can work both as a heater and a cooler! In the both cases, theoretically the operating criteria are same (Dieckmann, Roth, & Brodrick, 2004). So there gets two cycles of a heat pump – heating cycle and cooling cycle. In heating cycle, heat is input from the outdoor air, and then pumped more efficiently into where more heat is necessary. In the cooling cycle, it works reverse – heat pumped to outdoor air from where it needs heat to take out.

For washing machine, the concern is how to reduce the use of the different inputs it takes. But

rationally, power consumption becomes the major of all of those. Historically, there has not been any significant reduction in the usage of electricity for washing machines (dryers), vented and condensers (Energy Saving Trust, 2014). The only major improvement in electricity usage was when heat pump technology was introduced (Garner, 2015). Experiment with washing machine using a hot-water circulation loop transferring the heat using a heat exchanger showed that it is possible to replace up to 90% of the electricity usage (Ha, & Janda, 2012). This is a very important fact of devising a system that how small it consumes power, so that the overall cost for a user is mitigated. The user of US were conducted a survey on choosing low power using refrigerator, and the report convey us the message that they were willing to pay an extra 250\$-350\$ for the system that has been awarded an ENERGY STAR label (Handbook, 2005). Why? The users wanted a safe and secure use of power so that the ultimate cost of the system and the system-use can reduce the overall cost. Again, a research reveals that, in South Korea, the buyers had a significant positive trend towards purchasing energy-efficient products like TVs, ACs

and washing machines (Höjer, 2014). Besides these, there are many researches done worldwide, that drive increasing support of the users for cost-effective products, even to pay some 'more' for buying price. So, for washing machines, compared to other household appliances, it is laid to consider more experiment of how it can be devised for less usage of power consumption.

At the moment of heating mode, a heat pump usually exhibits three to four times more efficiency in terms of using electric power compared to conventional electrical heaters. This research went on using ambient air for analysis. Heat pump of this kind known as Air Source Heat Pump (ASHP) is proved to be efficient in hotter environment. Though geothermal heat pumps can reduce energy consumption up to 44% compared with air-source heat pumps (Maytag, 2015), still ASHP works better, as it shows a COP of 3 to 4 in summer weather. Due to Carnot efficiency limit, when the ambient temperature decreases significantly, COP for an ASHP reduces even to 1.0 at zero degree Celsius, though a standard air source heat pump used in domestic affairs can extract useful heat down to about -15C (Persson, 2007). This trend may help the future researchers to go for experiment of using an ASHP for washing machines in order to understand the cost-effective behaviours. Research shows that effective performance in cold climates can also be determined by the working fluid (Persson, 2007). It has also been revealed in many researches that, the lower the temperature of the ambient air, the more energy is needed to extract heat from it (U. S. Department of Energy, 2014). External heat pump heating water for washing machine thus may be a way to analyze in the context of different environment, and this may help understand simulating and devising a new integrated system.

2. Principles of Heating Cycle:

As stated before, during heating cycle, outside air heat (ambient temperature) is taken as input to produce a multitude of final heat for using that heat in different purposes. The steps can be described as follows:

2.1. Step 1:

The liquid refrigerant (here R22) is let to pass through the expansion valve. This changes the liquid into a low pressure liquid or vapour mixture. It then comes up to the evaporator where the coils are responsible for giving the liquid refrigerant a chance to absorb heat from the ambient air. The refrigerant then boils, and turns to vapour of low temperature.

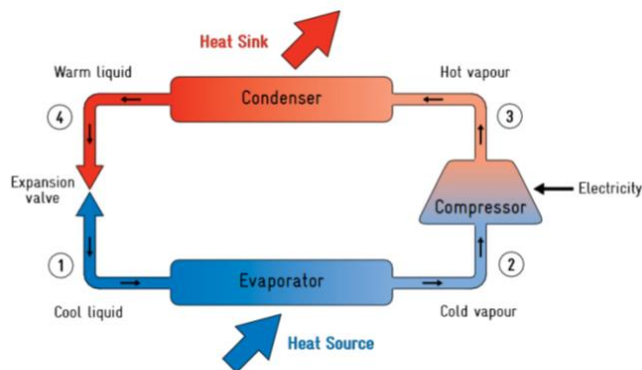


Figure 1. Heat Pump (Evaporation/Condensation Cycle) (Ward, Clark, Jensen, Yen, & Russell, 2011)

2.2. Step 2:

The low temperature refrigerant vapour is then passed through the reversing valve to the accumulator, which collects any remaining liquid. Then it enters into the compressor. Here the vapour is compressed, and thus getting more pressure reducing its volume causing it to be heated up.

2.3. Step 3:

The heated refrigerant now turns to vapour with high temperature. The reversing valve sends the gas, which is now hot, to the indoor coil. This device is called as condenser. The heat from the hot gas is condensed here, causing the refrigerant to lower its temperature, and makes it liquid again. This liquid refrigerant comes again to the expansion valve and the cycle is thus repeated.

3. Data Analysis:

This research includes total electric power consumption in the home to produce hot water when using this hot water to wash clothes in the washing machine. It needs to look into how washing machine of this type consumes electricity than conventional washing machine without water heating system. The importance of using hot water to wash clothes is that, cleaning this way also helps in eliminating germs. It is to investigate that, the use of heat pumps to separate the production of hot water to wash clothes consumes how much power. It has been primarily supposed that as heat pumps use heat from the outside air which in general needs less power to produce heat can sum up a low power consumption that the conventional washing machine system. The current research would reveal the fact of this assumption.

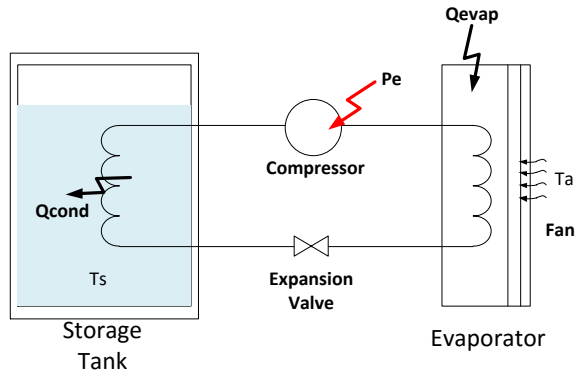


Figure 2. The heat pump system using ambient air
 Cleaning clothes with hot water at a temperature higher than or equal to 54 °C is the best choice for clothes that are white. For a dirty diaper and high through dyeing fabrics, it needs to be careful of using hot water that, certain species of germs cannot withstand the heat required to read labels to separate the clothes of those out of the way. Naturally water with higher temperature increases the efficiency of washing machines (Ward, Clark, Jensen, Yen, & Russell, 2011). However, it is not suitable to let the washing machine removing blood red wine and coffee stains, for which the machine will experience more difficulties than ever (Zhang, 2014). The system tested was to produce hot water from an outside heat pump instead of an integrated water heating system. The working principle of the heat pump is shown in Figure 1 above.

This research tests the heat pump system with a hot water with the tank size of 100 Liters. Actual ambient temperature (Ta) when data was collected is equal to 26.5 - 27.9 degree Celsius at the time of 19:32 to 20:25 hrs. By the hot water temperatures of up to 55 degree Celsius in the tank, a Thermocouple was connected to the Data logger to record the test results to a computer using Multi-meter to measure voltage and Clamp meter to measure the electricity to the technical use of the pump system.

Table 1: *Detail of the washing machine.*

Brand	Fisher & Paykel	
Model	WA80T65G	WL80T65CW2
	W1	
Water Heating System	Yes	No
Water Usage (Liter)	82	82
Capacity (kg)	8.0	8.0
Energy Usage (kWh/365uses)	664	369

Then analyzing the data helps creating a mathematical model by defining the purpose of the model to be applied to the washing machine with outside hot water system, and of size of 8 kg, which demand for hot water of 80 Liter. This modelled system is then let to compare with the washing machine holding an integrated water heating system. Table 1 above shows the specification of the washing machine in a home of a small family (3-4 members).

Now, the following picture would give an idea of how to use and attach a heat pump to the washing machine in a house. Connecting pipes from the hot water tank to the washing machine would enable a user to use the hot water when it is needed.

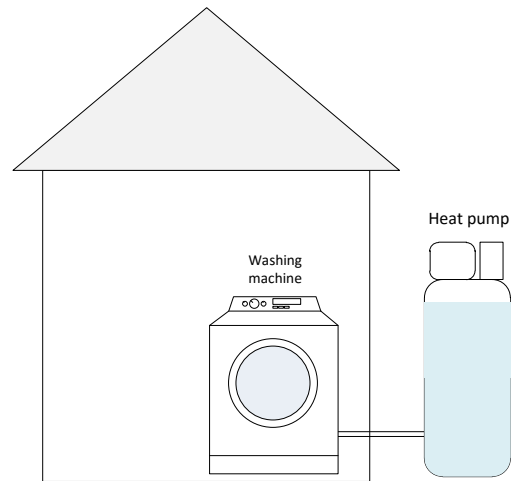


Figure 3. Heat Pump and Washing Machine in a House

The question is why heat pump is established outdoor. This is because the device relies on the ambient air temperature, and at outdoor which is relatively high.

3. Results:

This analysis considers the hot water with a tank size of 80 and 100 liters to bring hot water to the washing machine with no integrated hot water system. In Figure 3, the temperature inside the bucket compared to the time calculated from the mathematical model. It can be seen from the figure that, the temperature inside the tank is increasing in a steady way for both the experiment and simulation criteria.

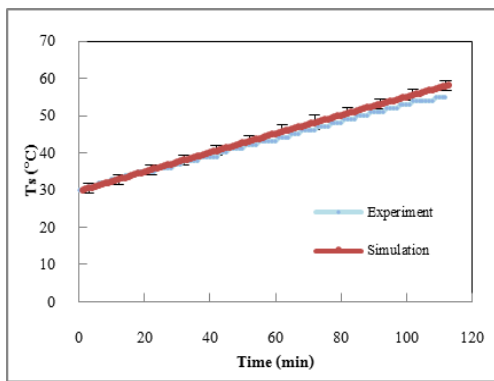


Figure 4. Water temperature in the storage tank for simulation vs. experiments with respect to time.

Compared with the temperature in the water tank of the experiment involved with environmental temperature causes heat transfer systems are slow and limit the surface temperature is 55 degree Celsius to produce hot water within 1 hr. 53 min (113 min).

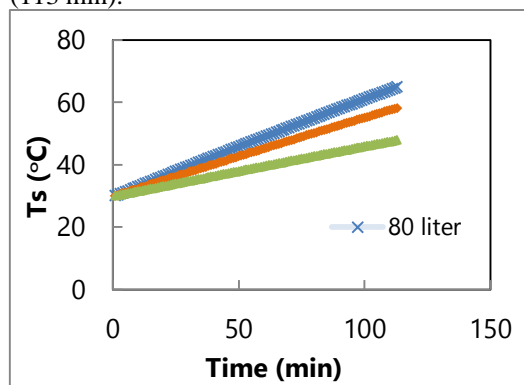


Figure 5. Comparison of the temperature of hot water in the hot water storage tanks of various sizes.

The graph above is for building a mathematical model, that hot water tank temperature of approximately 55 degree Celsius to various sizes can be seen that the water tank size of 80, 100 and 160 liters can heat water to the desired temperature at the time 37, 43 and 55 minutes, respectively. For 80 liter tank, it is being seen that T_s to Time graph line is steeper than the others. This is because, the increased water temperature helps heating up the smaller tank water more quickly.

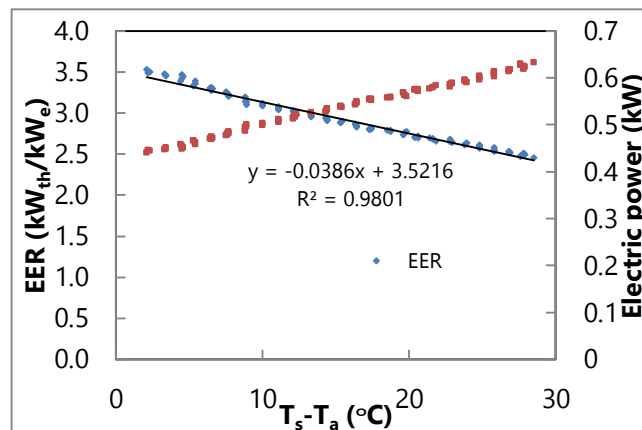


Figure 6. Performance of the heat pump during experiments with mathematical models compared with the environmental temperature, water temperature in the tank.

From the plot above, trial for getting EER shows a reduction in value, which is due to environmental temperature, and the temperature inside the tank as well. During this experiment, the trial of error is 3.5% when compared to the mathematical model. Again, the table as follows needs to analyze to further understanding of electricity consumed.

Table 2: Power consumption of the devices.

Equipment's	Power (kWh/year)
Heat Pump	142.4
Washing machine with no hot water heat pump system.	511.4
Washing Machine with integrated heat pumps	664.0

The table above shows the amount of power to produce hot water by a stand-alone heat pump keeping the temperature up to 55 °C with the tank size of 80 liters spends less, thus saves energy.

4. Discussion:

The research covers the small family (3-4 people total membership) to analyze the test results with the appropriate size of the hot water tank. It found that the use of heat pumps to produce hot water at a temperature of 55 °C spent 37 min with a water tank of 80 liter capacity. The performance ratio of the heat pump (EER) of 10 has been found for applied washing machine system. Hot water measuring 8 kg consumed electricity was 511.4 kWh / year compared to the washing machine with hot water system in its body. This can save electricity 152.7 kWh/year which is equivalent to a less power consumption of 22.9% in terms of yearly usage. EER of the heat pump

measured in the experiment though doesn't certify the performance of all air source heat pumps used in washing machines general, but still this experiment gives the idea of how to make sure of having a general manufacturer's rating that can give the idea of how efficient it might be of using an air source heat pump for heating water for washing machines. Performance of a device may vary in of different types and of different components of a system.

5. Conclusion:

This research was laid down to analyze the performance of a heat pump used in a washing machine. It shows that an air source heat pump consumes significantly less power than a washing machine found in the market. Data were taken in the summer only. If winter data can be explained, it might help understand the system behaviour in more diverse way. For different seasonal data for the experiment may tell different performance of the system. Some few minor specifications should be out of the studies, and may be overlooked. In this research, the researchers used a particular situation to compare all the possibilities of how a heat pump can do for a washing machine in terms of energy consumptions.

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References

- 1- Bengtsson, P., Berghel, J., & Renström, R. (2014). Performance study of a closed-type heat pump tumble dryer using a simulation model and an experimental set-up. *Drying Technology*, 32(8), 891-901.
- 2- Cengel, Yunus A. and Michael A. Boles (2008), *Thermodynamics: An Engineering Approach* (New York: McGraw-Hill), Sixth edition.
- 3- Dieckmann, J., Roth, K., & Brodrick, J. (2004). Heat pumps for cold climates. *ASHRAE journal*, 46(12), 115.
- 4-Energy Saving Trust. (2014). [Online]. <http://www.energysavingtrust.org.uk/domestic/air-source-heat-pumps>, October 2015
- 5- Garner, T. (2015). [Online]. <http://www.clean-organized-family-home.com/laundrytemperature.html#sthash.jH8zQNuE.7yVo56E0.dpbs>, October 2015.
- 6- Ha, H. Y., & Janda, S. (2012). Predicting consumer intentions to purchase energy-efficient products. *Journal of Consumer Marketing*, 29(7), 461-469.
- 7- Handbook, A. S. H. R. A. E. (2005). *HVAC systems and equipment. American Society of Heating, Refrigerating, and Air Conditioning Engineers*, Atlanta, GA.
- 8- Höjer, E. (2014). *Personal communication*. ASKO Appliances AB 1966-2005.
- 9- Maytag. (2015). [Online]. <http://www.maytagcommerciallaundry.com/content.jsp?pageName=Maintenance-Washers-Advice3>, October 2015.
- 10- Persson, T. (2007). Dishwasher and washing machine heated by a hot water circulation loop. *Applied thermal engineering*, 27(1), 120-128.
- 11-Roy, R., Caird, S., & Potter, S. (2010). *Getting warmer: a field trial of heat pumps*.
- 12- U. S. Department of Energy. (2014) Energy. gov. [Online]. <http://energy.gov/energysaver/articles/choosing-and-installing-geothermal-heat-pumps>
- 13- Ward, D. O., Clark, C. D., Jensen, K. L., Yen, S. T., & Russell, C. S. (2011). Factors influencing willingness-to-pay for the ENERGY STAR® label. *Energy Policy*, 39(3), 1450-1458.
- 14-Zhang, J. G. (2014). *National Renewable Energy Laboratory*. Private Communication.



An Analysis of Instructional Strategies in Teaching Oral Literature in Kiswahili among Selected Secondary Schools in Bungoma County

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Abstract: Teaching of oral literature in Kiswahili is an issue that has put teachers, students, scholars, and all the stakeholders in general on their toes. This issue has been a challenge to all stakeholders because the teaching of oral literature in Kiswahili for several decades in this country was neither given the prominence it deserves in the educational curriculum nor in book publishing. There was a need to carry out this study to determine the level of preparedness among teachers of Kiswahili. The target population involved all teachers that have undergone professional training. Data in this study was gathered through classroom observation, interview, and questionnaire and document analysis. From the data that was analyzed, it was revealed that majority of the teachers were not prepared well in colleges, universities and even in the field to teach oral literature in Kiswahili.

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Keywords: Oral literature, teaching, Bungoma County, stakeholders. Instructional strategies.

1. Introduction:

The teaching of oral literature in Kiswahili is an issue that has put teachers, students, scholars, and all the stakeholders in general on their toes. This issue has been a challenge to all stakeholders because the teaching of oral literature in Kiswahili for several decades in this country was neither given the prominence it deserves in the educational curriculum nor in book publishing. This neglect was not confined to Kiswahili alone. The same applied to oral literature in English.

Even though oral literature in Kiswahili has of late begun being given more consideration as a subject in school and colleges, it has been taught in almost all educational systems since independence. Even if this was the case, oral literature in Kiswahili didn't come out very clearly in previous systems of education. In addition, the teaching strategies that were being applied had some shortcomings. According to Kobia (2003), the teaching of topics of oral literature in Kiswahili for a long time has been done without adherence to a clear policy. Lack of a clear policy and lack of seriousness when teaching oral literature in Kiswahili is what made the researcher undertake this study in order to establish its position now in secondary schools.

The Ominde Commission of 1964 recommended Kiswahili to be a compulsory subject but despite this, oral literature in Kiswahili was taken

as an item or subject that was there just to pass the time. This commission further recommended that there was no problem of using one lesson every day for storytelling in class one, two, and three of primary schools.

Chimerah and Njogu (1999) portray how oral literature in Kiswahili was not given consideration after independence. According to these scholars, oral literature was taken to be an item of entertainment purposes and hence was not given any serious consideration. They further argue that previously oral literature in Kiswahili was not given emphasis in schools and colleges because it was not being examined at the national level. In line with this, it is evident that before independence, there wasn't any emphasis as regards teaching of oral literature in Kiswahili.

The situation wasn't any better immediately after independence since oral literature was made an optional subject and it didn't come out as an independent subject in the secondary school curriculum. According to Wamakonjio (1985), oral literature as an academic subject appeared for the first time in the English syllabus in 1980. In this context, it is evident that oral literature in English benefitted but not oral literature in Kiswahili.

It is important to note that the very first 8-4-4 syllabus that was prepared by K.I.E. (1985) just mentioned oral literature once. Other than that, the

objectives of the first syllabus didn't mention anything to do with teaching and learning resources of oral literature in Kiswahili. It is evident from the beginning that curriculum developers didn't put much emphasis on the teaching of oral literature in Kiswahili.

It is evident from the foregoing information that teaching of oral literature in Kiswahili previously lacked proper organization since different genres appeared in different skills. There is a very high indication that teaching oral in Kiswahili lacked clear guidelines and policy. According to Shitemi (2006), oral literature in Kiswahili was in most cases taught through language lessons, compositions, and written literature. This information adds to the earlier assertion that teaching oral literature in Kiswahili had not been given enough attention in the curriculum a situation that made the researcher carry out this study to analyze the teaching strategies employed in teaching oral literature in Kiswahili in secondary schools.

An examination of the K.I.E. syllabus (2002) that is currently in use reveals that oral literature in Kiswahili has been incorporated and will be examined nationally at the secondary school level. This decision has led to the emergence of challenges that affect the teaching of oral literature in Kiswahili. Shitemi (2006) mentions that there is a problem of how to handle topics of oral literature during Kiswahili lessons in secondary schools. She asserts that this problem cannot be solved if teachers are not well prepared.

Teacher preparation in universities and teacher training colleges is an issue that is to a large extent affecting the teaching of oral literature in Kiswahili. Many teachers who were diploma holders trained in the 1980s were not given the background as per the requirements of the new syllabus even if they were taught oral literature in Kiswahili. In addition D.T.E syllabus K.I.E. (1981) continues to show that in the methodology unit oral literature in Kiswahili was not taught. Emphasis was laid on the teaching of tales, proverbs, riddles, narratives among others.

Ipara (2006) points out the problem that is facing teachers. He argues that his investigation had revealed that although some teachers had welcomed the decision to incorporate oral literature in the syllabus others do not like it and see it be very difficult. He adds that the negative attitude towards oral literature has its basis in the teacher training colleges. He reveals that diploma teachers were the ones who were taught oral literature but at the university level, oral literature was optional and hence a number of teachers were not taught oral literature. It is evident from the foregoing information that teachers from universities were not well prepared to

teach oral literature in Kiswahili. In addition, an examination, of course, descriptions of various universities reveal that teachers are just given general concepts on oral literature but methods and strategies of teaching are not handled.

In addition, to the shortcomings in teacher trainer colleges and universities, there is no evidence that teachers were prepared while in the field through seminars, workshops, and symposiums before implementing the new curriculum that was reviewed in 2002. Ipara (2006) suggests that teaching can be improved by giving refresher courses to teachers who are in the field in order to sharpen their teaching methodologies. This situation prompted the researcher to analyze instructional strategies used to teach oral literature in Kiswahili in order to determine the present state in secondary schools.

2. Statement of the Problem:

Implementation of the reviewed curriculum (2002) was done with haste. It is evident that implementation of reviewed curriculum was done without piloting and this is likely to have made teachers encounter so many challenges in teaching oral literature in Kiswahili.

Other than that, there is no evidence that practicing teachers in the field were given or subjected to enough preparation before implementation of the new curriculum. This is a very delicate situation bearing in mind that some teachers were not taught oral literature while in college. Oral literature was not given emphasis since it was an optional unit in some of the universities.

During the annual heads meeting that was held in Mombasa in 2005, head teachers asked the Ministry of Education to organize workshops and seminars that will give an insight of the new syllabus and language subjects. It is evident from this plea of head teachers that teacher preparation to handle the new syllabus is wanting and hence the need to investigate the issue.

The head teachers complained about the new areas like oral literature and sociolinguistics which were introduced. Their concern was on how they were to be taught and their format in the national examinations. This complains of head teachers is enough proof to show that teachers of Kiswahili were not given adequate preparation to handle new aspects and units of the syllabus.

In addition, most of the researches that have been carried out about oral literature have been targeting different areas but not its teaching. This has created a big gap in the oral literature field that was given emphasis in the reviewed curriculum of 2002. It was important for research to be carried out in order for teachers to have a clear understanding of oral literature in Kiswahili.

In line with reasons indicated earlier, the researcher has no information as regards any other research that has been undertaken about instructional strategies of teaching oral literature in Kiswahili in Bungoma County and hence the reason why he has undertaken this research.

3. Objective of the Study:

This study was guided by the following objective: To determine the level of preparedness of teachers teaching oral literature in Kiswahili.

4. Justification of the Study:

It is evident that when you are undertaking a new concept there is a possibility of being faced with challenges. Oral literature in Kiswahili has been given attention and will be examined at the secondary level in KCSE of 2006. This is likely to affect teaching and hence the reason why the researcher decided to carry out a study to investigate instructional strategies employed to teach oral literature in Kiswahili within secondary schools in Bungoma County.

Due to the newness of the subject, there is a possibility of a challenge arising on how to handle some topics of oral literature in Kiswahili. This statement gave the researcher the impetus to unearth challenges that may affect strategies used to teach oral literature in Kiswahili. It is the hope of the researcher that the study will give solutions to some of those challenges.

On the basis of the fact that oral literature in Kiswahili is a new phenomenon, there is a shortage of publications on strategies of teaching it. Hence, there is a need for more research that will go a long way to improve its teaching. Lack of enough reference books affects the growth and development of this genre. This research was meant to ignite researchers to undertake further research in oral literature in Kiswahili. Oral literature in Kiswahili has been given a new face and emphasis in the new curriculum.

It is, therefore, common knowledge that much hasn't been undertaken as regards research and teaching of oral literature in Kiswahili. In addition, teaching subjects call for specific methods or strategies. Kiruhi (1981) together with Okombo and Masanjila (1994) agree that every subject has its own uniqueness and has to be handled in its own unique way though there is a lot of interrelationships. This research, therefore, was undertaken to come up with suitable strategies that will improve the teaching of oral literature in Kiswahili.

5. Research Design and Methodology:

5.1. Study Area:

This research was done in Bungoma County. The researcher settled on this area due to several

reasons. The first one is that KCSE Kiswahili national results for the whole county have not been impressive in the recent past based on the records available at the District Education office. The researcher also wanted to analyze instructional strategies used to teach oral literature in Kiswahili in order to see how teaching is conducted after the curriculum review of 2000.

In addition, the researcher observed that the target population from which he got his sample was big enough to portray various characteristics. It was therefore taken that the sample from the whole district could enable the researcher to examine all the variables that were identified for this research. In this research, teachers of diploma and degree of different experiences were used. This study area was also chosen since no other research that is known has been conducted on instructional strategies used in teaching oral literature in Kiswahili in Bungoma County.

5.2. Sample:

The target population for this research involved all Kiswahili teachers who were given training and graduated. The researcher used teachers from 131 public Secondary Schools within Bungoma County. (Records from Bungoma District Education office)

Reports that head teachers submit to the Education office every end of the month indicated that there were 272 teachers of Kiswahili who had qualified and graduated. This research targeted eighty (80) teachers who teach form one, two, and three only. The researcher used teachers of the mentioned classes on the basis that instructional strategies used to teach oral literature in Kiswahili are applied at all levels. Form four teachers were not used in this study since most of them were concentrating on revision for the purpose of the examination. According to Cheptabok (1999), students of form four are not suitable for research because most teachers give them many questions for revision for the purpose of the examination.

5.3. Sampling Procedure:

This study adopted a two-stage sampling procedure. The first one involved the stratified sampling technique while the second involved the simple random sampling technique. The stratified sampling technique was used to organize teachers on the basis of strata. Teachers were grouped into four strata on the basis of qualification and experience. Mugenda and Mugenda (1999) explain the importance of the stratified sampling method. They argue that it enables even the smallest sample to be incorporated in the research which could have been left out if other methods could be used.

On the basis of qualification, the researcher established one stratum of Diploma holders and

another of Degree holders. Experience as a criterion was used to establish two or more strata. One composed of teachers with less than 12 years teaching experience while another comprised of teachers of more than 12 years teaching experience. The researcher used the criteria of 12 years because it was not possible to get enough diploma teachers who had taught less than five years. This situation rose from the reason that most colleges that were offering diplomas were converted into universities. See table one below:

Table 1: *Distribution of target population within Bungoma County.*

Strata	Information of strata	Total no of teachers	Percentage	Total sample	Sample percentage
I	Dip<12	28	10.52%	8	10%
II	Dip>12	60	22.55%	16	20%
III	Dig<12	100	37.59%	33	41.25%
IV	Dig>12	78	29.32%	23	28.75%
Total		266	100%	80	100%
		Number		Number=	
		266		80	
		(100%)		(30.1%)	

The second sampling procedure involved the simple random sampling technique. This was used to select a representation sample of 80 teachers who participated in this study from a population of 266 teachers. This comprised 30.1 percent of all teachers that were targeted. This selection was done on the basis of the views of Tuckman (1988) who argues that a sample of 257 and more of respondents is representative and able give enough data that can be reliable.

In order to select a representative sample from each stratum the researcher based on the list of names of teachers from every stratum. The researcher wrote names of teachers from every stratum on small pieces of paper. The researcher ensured that the small pieces of paper were uniform and thereafter folded them in a similar way and put in four cartons according to the strata. Thereafter the researcher picked the number of names required from every stratum.

5.4. Research Instruments

The researcher used the following instruments in this study: Questionnaires, observation, and interviews. According to Warwick and Linger (1975) researchers are expected to use instruments that are reliable and cheap.

5.4.1. Questionnaire

The researcher used this instrument to collect data. Cohen and Manion (1980) indicate that the use of a questionnaire is the best form of a survey in carrying out an educational inquiry. Kothari (1985) adds that the questionnaire is taken to be the backbone of an inquiry. He stresses that it should be prepared very carefully.

The questionnaire of teachers was divided into three sections. Kerlinger (1978) observed the lack of responses in this questionnaire method and hence the researcher never overlooked this weakness or shortcoming during data collection. He minimized this problem by delivering and collecting all the questionnaires personally.

5.4.2. Observation

An observation guide was used to collect data during the actual teaching of oral literature in Kiswahili. This was necessary to verify responses from questionnaires and the interviews schedule and related instructional practices. Observation provides a conceptually adequate analysis of a classroom life based on factual recording and description. This was according to Stubbs (1976). One single stream was observed in cases of schools with more than one stream whose teachers would have been interviewed.

5.4.3. Interview

According to Mutai (2000), an interview can be able to mean a questionnaire that is administered orally. Instead of writing a response, a researcher gives an explanation of the required response by way of interacting with the respondent. The researcher employed this method since the interview can capture all the information that can't be captured by the observation method according to Warford (2001). Warford goes further to explain that the interview allows the researcher to analyze and come up with what cannot be seen through observation.

The researcher visited schools and arranged with teachers about the day and time of the interview. This instrument was used by the researcher to collect information as regards the following aspects: Background information about teachers, their professional training, and experience. The second section was about teacher preparation. This instrument was used to determine if teachers were taught oral literature during their training or not. Other than that, this instrument was also used to establish if teachers were prepared through seminars, workshops for any other course before implementing the revised curriculum.

5.5. Data Collection and Procedures

The research was conducted after the researcher getting a permit from the Ministry of Education. The researcher visited the selected schools in person to give the teachers the questionnaires and an introduction letter that was requesting them to participate in the research. It was estimated that a period of two weeks would give enough time to the respondents to fill the questionnaires without affecting their daily programs. At the end of the given period, the researcher personally collected the questionnaires from the teachers. The questionnaires were collected on the day the researcher observed the lessons and conducted the interviews.

The researcher collected timetables for the lessons to be observed before the exercise. The researcher requested teachers to allow him to attend their lessons without informing them of the specific day. This was purposeful to avoid a situation where a teacher would thoroughly prepare for a lesson than usual. This could easily affect the results. The researcher was introduced in class before the lesson and this was done to remove any anxiety among students because of the stranger in class. The researcher attended a forty minute lesson in the selected schools. During this research, every aspect was recorded at the time of its occurrence.

The interview method was also used to collect data. Teachers were interviewed in their departmental offices or at a quiet place. Some of the teachers who were used during observation were the same that were used during the interview. This exercise took between forty and forty-five minutes after the lessons.

5.6. Data Analysis

Data was analyzed using descriptive statistical techniques such as frequencies and percentages.

This study employed the tabulation method which is a process of transferring data from data gathering instruments to a tabular form in which they were systematically examined. Tables were used in the data presentation. A table is a systematic method of presenting statistical data in vertical columns and horizontal rows according to some classification of subject matter. From the analysis of data, the researcher was able to interpret the findings and draw conclusions.

6. Data Presentation, Analysis, and Discussion of Findings:

6.1. Preparation of teachers in colleges and universities.

The researcher used the interview method to determine if teachers were trained to teach oral literature in Kiswahili while in colleges and universities. The researcher observed that 100% of

diploma teachers below 12 years' experience received training on how to teach oral literature in Kiswahili. The study revealed that 27.27% degree holders of a teaching experience of less than 12 years were trained on how to teach oral literature in comparison to 21.73% of a teaching experience of over 12 years who never received the training. It is evident from this research that all teachers who were diploma holders received training on how to teach oral literature in Kiswahili as compared to only 25% of the degree holders who received training in the same course.

It was also revealed that 47.5% of teachers who received training on how to teach oral literature in Kiswahili confessed that it had given them a good foundation that enabled them to teach without any problem. On the other hand, 52.5% of teachers who didn't get training on how to teach oral literature in Kiswahili complained that they encountered problems when teaching oral literature in Kiswahili. These teachers informed the researcher that they were forced to use a lot of time to read and research in order to prepare well and be ready for presentation. Others said that they were not sure on the best instructional strategy and approach that was required when teaching oral literature in Kiswahili and consequently this affected their performance.

7. Summary, Conclusion, and Recommendations of the Study:

7.1. Teacher preparation in colleges and in the field.

According to the Ominde Commission of 1964, production of teachers that were well educated and competent was the greatest contribution that the government could give to schools. The Commission further explained that even if the greatest problems in Kenya were the few numbers and teacher competency, continued improvement of teachers was important in efforts of improving education. Despite the recommendations of the Ominde Commission the policy about teacher preparation in colleges was still an issue that was worrying.

This study revealed that 52.5% of teachers who were used in this study never received training on how to teach oral literature in Kiswahili. All diploma teachers that were used in this study received training on how to teach oral literature in Kiswahili. In the universities, some teachers never received training in oral literature in Kiswahili since the course was optional in some universities. This research revealed that generally the total number of teachers who didn't receive training on oral literature in Kiswahili is higher than those who received in universities.

The results of this study are a course to worry as regards teaching oral literature in Kiswahili. The teachers who constitute 52.5% that didn't get training on how to teach oral literature in Kiswahili

acknowledged that they do get problems when teaching oral literature in Kiswahili. In addition, 10.25% of diploma teachers with a teaching experience of over 12 years claimed that the training they received had taken a long time and that it was not in line with the new syllabus.

The results of this study reveal that the new curriculum that was reviewed was implemented with haste without preparing teachers well. The teaching and learning of oral literature are bound to be affected if the key stakeholders lack basic skills in teaching the same course. These views are supported by Sifuna (1980) who insists that teachers who lack relevant training cannot implement the curriculum effectively. In addition, basic training alone in colleges is not enough to give a teacher enough professional training. Due to the changing social and cultural environment under which a teacher does work, there is a need for a teacher to receive regular refresher courses and training (The Republic of Kenya, 1995).

Professional workshops, seminars, and symposiums are important because they open up the teachers' ability to interpret the syllabus and improve performance in class. This study revealed that the Ministry of Education didn't organize adequate professional activities and programs before implementing the reviewed curriculum. This research revealed that 56.25% of all teachers who were used in this study didn't receive any preparation to teach oral literature in Kiswahili while in the field.

Table 2 shows that 47.5% of teachers attended seminars whereas 52.25% did not. Only 35% of teachers attended workshops as compared to 65% who didn't.

In summary, these statistics show that a very small percentage of teachers were prepared before implementation of the new curriculum that incorporated the teaching of oral literature in Kiswahili. Some of the teachers interviewed informed the researcher that they didn't get any invitation or communication as regards professional activities. This information sends some fears considering the fact that some of the teachers didn't undertake the course of oral literature in Kiswahili while in university.

Proper implementation of the curriculum requires quality assurance officers to give advice and direction. It is interesting in this study that only 24.4% of teachers were visited by quality assurance officers. It is evident from this data that many teachers didn't get any guidance from quality assurance officers. It can be deduced from the information given that the Ministry of Education has shown some laxity in performing its obligations. There is a danger that oral literature may not get proper guidance if quality assurance officers will not play their roles effectively.

The foregoing results reveal that many key stakeholders who are teachers were not well prepared before implementation of the curriculum. It is difficult for teaching and learning to take place effectively if teachers are not well grounded on the foundation to handle or teach oral literature in Kiswahili.

7. Conclusion:

The results of the study indicate that teaching of oral literature in Kiswahili is an issue that requires urgent intervention. The picture being portrayed from this research is that teachers haven't done well as regards teaching of oral literature in Kiswahili.

It was revealed from this study that training in colleges and universities alone aren't sufficient for teachers as they implement a new curriculum. It also came out clearly that teachers in the field lacked seminars, workshops, and any other relevant training before implementation of the new curriculum.

6. Recommendations:

The following recommendations were made with a view of improving teaching oral literature in Kiswahili. Training of teachers in universities needs to be reviewed to be in line with the current needs and vision 2030. The oral literature course in universities needs to be made compulsory because all teachers will be expected to teach oral literature while in the field. In addition, the teaching methodology course needs to improve in order for teachers to identify best methods of teaching oral literature in Kiswahili.

The study also recommends that quality assurance officers should be distributed in all districts so as to ensure that they reach all the teachers. There is a need for quality assurance officers who are well conversant with oral literature to visit several schools in order to identify challenges that affect teachers when teaching oral literature in Kiswahili. Some of the challenges could be addressed in well-organized seminars, workshops, and symposiums. Such arrangements will give teachers hope and remove the uncertainties facing them as they teach oral literature in Kiswahili. The seminars and workshops should be well organized in order to reach many teachers in identified areas. It is important for the seminars and workshops to involve experts in order for them to be of relevance to the teacher.

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References

- 1- Chimerah, R., & Njogu, K. (1999). Ufundishaji wa Fasihi: Nadharia na Mbinu.
- 2- Kobia (2003) 'Ufundishaji wa mada za Fasihi Simulizi" Katika Taifa Leo, Nairobi: Nation media group, toleo la.
- 3- Kenya Institute of Education (KIE), (1981) Kiswahili Sekondari: Mwongozo wa mwalimu
- 4- Kenya Institute of Education (KIE), (1985), Secondary Education Syllabus. Nairobi: Ministry of Education.
- 5- Kenya Institute of Education (KIE), (2002) Ministry of Education Secondary Education Teacher Preparation Guide for Kiswahili. Nairobi: Ministry of Education.
- 6- Kerlinger, F.W. (1978). Foundations of Behavioral Research. New Delhi, Surjeet Publications.
- 7- Ipara, O.I. (2006). "Matatizo ya Kufundisha Fasihi Simulizi katika Shule za Upili" Katika Fasihi Simulizi ya Kiswahili, Nairobi: Twaweza na CHAKITA- Kenya.
- 8- Ipara, O.I. (2006). "Uchapishaji wa Fasihi Simulizi nchini Kenya: Matatizo, Changamoto na Mustakabali wake', katika Fasihi Simulizi ya Kiswahili, Nairobi: Twaweza Communications na CHAKITA – Kenya.
- 9- Kiruhi, M. (1987). Teaching Methodologies. An Essential Handbook for Instructors and Student Teachers. Jemisik Cultural books Ltd.
- 10- Okombo, O & Nandwa, J. (1992). Reflections on Theories and Methods in Oral Literature. Nairobi. Kenya Oral Literature Association (KOLA).
- 11- Mugenda, M & Mugenda, G. (1999) Research Methods. African Centre for Technology Studies (ACTS) Nairobi, Kenya.
- 12- Tuckman, T. (1988) Conducting Educational Research. (3rd Ed) New York: Harcourt Jonanovic Publishers.
- 13- Warwick, L na Linger R. (1975), The Sample Survey Theory: Theory and Practice. New York: McGraw-Hill.

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AppendixTable.2: *Attendance of Professional activities.*

Professional activity	Participants	Diploma <12	Diploma >12	Total	Degree <12	Degree >12	Total	Total of degree and diploma
Seminars	Attended	3(37.5)	10(62.5)	13(54.16)	13(39.39)	12(52.17)	25(75.75)	38(47.5)
	Didn't attend	5(62.5)	6(37.5)	11(45.83)	20(60.6)	11(47.8)	31(93.93)	42(52.5)
Workshops	Attended	1(12.5)	8(50)	9(37.5)	9(27.27)	10(43.47)	19(33.92)	28(35)
	Didn't attend	7(87.5)	12(60)	19(79.16)	24(72.72)	13(56.52)	37(66.07)	56(70)
Symposiums	Attended	1(12.5)	2(12.5)	3(12.5)	2(6.06)	1(4.34)	3(5.35)	6(7.5)
	Didn't attend	7(87.5)	14(87.5)	21(87.5)	31(93.93)	22(95.65)	53(94.64)	74(92.5)
Training on job	Attended	0	0	0	0	0	0	80(100)
	Didn't attend	0	0	0	0	0	0	80(100)
All activities mentioned	Attended	0	0	0	0	0	0	80(100)
	Didn't attend	0	0	0	0	0	0	80(100)



Rock-Pigeons in Some Parts of Bangladesh

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Abstract: Out of 492 rock pigeons the highest percentage were shown in blue bar (74.59) then blue checker (10.77). Other types are pied (5.89), black (2.64), white (2.24) and mealy bar (1.22). In Sylhet Shah Jalal Majar though there lot of pigeons but for mixing with other breeds especially tumbler and domestic breeds now this pure breeds are facing its purity and found only 57 pure rock pigeons. In Kushtia town (observed pigeons 150) in some old building and roadside wooden chambers which are provided by pigeon lovers are keeping this pigeons. Poradaha town and its Railway Station observed total pigeons were 97 and these pigeons take water adjacent from a pond. Some illegal and hawker of the platform captured the squab of rock-pigeon and take as meat in Ishwardi railway station (total pigeons 188). Highest pigeons, male and female were found in Ishwardi and lowest in Sylhet of Bangladesh. Observed adult rock pigeons there were some juveniles but those were not counted in sex ratio. All pigeons take food on the platform and when public gathers they go outside. With the wild rock pigeons, some domestic and tumbler breeds are mixed and living well for a long time. In Sylhet this study was performed on 27 December 2014, in Kushtia 29 May, Poradaha 30 May and Ishwardi 31 May in the year 2015.

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Keywords: Sylhet; Kushtia; Poradaha; Ishwardi; Railway station; Bangladesh.

1. Introduction:

Wild rock pigeons are found in most of the world except Antarctica. Except Bangladesh other countries there is a huge large colony of wild rock pigeons. In Bangladesh in some ancient cities, railway station, hilly areas and with domestic pigeons its number is not bad. In Fancy pigeons, all variety carry blue color with two black bars on the wing. These pigeons are the origin of all fancy pigeons (Darwin, 1859). On the road, roadside it takes food as grains, seeds, and insects.

Most people put basket here and there especially the top of the house so it passed its breeding life smoothly. Its breeding season is April and May. Due to unhygienic condition (Kabir, 2014a) and excess hot or for less food its number is decreasing day by day. Over taking as food and urbanization, its number is facing problems. From the blue rock pigeons now by selective breeding there are 300 varieties of pigeons are found all over the world. The unhygienic condition is the main causes of disease spreading (Kabir, 2014a). Feral pigeons *Columba Livia* are the most successful avian colonies of the cities and characterized by wide variation in plumage (Leiss & Haag-Wackernagel, 1999a).

Feral pigeons are derived from domesticated dove-cote pigeon, lost homing and fancy styles (Haag-

Wackernagel, 1998). Rock pigeons are killed by predator birds and human hunters and starvation through seasonal variation (Peterson & Williamson, 1949; Hewson, 1967; Goodwin, 1976). In most European cities feral pigeons are caught by public for the meat which allows weak and handicapped birds to survive (Haag-Wackernagel, 1995, 1998).

In the urban area for hard winter the mortality rate of rock pigeons are absent (Peterson & Williamson, 1949). Plumage characteristics of rock pigeons are wild type or blue bar with lower frequencies of checker (Solomonsen, 1935; Peterson & Williamson, 1949). In last few thousand years human have produced huge color variations in pigeons which are absent in wild stock (Haag-Wackernagel, 1998). Variations in plumage polymorphism in feral variations from their domestic ancestry (Go, 1972; Johnston & Janiga, 1995; Leiss & Haag-Wackernagel, 1999a).

There are 60 hereditary factors are found in feral pigeons (Gibson, 1995). Within this 23 were found in Vienna feral populations (Leiss & Haag-Wackernagel, 1999b). There are four primary patterns in rock pigeons- barred, barless, checker and T-pattern (Haag-Wackernagel et al., 2006). Plumage morphs are dependent on behavioral and physiological states (Murton et al., 1973; Leiss &

Haag-Wackernagel, 1999a). Fledging feral pigeons are roosting shelters with threatening city life such as traffic, transmission lines, disease, cats and dogs (Johnston & Janiga, 1995).

Newly fledged pigeons show the highest mortality between 31-90 days of age (Nohlgren & Wagner, 1977) and time between fledging and settlement in a feeding flock in crucial (Johnston & Janiga, 1995). Juvenile birds are reddish leg and adults their dark grey orbital skins (Johnston & Janiga, 1995; Kautz & Malecki, 1990). Due to melanin formation in town environment in most European variety are a blue bar (Janiga, 1991).

Checkers have selective disadvantages than the blue bar (Peterson & Williamson, 1949). Murton and Clarke (1968) and Murton (1970) speculated that continuous breeding in the blue bar its chicks contains less fat which is cause for death in poor feeding. In feral pigeons, huge melanic plumages are common in large town and fewer blue bar in small town (Johnston & Janiga, 1995).

The history of pigeons in Bangladesh is not clear. Its raising was a hobby in Dhaka inherited from Mughal since the 16th century. However, some are an opinion that when Saint Shah Jalal left Delhi and arrived in Sylhet in 1303, Hazrat Nizamuddin Auliya gave him two pairs of black pigeons. As such these pigeons are referred to as Jalali pigeon. Kushtia bears the sign of rich cultural heritage of the region from the Mughal period. However, during the British rule, Kushtia was not a separate district – it was a part of the Nadia district (now in West Bengal). Poradaha also bears the sign of our route of some renowned people to India. However, during the liberation war, this station has remarked an important railway station of Bangladesh. From here different towns are connected to some other important areas. Ishwardi railway station was established in 1878 from Calcutta to Siliguri. 185 km journey along the eastern Bengal state railway from Calcutta station (later renamed Sealdah) to Damookdeah Ghat on the southern bank of the Padma River.

2. Materials and Methods:

2.1. Sylhet Shah Jalal Majar:

In Sylhet Shah Jalal Majar there huge wild rock pigeon but some domestic and tumbler pigeons there mixed variety formed. There a little pure wild rock pigeon. Peoples are served paddy and wheat as its food. Due to mismanagement, there pox, twisted neck and eye problems were found. Only tumbler and domestic variety which normally not found on land and live upper part of the building and they are mostly fine (Table 1-2; Diagram 1-2).

2.2. Kushtia Town:

Four places of Kushtia where in three some pigeon lovers have made a wooden chamber for better living of this pigeon. In the morning this pigeon takes food on the road which is not fresh and hygienic. Water taking reservoir is not adequate. People don't know that many pigeons are lost for searching the water. It needs water pot near its dwell place. An ancient building in Kushtia town near Baro Bazar there some wild rock pigeons is living well. But food and water source is a problem there. The death rate by heat in pigeons is very common in Kushtia (Table 1-2; Diagram 1-2).

2.3. Poradaha Town and its Railway Station:

Near the Poradaha railway station there some rock pigeons are available. In this area there some rice mill is located. The pigeons are getting huge food for a living. Huge food and basket are useful for its proper breeding. In Poradaha Railway Station the number of pigeons is adequate. Moreover, near the station, there is a pond which is very essential for that pigeons (Table 1-2; Diagram 1-2).

2.4. Ishwardi Railway Station and Locoshed:

This railway station is biggest one in other railway stations. It adjacent areas there is a loco shed where thousands of thousands wild rock pigeons are lived once a time. Now some pigeons are locally migrated from loco shed to the railway station. Due to protection acts, huge food, good management in loco shed its number is mentionable (Table 1-2; Diagram 1-2).

2.5. Observe the rock pigeon and its types:

Blue colored with two black bars on the wing this is blue barred pigeons. When this black bar or band is scattered is called checker which seems black spots mainly on the wing as Chinese spotted dove. When these black spots are overlapping in the whole body looks black and white and black scattered or partially is pied. Sometimes the blue bar is replaced by brown color is a mealy or brown bar and checker. Brown is replaced by red and when there are no pigments they showed white (Table 1-2; Diagram 1-2).

3. Results:

Table 1: Rock pigeons in four places

Type of rock-pigeon	Sylhet Shah Jalal Majar (♂,♀)	Kushtia town (♂,♀)	Poradaha town and its Railway Station (♂,♀)	Ishwardi Railway Station and its Locoshed (♂,♀)
Blue Rock-Pigeon (C. l. Livia)	3 (1, 2)	-	-	-
Indian Blue Rock-Pigeon (C. l. intermedia)	29 (8, 21)	119 (25, 94)	77 (20, 57)	139 (33, 106)
Blue Checker	5 (1, 4)	12 (5, 7)	11 (6, 5)	25 (13, 12)
Mealy Bar	2 (1, 1)	3(1, 2)	-	1 (1, 0)
Mealy Checker	-	1 (1, 0)	-	-
Brown Bar	-	-	1 (0, 1)	1 (0, 1)
Brown Checker	-	-	1 (0, 1)	1 (1, 0)
Self-Red	2 (0, 2)	3 (1, 2)	-	3 (0, 3)
Pied	6 (3, 3)	8 (0, 8)	4 (2, 2)	11 (4, 7)
Black	7 (5, 2)	-	2 (0, 2)	4 (3, 1)
White	3 (3, 0)	4 (0, 4)	1 (0, 1)	3 (0, 3)
Total (♂,♀)	57 (22, 35)	150 (33, 117)	97 (28, 69)	188 (55, 133)
Ratio (♂:♀)	1:1.59	1:3.55	1:2.46	1:2.42

Table 2. Percentage of different types of rock pigeons

Types	Total	Percentage
Blue Bar (C. l. Livia and C. l. intermedia)	367	74.59
Blue Checker	53	10.77
Pied	29	5.89
Black	13	2.64
White	11	2.24
Self-Red	8	1.63
Mealy Bar	6	1.22
Brown Bar	2	0.41
Brown Checker	2	0.41
Mealy Checker	1	0.20

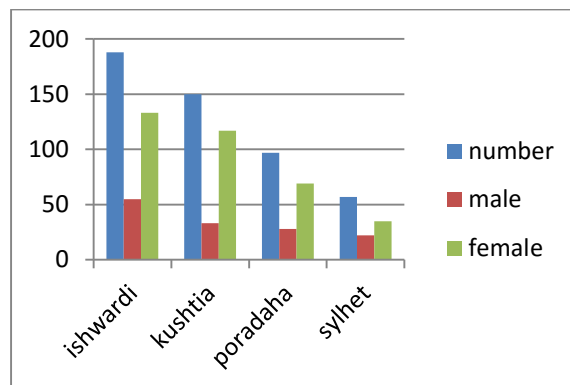


Diagram 1. Showing the availability of rock pigeons on its number with male and female

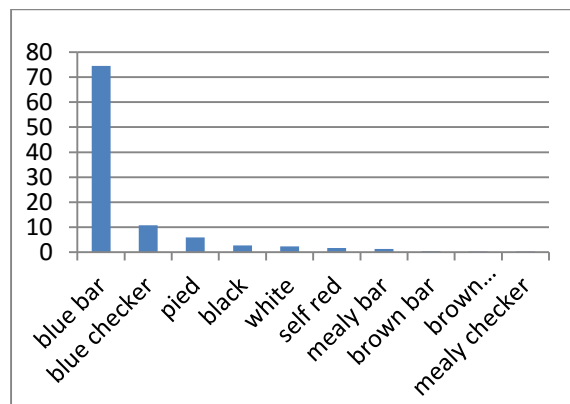


Diagram 2. Showing the percentages of different type of rock pigeons

4. Discussion:

A study on 7682 feral populations where 1135 (14.8%) were juvenile, 6547 (85.2%) adult, 29.9% blue bar and 27.5% blue checker (Haag-Wackernagel et al 2006). Wild pigeons carry Salmonella as well. Newcastle disease is very closely related to the twisted neck (torticollis). There are about 30 types of diseases are found in pigeons (Weber 1979). The waste product of pigeons carries more Aspergillus fungus and there 2% Salmonella bacterium (Muller 1965).

A study shows that older pigeons are the carrier of Trichomonas gallinae. The environment of pigeons' rearing is very suitable in Asia as well as Bangladesh (Kabir 2014b). Some resident birds are caught during nesting season so that those can't lay safely eggs (Kabir 2012). Within the wild rock population sometimes when it goes to the field and mix with domestic variety then tumbler and Columba Livia domestic comes with this pigeon and stay in the station. In Ishwardi Railway Station I found a blue bar rock pigeon squab with crest but its parents were both

wild type head. Due to living under tin-shed in hot season heat stroke, eye disease, and pox are very common diseases of this pigeon. Cleanliness by the worker is good but for this some pigeons are getting frightened so they escape from this shelter. As the railway stations are more or less protected so pigeons are not poor in number.

5. Conclusion:

Rock pigeon is the ancestor and origin of all fancy pigeons. In protected areas as well as railway station is good for living of wild rock pigeon. Due to government railway station their some rules and regulations now pigeons are more or less preserved in such a way. Due to excess heat of tin in summer season pox, heat stroke and eye problems are very common and for this pigeons are decreasing in little.

In Sylhet due to little knowledge of rock pigeons, some people release domestic or tumbler pigeons. So that crossed between and among them now this rock pigeon is facing the stability of its own gene and genotype frequency. Immediately need to take some attempts for preserving this original pigeon.

In Bangladesh most of the rock-pigeons are Indian Blue Rock-Pigeon- *Columba Livia intermedia*, this is totally blue in color with two black bars on wing, long-necked and rump is dull blue. Whereas the Blue Rock-Pigeons differs only white rump. After the duties of the worker some illegal or hawkers are caught the squab for meat. In Poradaha station, there some baskets are hanged for its proper breeding.

In Ishwardi Railway Station there only one tumbler male pigeons and domestic (one crested and one leucite) pigeons were found with this rock pigeon population. Nest of Common Myna (*Acridotherus tristis*) and House Swift (*Apus affinis*) were found in Poradaha and Ishwardi with these rock pigeons. There were no conflicts among birds for living different areas. We need to protect this rock pigeons by providing the strong implementation of wildlife act, especially in railway station areas.

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References

- 1- Darwin, C. (1859). On the Origin of Species... (John Murray, London). *Mentor edition, New American Library, New York City.*
- 2- Gibson LP. 1995. *Genetics of pigeons* Columba Livia (Gmelin). Plain City, USA.
- 3- Go, R. C. P. (1972). *The genetics of pigeon populations on Oahu* (Doctoral dissertation, [Honolulu]).
- 4- Goodwin, D. (1976). *On Some Characters of Rock and Feral Pigeons.*
- 5- Haag-Wackernagel, D., Heeb, P., & Leiss, A. (2006). Phenotype-dependent selection of juvenile urban Feral Pigeons *Columba Livia*: Capsule We suggest the existence of colour-based selection processes on juvenile Feral Pigeons in an urban environment. *Bird study*, 53(2), 163-170.
- 6- Haag-Wackernagel, D. (1995). Regulation of the street pigeon in Basel. *Wildlife Society Bulletin* (1973-2006), 23(2), 256-260.
- 7- Haag-Wackernagel, D. (1998). *Die Taube: Vom heiligen Vogel der Liebesgöttin zur Strassentaube.* Schwabe.
- 8- Hewson, R. (1967). The Rock Dove in Scotland in 1965. *Scott Birds*, 4, 359-371.
- 9- Janiga, M. (1991). *Colour polymorphism in feral pigeons (Columba Livia Gm. 1789).* *Acta Fac. Rerum Natur. Univ. Comen., Zool*, 34, 31-37.
- 10- Johnston, R. F., & Janiga, M. (1995). *Feral pigeons (Vol. 4).* Oxford University Press on Demand.
- 11- Kabir MA. 2012. Breeding birds in Saidpur cantonment area, Bangladesh. *Intl. Res. J. of Biochem. And Bioinformatics* 2(10): 216-219.
- 12- Kabir MA. 2014a. Symptomatic treatments of some common diseases of fancy pigeons in Bangladesh. *Acme J. of Animal Science, Livestock Production and Animal Breeding* 1(1): 1-4.
- 13- Kabir MA. 2014b. Known and unknown pigeons in mughal history. *Social and Basic Sciences Research Review* 2(5): 277-283.
- 14- Kautz, J. E., & Malecki, R. A. (1990). Effects of harvest on feral rock dove survival, nest success and population size. *Fish and wildlife technical report (USA). No. 31.*
- 15- Leiss, A., & Haag-Wackernagel, D. (1999). Gefiederfärbungen bei der Strassentaube

- (Columba Livia). *Journal für Ornithologie*, 140(3), 341-353.
- 16- Leiss, A., & Haag-Wackernagel, D. (1999). Variability and determination of the plumage coloration of the feral pigeon *Columba Livia*. *Ecol Birds*, 21, 331-363.
 - 17- Muller, G. (1965). Salmonella in bird faeces. *Nature*, 207.
 - 18- Murton, R. K., Thearle, R. J. P., & Thompson, J. (1968). Ecological studies of the feral pigeon *Columba Livia* var. I. Population, breeding biology and methods of control. *Journal of applied ecology*, 835-874.
 - 19- Murton, R. K., Westwood, N. J., & Thearle, R. J. (1973). Polymorphism and the evolution of a continuous breeding season in the pigeon, *Columba livia*. *Journal of reproduction and fertility*. Supplement, 19, 563-577.
 - 20- Haag-Wackernagel, D., Heeb, P., & Leiss, A. (2006). Phenotype-dependent selection of juvenile urban Feral Pigeons *Columba livia*: Capsule We suggest the existence of colour-based selection processes on juvenile Feral Pigeons in an urban environment. *Bird study*, 53(2), 163-170.
 - 21- Nohlgren, S. R., & Wagner, W. D. (1977). Large scale production of White Carneaux pigeons with reliable pedigrees: reproductive characteristics and parent-offspring identification. *Laboratory animal science*, 27(3), 396-403.
 - 22- Fr, N., Botni, P., & Williamson, K. (1949). Polymorphism and breeding of the Rock Dove in the Faeroe Islands. *Ibis*, 91(1), 17-23.
 - 23- Solomonsen F. (1935). *Columba livia Gmelin*. In *Jensen AS, Lundbeck W and Martensen T (eds) Zoology of the Faroes. Aves: 67-69. Martensen, Copenhagen*.
 - 24- Weber, W. J. (1979). *Health hazards from pigeons, starlings and English sparrows; diseases and parasites associated with pigeons, starlings and English sparrows which affect man and domestic animals. Includes suggestions for bird control*.

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Appendix



Plate 1. Sylhet Shah Jalal Majar



Plate 2. Kushtia town



Plate 3. Poradaha Railway Station



Plate 4. Ishwardi Railway Station and Locoshed



Emirati Student Profile within Nursing Education

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ABSTRACT

Background: Nursing started in the United Arab Emirates with the arrival of expatriate nurses in the later part of the nineteenth century, but fifty years on though, nursing education in the country is still in its infancy, and currently only 3% of the local population are taking up the profession as a career choice in the country.

Objective: Being an inaugural study in the UAE, in the Abu Dhabi Emirate, and within nursing education, the objective of this study was to create a profile of existing Emirati Nursing student characteristics, with a view of identifying specific sub-groups within the population that could later be the focus of customized recruitment and retention strategies.

Design: The research design used was quantitative with an exploratory descriptive design, using a convenient sampling technique. Data for this study was collected from students studying at a College of Health sciences in the Abu Dhabi Emirate. This college is the only one currently offering baccalaureate degree Health Science related programs in Nursing, in the Emirate. Therefore, the subjects of the questionnaire data collection method included all Emirati pre-entry, undergraduate and bridging students studying in the nursing program (n=140), at the college, during the period of the study.

Findings: The pre-entry, undergraduate and bridging Emirati students in the College of Health Sciences are mostly traditional, with respect to being female (100%) and being between the ages of 18 – 24 (88.6%), but are also nontraditional in terms of some of them following a different educational pathway into the program (25%), for example an art major in high school, not studying in their native Arabic language, and being a first generation college student.

Conclusions: The study findings are relevant for Emirati student recruitment and retention practices in the nursing program in the Emirate of Abu Dhabi today. This was the first study to investigate pre-entry, undergraduate and bridging Emirati student profiles in the College of Health Sciences and in the nursing program. Non-traditional students are an essential component in contributing to the growth of the profession, and support measures including recruitment campaigns need to be in place to recruit and retain this vulnerable subset of the nursing population.

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Keywords: Emirati; Nursing Education; Quantitative Research; demographic data; Student profile.

1. Introduction:

Nursing today is a dynamic profession, constantly evolving itself to meet the health care needs of the society to which it caters. It is one of the largest healthcare professions in the world, with professionals working in a myriad of healthcare settings, such as hospitals, clinics, primary health care centers, schools, and colleges. A distinct profession grounded on a growing body of knowledge that governs its professional practice, nursing maintains a unique role that recognizes autonomy, accountability and responsibility as critical concepts in its scope of

practice. While for some the path to becoming a nurse and entering the nursing profession is straightforward, rewarding and fulfilling, for others it is standing at the career crossroads of life where the road to nursing requires guidance.

The United Arab Emirates, since its unification in 1971, has developed at a very remarkable pace with modernization in oil, tourism and education followed closely by a need for better health care services. The nursing profession started in the UAE with the arrival of expatriate nurses in the early 1960s (El-Haddad, 2006). Fifty years on, though, nursing education in the



country is still in its infancy. Educational reform in nursing education is the need of the hour to advance the profession from the diploma level to the baccalaureate degree and to provide a solution to the nursing shortage in schools and hospitals (Wollin & Fairweather, 2012). With only 3% of the nursing workforce being Emirati locals, the need is urgent for Emirati nurses to step in and change the face of the profession, from a political and socio-cultural perspective.

2. Background:

In the Middle Eastern region, the development of the nursing workforce is at various stages of progress, with Yemen having as few as 0.65 nurses and Qatar having 4.94 nurses per 1000 population. But these statistics alone fail to present a complete picture, for while Jordan, Qatar and the UAE seem to have relatively similar number of nurses per 1000 at 3.24, 4.94 and 4.18 respectively, it should be noted that in Jordan only 6% of the work force is foreign, while in Qatar 94% of the nurses and in the UAE 97% of the nursing workforce is comprised of expatriates (WHO, 2006). Humanitarian organizations like the UAE Red Crescent Society have been active in the UAE since 1983 but did little to contribute to the growth of the nursing profession in the region.

The United Arab Emirates is situated in the gulf region, along the tip of the Arabian Peninsula. At the end of the British occupation in 1970, a federation was formed among neighboring states and in 1971 the UAE became a sovereign nation (Abdulla, 2005). It is comprised of the seven Emirates of Abu Dhabi, Dubai, Sharjah, Ajman, Ras Al Khaimah, Umm Al Quwain and Fujairah. The educational system is composed of three stages: six years of primary education, three years of middle school and three years of secondary education. This is followed by higher education in the various public and private universities that are provided in the UAE. The Ministry of Education and Scientific Research (MOHESR) is the federal authority that regulates all public and privately-run higher education institutions in the country.

In the health care sector, nursing education seeks to provide the theoretical background and technical skill competency required of nurses to meet these educational demands. In the 1970s, Institutes of Nursing in the various Emirates, backed by the Ministry of Health, offered the diploma program in nursing, and nursing education in the Emirate of Abu Dhabi began with the first nursing school in 1974 (Kronfol & Athique, 1986). Since the 1990s, various schools of nursing affiliated with universities or government agencies have for short periods provided the baccalaureate degree in nursing programme, an

example being the Institute of Nursing in Abu Dhabi which was dissolved to give way to the nursing programme in the Higher Colleges of Technology in 2004, which was subsequently closed in 2009. Currently, the Fatima College of Health Sciences in Abu Dhabi, opened in 2006, is offering the nursing degree to its students (Wollin & Fairweather, 2012). The Federal Department of Nursing in the UAE Ministry of Health (MOH) had set one of their goals for the year 2011 as, “to encourage more UAE nationals to join the nursing and the midwifery profession” (Annual Report, 2011, p. 4). At the end of the year, however, they were able to report only “339 Emirati nurses working in the MOH facilities/districts in the UAE” and the establishment of “an Emirati Nurse Representative group to discuss issues relating to enhancing the image of nursing in the community” (p. 5).

In the UAE, as with other higher education programmes, there is an import of foreign curricula in the field of nursing education, an example being the American system which was used in the Higher Colleges of Technology from 2004 to 2009 and the Australian nursing curriculum currently being used in the Fatima College of Health Sciences (Wollin & Fairweather, 2012).

There is a growing number of women in the higher education system in the UAE in recent years but an overdependence on expatriate nurses, coupled with common misunderstandings regarding the role of a nurse, lingering perceptions of nurses being the handmaidens of doctors, low educational levels and limited knowledge regarding the scope of practice of nurses, have resulted in only 3% of the local population taking up the profession as a career choice (Wollin & Fairweather, 2012). There are currently four universities offering an entry-level baccalaureate program in nursing in the UAE, three of them government supported and one private. They are Sharjah University, the Higher Colleges of Technology (HCT), the Fatima College of Health Sciences, and the private Ras Al Khaimah Medical and Health Sciences University.

Within the Emirate of Abu Dhabi, there is currently only one College of Health Sciences, the Fatima College of Health Sciences, offering the baccalaureate degree in nursing, and students entering the college complete a pathway of one foundational year followed by a three year degree in their area of specialization – either nursing or pharmacy, or medical imaging, or radiology, or the paramedics program. During the foundation year, relatively more Emirati students join the College, but following the first year, they either discontinue this program in favor of another program in another university or choose one of the other specializations excluding

nursing. Very few Emirati students enter into the nursing program(s) at the college.

The UAE Ministry of State for Federal National Council Affairs (2008), in their report on 'Women in the UAE: A Portrait of Progress' typifies UAE's achievement by the 'evolution and growing prominence of Emirati women as partners and contributors in this remarkable nation-building process'. According to the report,

Women, who account for 49.3 percent of the national population, are today at the forefront of the workforce in the UAE in both the government sector as well as a growing number in the private sector. Aided by the government's commitment to empower women and provide them with equal opportunities, the status of women within the UAE has flourished in parallel with the country's growth. (p.1)

Within the college of Health Sciences though, at the end of the recruitment process, and after one year of exhausting college resources as well as student personal time, it is frustrating to bear witness to poor Emirati numbers within the nursing baccalaureate degree program(s). Several studies both in the West, and from within the Middle Eastern region have discussed this shortage in nursing education, and yet until date no one has researched this problem within the context of the United Arab Emirates.

3. Purpose and Research Question in this Study:

Being an inaugural study in the UAE, in the Abu Dhabi Emirate, and within nursing education, the purpose of this study was to identify Emirati student profile characteristics within the nursing program, in Abu Dhabi, UAE. The research question that guided the study was as follows,

1. What is the profile of the Emirati student within the nursing program(s) in the Abu Dhabi Emirate?

4. Review of Literature:

This section includes the theoretical framework guiding the study and a review of the relevant bodies of literature.

4.1. Jeffreys' (2014) Nursing Universal Retention and Success model (NURS)

Jeffreys' (2004) believes that students within the nursing discipline have distinctive characteristics that separate them from other professions and necessitates the development of a uniquely suited model. She developed the Nursing Undergraduate Retention and Success (NURS) to examine the wide range of factors that influence retention among nursing students in order to guide administrators and educators identify at-risk students and develop strategies towards effective recruitment and retention.

"Academic outcomes interact with psychological outcomes whereby good academic performance results in retention only when accompanied by positive psychological outcomes for the nursing program and profession" (Jeffreys, 2004, p.11).

After several years of exploring and examining the multi-layered factors surrounding this issue, Jeffreys' (2014) refined the model and called it the "Jeffreys' Nursing Universal Retention and Success Model" (NURS), to provide nurse educators with an organizing framework to optimize student outcomes. According to the model, successful student recruitment and retention into a nursing program is based on an interplay between student profile characteristics, student affective factors, academic factors, environmental factors, academic outcomes, psychological outcomes, societal surrounding factors, and professional integration factors. The model can be applied to the Emirati nursing student in the UAE, who is faced with all of these factors while contemplating a professional career as a nurse in the country (Figure 1)

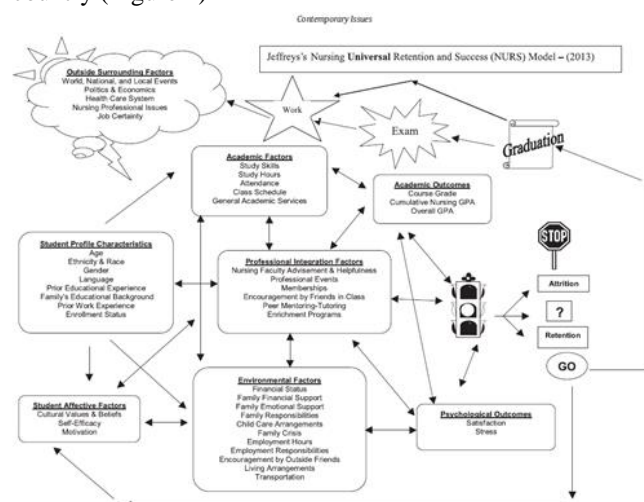


Figure 1. Jeffreys' (2014) Nursing Universal Retention and Success (NURS) Model

Jeffreys (2014) explains that student profile characteristics include age, ethnicity, race, and heritage, gender and sexual identity, first language, prior educational experience, family's educational background, prior work experience, and enrolment status. The intention is to identify influencing factors categorizing the student as a member of an under-represented group, non-traditional, or first generation college student. According to Jeffreys (2014), a non-traditional student would be one who meets one or more of the following criteria: a) is older than 25 years; b) studying in a part-time mode; c) male; d) a member of the minority community; e) having children; f) entering the program from another

different pathway and g) having prior exposure to the health care field.

Student affective factors would include their attitudes, values and beliefs regarding the nursing program, including societal cultural beliefs and the motivation to succeed. Jeffreys (2014) explains that students enter nursing education with prior values and beliefs that guide thinking, decisions making and actions within all aspects of life and is an important area of focus in student recruitment and retention. While academic factors and positive psychological outcomes have implications for student retention, societal surrounding factors related to the uncertain political and economic conditions that are unique to a country and which vary over time are equally important.

4.2. Emirati Youth in the United Arab Emirates

In the United Arab Emirates, since the 1970s, rulers of the nation have embarked on ambitious strategies aimed at diversification away from the petroleum industry, which involved providing alternative career paths for their youth into leading roles in new sectors across all levels of the society. The UAE National Strategy Vision 2021 (2010) asserts that

Ambitious and responsible Emiratis will successfully carve out their future, actively engaging in an evolving socio-economic environment... In their professional lives they will prove that the route to success lies through personal commitment, dedication, and a strong work ethic. Satisfaction and motivation will reward their self-reliance and initiative; their appetite for risk-taking will be fueled by a vigorous entrepreneurial spirit ... [it envisions a] diversified and flexible knowledge-based economy will be powered by skilled Emiratis and strengthened by world-class talent to ensure long-term prosperity in the UAE (pp. 2, 4, 14).

Jones (2011, p. 20) recently conducted a salient scoping quantitative study for the Al Qasimi foundation in Ras Al Khaimah to ascertain the career goals and aspirations of the Emirati youth, and these have served to provide a baseline for comparison away from popular stereotypes of UAE nationals as “lacking a strong work ethic, the motivation to achieve, a sense of civic responsibility, and a number of other attitudes seen as important for national development”, in large part because of their eligibility for social benefits provided by the government. These assumptions are discussed by Al-Waqfi and Forstenlechner (2010) in their research on stereotypes in the UAE by the expatriate labor market.

In his study concerning economic, social, and political attitudes in the Ras Al Khaimah Emirate comparing Emirati and non-Emirati youth (n= 62),

regarding their choice of career, and the reasons behind the choices, Jones (2011) found in economic attitudes that most young Emiratis are interested in public sector careers. Over fifty percent of the study participants chose careers such as “government,” “police,” or “military” as their top preferences when given a choice of seven sector options, including government, education, military, police, private business, government business, entrepreneurship, and non-profit organization. Twenty-three percent of the Emiratis in the study selected government while another thirty-two percent selected military or police related careers (Jones 2011), compared to the non-Emiratis where the majority selected private sector careers.

When asked to comment on their career preferences, Emirati responses demonstrated a priority given to degree qualifications rather than the career itself, similar to the non-Emirati responses. Jones (2011) suggests that unlike non-Emiratis where the influencing factors were internal such as personal likes and dislikes regarding a profession, for the Emiratis the factors could be external and related to exams and qualifications. But he is quick to add that for Emirati youth, another factor could be lack of exposure to different occupations and professions when compared to non-Emirati youth who all had expatriate parents working in various levels and careers in Ras Al Khaimah.

Regarding societal attitudes, Jones (2011) found that “Emiratis reported significantly more favorable attitudes toward the role of science and technology in society” (p. 16) and regarding the independence that women enjoy, Emiratis significantly agreed with the statement, “It’s more important for a woman to have a family than pursue a career”. Surprisingly, in the demographic distribution of his study, Jones (2011) fails to mention what percentage of the sample were female Emirati. Not surprisingly, Emiratis demonstrated that among values that should be encouraged in the UAE, obedience, love for country and religious faith had the most significance. Politically, Jones (2011) study shows that Emiratis are significantly more interested in local politics and federal politics in the UAE than in politics in the Middle East region, and while non-Emiratis in the study sample felt that business people should have more influence in society, Emiratis felt that popularly elected representatives (such as members of the Federal National Council) should have more influence in the political arena.

5. Research Methodology:

The methodology section discusses the site and participant selection in the context of the study, followed by the collection of data for analysis and



interpretation. Then data collection methods are discussed, followed by the ethical considerations.

5.1. Site and Participant Selection:

Data for this study was collected from students studying at a College of Health sciences in Abu Dhabi, having initial program accreditation from the Ministry of Higher Education for Scientific Research (MOHESR), and institutional accreditation from the UAE Commission of Advanced Accreditation (CAA). This college is the only one of its kind in the Abu Dhabi Emirate, offering baccalaureate degree Health Science related programs in Nursing, Pharmacy, Paramedics, Medical Imaging and Radiology to the community. Established in 2006, the College aims to meet the United Arab Emirates' growing need for skilled healthcare professionals. The College presently offers the Bachelor of Science in nursing degree along with other diploma and higher diploma courses.

The purpose of the program in the Al Rowdah Academy is to support entry into desired diploma and degree courses in IAT. These students are at the threshold of forming their career choices, and as such are an important source of information for the current study. Subjects for the study were recruited from a college of Health Sciences in Abu Dhabi. The college has campuses in Abu Dhabi, Al Ain, Ajman, Al Gharbia and Morocco, but the nursing program, at that time, was only being offered at the Abu Dhabi and Al Ain campuses, therefore only subjects from those two campuses participated in the study.

The subjects of the questionnaire data collection method included all Emirati pre-entry, undergraduate and bridging students in the nursing program. In this study, convenient purposive sampling scheme has been adopted because of the availability of only one College of Health Sciences in the Emirate, and because the purpose of the study is to profile the Emirati student in the nursing program, in Abu Dhabi, UAE. Thus, Emirati students at different levels of the program included, pre-entry (80 students), undergraduates (48 students), and bridging students (12 students), making a total of 140 participants. This sample size is adequate for small population sizes, as according to Brace, Kemp and Snelgar (2000), for a statistical test to be administered an acceptable size must be at least 100 participants.

5.2. Data Collection Methods:

In this study, quantitative data from Emirati students to establish student profiles were collected using questionnaires. According to Jeffreys (2012), today nursing students represent greater variability in terms of age, gender, ethnicity and race, prior educational experience, prior work experience,

family's educational background, and enrollment status than ever before. These factors have been taken into consideration during the formulation of the questionnaire for this study and consists of the above information that would be collected from the students in congruence with the NURS model, to determine the Emirati student profile. As the inclusion criteria only included Emirati students, the ethnicity was not included as part of the question. The data in the questionnaire distributed included the student's age, sex, level in the program, selection of major in high school, parent's educational and occupational experience, any previous health care related experience, any family members in the health care profession, and the area they live in.

5.3. Data Analysis:

For the analysis of the quantitative data, the researcher created a database to store the results from the questionnaire. The Statistical Package for Social Sciences (SPSS) 22.0 was used to conduct statistical analyses as it was assumed that the statistical package would be essential for interpreting the data in order to answer the research question formulated in this study, which is:

1. What is the profile of the Emirati student within the nursing program(s) in the Abu Dhabi Emirate?

The data was used to portray the Emirati student within the health sciences program and was analyzed using descriptive statistics analysis. The calculation of the mean and percentage frequencies identified the characteristic profile of the Emirati student within the nursing program(s) in the College of Health Sciences.

5.4. Ethical Considerations:

Ethical approval for the study was obtained from the British University in Dubai based on the university's guidelines for ethics in educational research. The ethical approval stage at the research site took about six months to procure because of other administrative reasons more urgent to the college. For purposes of confidentiality and anonymity, no identifiers were requested on the questionnaire.

5.5. Researcher Role:

The researcher was the sole investigator in the study. The research was conducted in a college where the researcher has been teaching nursing students from Abu Dhabi for the past 6 years.

6. Results:

Quantitative measures were used to determine the profile of the Emirati student studying in the College of Health Sciences. Questionnaires were

collected from all Emirati students at different levels of the program, pre-entry (80 students), undergraduates (48 students), and bridging students (12 students), making a total of 140 participants. The results of the data have been presented below to describe student characteristics. Within the variables, data sought included age, sex of the student, marital status, level in the program, major in high school, and place of residence in the Emirate, and have been represented in the following cohorts. All the participants in the study were females (100 %).

The majority of the students in the population were traditional students in the 18-24 year age group (88.6%) (Table 2). Students in the United Arab Emirates typically complete 12 years of schooling and then continue with higher education at one of the public or private universities in the country. The reason for the majority of participants being in this age group could be attributed to the differences in the population distribution between the pre-entry, undergraduate and bridging students. At the end of the first year, they make their respective career choices and then enter into the second year. So the 18-24 year age group is a reflection of the ages of participating Emirati students in the pre-entry and undergraduate levels of the nursing program in the college.

This finding is similar to a study conducted by Al-Kandari and Lew (2005) among Kuwaiti female high school students, where the participants were all between 14 – 20 years and unmarried, and another study by Eman et al. (2012) among Bahraini nursing students where the majority was female (87%), in the 18-20 year age group. But a study conducted by McCann et al. (2010) among nursing students in Australia showed that the 18% of the participants were male, and 20% were older than 30 years. “Students today include traditional college-age learners, and first-time adult learners”, according to Hallmark et al. (2014, p. 348, in Jeffreys’, 2014).

As indicated in Table 2, participants in the study belonged to three levels in the program, the pre-entry, under graduate and bridging levels. The majority of the students belonged to the pre-entry level. Bridging students relate to those students who had previously completed a diploma level in nursing or related subjects and were currently undergoing a bridging program to bring themselves up to the baccalaureate level.

The majority of students in the college have completed a science major in high school before entering it. It is interesting to note also that 23.6% of the participants enter a program in Health Sciences with no prior background in the sciences. This affects their ability to make a smooth transition into a rigorous science program.

Table 1: *Participants profile data*

No.	Demographic	Variables	Frequency	Percentages
1.	Age	15 – 24	124	88.6
		25 – 34	10	7.1
		35 - 44	6	4.3
		45 – 54	0	0
		55 - 65	0	0
2.	Sex of the student	Male	0	0
		Female	140	100
3.	Marital status	Unmarried	128	91.4
		Married	12	8.5
		Others	0	0
4.	Level in the program	Pre- entry	80	57.1
		Undergraduate	48	34.3
		Post-graduate	12	8.6
5.	Major in High School	Science	106	75.7
		Arts	33	23.6
		Commerce	1	0.7
6.	Residence in the Emirate of Abu Dhabi	Abu Dhabi Island	46	32.9
		Suburbs(Khalifa City, Shahama)	67	47.9
		Al Ain	27	19.2
7.	Family socio-economic status	≤ 10,000 AED	15	10.7
		10,000 – 50,000 AED	45	32.1
		50,000 – 100,000 AED	19	13.6
		≥100,000 aed	61	43.6
8.	Father's Educational level	Not Educated	16	11.4
		Primary School	10	7.1
		Secondary School	34	24.3
		Undergraduate level	21	15
		Higher Degree	59	42.1
9.	Mother's Educational level	Not Educated	19	13.6
		Primary School	20	14.3
		Secondary School	50	35.7
		Undergraduate level	27	19.3
10.	Father's Occupational status	Higher Degree	24	17.1
		Nursing	2	1.4
11.	Mother's Occupational status	Other health related	3	2.1
		Non – Health Related	135	96.4
		Nursing	3	2.1
		Other health related	3	2.1
11.	Mother's Occupational status	Non – Health Related	134	95.7
		Related		



A majority of the students who participated in the study (47.9%) lived in the mainland suburbs near the College. In Osaka and Ziady's (2001) study conducted in Qatar, the majority of students came from the urban areas. But the majority of these participants live in the suburbs (47.9%) compared to the Abu Dhabi island city center / island (32.9%), but it could be explained that the College is located in the suburbs and therefore there are more students from the adjacent surrounding areas. This close proximity could have been a deciding factor in their choice of higher education in the college.

Results of the study further indicate that (42.1%) of the participants' fathers had a higher degree educational level, followed by (15%) who had an undergraduate degree educational level, while among the mothers of the study participants, a lesser percentage had a postgraduate degree (17%), compared with those who had an undergraduate degree (19.3%). At the other end of the spectrum, some participants also had parents who were uneducated, with fathers at (11.4%) and mothers at (13.6%).

A study conducted by Law and Arthur (2003) among nursing students in Hong Kong showed that the majority of parents (fathers and mothers) of the respondents were primary school graduates (43.6% and 50.9%, respectively). This is dissimilar to the findings in my thesis which shows that the majority of parents are secondary school graduates. This also varies from Okasha and Ziady's (2001) study in Qatar, where the majority of parents were illiterate or just able to read and write. The fast pace of the economic and industrial revolution in the UAE that started forty years ago could be responsible for the first generation of graduates in the UAE (Kirk 2010).

It is evident from the results that most participants had parents in non-health related professions or occupations with fathers at (96.4%) and mothers at (95.7%). One limitation of the questionnaire not identified during the piloting stage was the inclusion of an option for participants with parents who did not work. Nnadi-Okolo (1990) suggests that during self-administration of the questionnaire if the participant has a question requiring clarification, the person administering the questionnaire can explain the question but not answer it. During the administration of the questionnaire in this study, students were offered an alternative to select the non-health related option, as it was more important to document results of parents being in the health care profession including nursing.

Concerning the occupational status, none of the respondent's parents in a study conducted by Law and Arthur (2003) in Hong Kong, were in nursing or other health related professions, while from among my

participants 3.5% had fathers in the nursing or other health related category, and 4.2% had mothers in the nursing or other health related professions. Jabeen (2010) conducted a study relating to attitudes towards career women's roles in the UAE, finding that parents' higher educational and occupational levels contributed to positive attitude formation towards women in career roles.

The majority of the participants in the study (43.65%) reported an annual socio-economic income of greater than 100,000 AED. Tong (2010) published a report on the 'Wages Structure in the United Arab Emirates' for the Institute for Social & Economic Research (ISER) at Zayed University, reporting that,

Geographically, workers' salaries differ significantly from some emirates to others. The Emirate of Dubai has the highest annual salaries on average (52K), followed by the Emirates of Abu Dhabi (42K) and Sharjah (30K). The Emirate of Ras Al Khaimah has by far the lowest salaries on average (13K). The difference between the highest and lowest pay is striking for such a small country. The other three northern emirates, Ajman, Umm El Quawain, and Fujairah, have similar salary levels ranging from 18K to 20K in 2008, and their differences are not statistically significant (p. 5).

This report included both the Emirati and the expatriate population with a reported average for Abu Dhabi at 42,000AED. A combination of the last two scale intervals demonstrate that 57.2% (43.6%+13.6%) of the participants' earned more than the Emirate's average in terms of monthly income. Law and Arthur (2003) associated family income with the intention to pursue nursing as a career among students in Hong Kong and found that as the family income increased, the choice to take up nursing as a career decreased.

The majority of participants in the study (86%) have seen a nurse in action prior to entering the College of Health Sciences for their higher educational degree, while only 9% of the participants have worked, 20% have volunteered and worked, and 32% have volunteered in a health care facility prior to entering the college. Interestingly, a large percentage of the population (56.4%) have no prior personal experience in health care before joining the Health Sciences College.

Nursing as a profession is not an entirely new concept for the participants -10.7% of the participants have one or more family members are in a healthcare profession when compared to 45% of the participants who do not have family members in the health care profession.

Interestingly, a small percentage (5%) of participants had one or both parents as nurses. But this percentage falls quite short in comparison to a study

by Sand-Jecklin (2006), conducted among first year nursing students in the United States. In her study, 78% of the students reported having worked in the health care industry, or having a close family member who worked in health care, although it is not clear in what capacity, that is, as volunteers or in full-time paid positions.

Thus, in summary, as can be seen from the tables above, the majority of the students in the population sample are traditional students, being females (100%), in the 18-24 year age group (88.6%), pre-entry students (57.1%) who had taken science as a major in high school (75.7%), and lives in the suburbs of Abu Dhabi (47.9). Similar studies among nursing students in Qatar (Okasha & Ziady, 2001) and Jordan (Safadi et al., 2011) also show similar student characteristics in terms of demographic variables. But a study conducted by McCann et al. (2010) among nursing students in Australia showed that the 18% of the participants were male, 20% were older than 30 years, and 82 % lived in the metropolitan area.

Several experts (Dapremont 2013; Yateaman, 2004; Stroup, 2013) have stressed that to solve the nursing shortage, one of the important interventions is to “prime the pipeline” (Goodin, 2003), meaning recruit more students into the nursing profession, and the changing nature of the nursing profession suggests that more non-traditional students are entering programs of nursing. According to Jeffreys (2014), it is crucial to ascertain whether the nursing student:

a) Represents the profile of a student traditionally (historically) enrolled in nursing, or b) may be categorized as a member of an under-represented group, nontraditional, and/or first generation college student (p. 2).

A nontraditional would be one who meets one or more of the following criteria: a) is older than 25 years; b) studying in a part-time mode; c) male; d) a member of the minority community; e) has children; f) is entering the program from a different pathway; and g) has prior exposure to the health care field. According to Jeffreys (2014) nontraditional students and first generation college (post-secondary education) students have difficulty making career decisions. For first generation college students, mismatched expectations of the college academic and social experience pose challenges to academic achievement, and recruitment and retention. In addition, social isolation (or the feelings of not belonging) among nontraditional and first generation college students are also reported as factors adversely influencing recruitment, retention and success across all levels of nursing education.

The pre-entry Emirati student in the College of Health Sciences is traditional with respect to being female and between the ages of 18 – 24, but is also

nontraditional in terms of some of them following a different educational pathway into the program, for example an art major in high school, and a first generation college student. The educational status of participant parents shows that 42.8% of the fathers and 63.6% of the mothers of the participants are only educated up to the higher secondary level or less. The bridging Emirati student is more nontraditional in terms of being ≤ 24 years of age, marital status being married, having children, currently working, studying in a part-time mode, and entering the program through a different educational pathway, for example completing a diploma nursing program first and currently pursuing a bridging baccalaureate degree in nursing.

9. Discussion:

Jeffreys’ (2014) suggests that the profile characteristics of students in a program is a crucial factor in recruitment and retention. According to him,

Student profile characteristics describe characteristics prior to beginning a nursing course and include age; ethnicity, race, and heritage; gender and sexual identity; first language; prior educational experience; family's educational background; prior work experience; and enrollment status (p. 2).

Most of the Emirati students in the study entering the College of Health Sciences were traditional high school graduates, but they were also first generation college students in some cases and were non-traditional by studying in a language that was not their first language. Bridging students were more non-traditional by being married, working, having children, studying in a part-time mode and by not studying in their native language.

This finding is similar to other studies in the region. Osaka (2001) conducted a similar quantitative study among Qatari nursing students and found that the majority of the undergraduate students were between the ages of 18 and 35, and unmarried (77.2%). A look at their parents’ level of education showed that a half of their fathers and three-fifths of their mothers were illiterate or just able to read and write, indicating that they were first generation college students as well. According to Seidman (2007, in Jeffreys’, 2014), nontraditional students and first generation college students have lower recruitment and retention rates. Concerning first generation college students, Jeffreys’ (2014) adds that,

mismatched expectations of the college academic and social experience, especially during the first six weeks of transition to post-secondary education, pose challenges to persistence, motivation, self-efficacy, academic achievement, and retention, and includes social isolation (or the feelings of not

belonging) among nontraditional and first generation college students as reported factors adversely influencing retention and success across all levels of education (p.2).

He recommends that nursing educators should develop “proactive, transitional and ongoing strategies to capitalize on student strengths, prevent deficits and improve weaknesses”, among this group of non-traditional and first generation college student population (p.3).

Another study quantitatively conducted by Safadi et al. (2011) in Jordan found that first year nursing students in the study had a mean age of 21 years, but also interestingly reports that 26% were male students among their nursing population. A similar study, using mixed methods by Eman et al. (2012) in Bahrain found that the first cohort of nursing students in their program in 2006 included 5 males and 33 females. And AbuAlRub (2007) discusses strategies for the nursing shortage in Jordan and suggests that enrollment of male students in the nursing program would help increase numbers within the profession. He argues that as one of the cultural reasons associated with the nursing shortage in the region was family disapproval to working the night shift, the inclusion of male nurses in the profession could provide a possible solution to low rates of participation.

Male students in the program, though, would still require further additional awareness, motivation, familial and governmental support to enter an up-to-now female dominant career in the UAE. A qualitative dissertation by LaRocco (2004) conducted in Boston among male nurses, on “Policies and practices that influence recruitment and retention of men in nursing” found that males in the profession frequently chose other careers before settling on a career in nursing, and admitted to a lack of awareness regarding the profession before entering the program. Motivation to enter and stay in the program were related to job security and financial benefits, but since entering the profession, participants in the study reported that they now believe that nursing is a “genderless profession”.

10. Limitations of the Study:

Limitations of the study relate to it being conducted only among female Emirati students studying in Fatima College of Health Sciences and living in Abu Dhabi, UAE, as there are no male students currently enrolled at the college. Emirati students living outside the Abu Dhabi Emirate, and expatriate students living in Abu Dhabi or elsewhere, and pursuing a nursing degree, were outside the scope of the study.

11. Implications of the Study:

11.1. Education

The study findings are relevant for Emirati student recruitment and retention practices in the nursing program in the Emirate of Abu Dhabi today. This was the first study to investigate pre-entry, undergraduate and bridging Emirati student profiles in the College of Health Sciences and in the nursing program, in the Abu Dhabi Emirate. Non-traditional students are an essential component in contributing to the growth of the profession, and support measures including recruitment campaigns need to be in place to recruit and retain this vulnerable subset of the nursing population. First generation college students are also an important subset of the Emirati nursing student population, and need more support, advising, mentoring, counseling and guidance in their career trajectory.

11.2. Management

Administrators in the college of Health Sciences could utilize findings from this study since it provides important information about the different types of students within the college population who would be receptive to a career in nursing. Recruitment in colleges need to target this important student population, earlier (middle school) and more effectively through multifaceted approaches. Increasing a positive perception towards the nursing career involves early education about all the exciting options and opportunities that a nursing career has to offer.

12. Conclusion:

The results of this study have added to the paucity of literature regarding Emirati student profile characteristics, in nursing education in the UAE. Several factors significantly influenced the Emirati student in her decision to choose a career in nursing, including prior program major and fathers’ and mother’s educational and occupational level. . This study contributes to the information that national policy makers and stakeholders in the country could use, to customize their campaigning and recruitment strategies, given the current UAE health care climate of rapid evolution to meet high quality standards, and the crisis of only very few Emiratis in the nursing workforce to lead the change.

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References

- 1- Abdulla, F. (2005). *Emirati Women: Conceptions of education and employment*.
- 2- AbuAlRub, R. F., Khalifa, M. F., & Habbib, M. B. (2007). Workplace violence among Iraqi hospital nurses. *Journal of Nursing Scholarship*, 39(3), 281-288.
- 3- Ajjawi, R., & Higgs, J. (2007). Using Hermeneutic Phenomenology to Investigate How Experienced Practitioners Learn to Communicate Clinical Reasoning. *The qualitative report*, 12(4), 612-638.
- 4- Al-Awadi, A. (2012). The UAE leadership: a model of constructive engagement with the nation. The Emirates Center for Strategic Studies and Research [online] 17 January. [Accessed 13 March 2012]. Available at: http://www.ecssr.ac.ae/ECSSR/print/ft.jsp?lang=en&ftld=/FeatureTopic/Abdullah_AIAwadi/FeatureTopic_1496.xml
- 5- Al-Kandari, F. & Ajao, E. (1998). Recruitment and Retention of nursing students in Kuwait. *International Journal of Nursing Studies*, vol. 35, pp. 245-251
- 6- Al-Kandari, F. & Lew, I. (2005). Kuwaiti high school students' perception of nursing as a profession: Implications for nursing education and practice. *Journal of Nursing Education*, vol. 44, pp. 533-540.
- 7- Al-Mahmoud, S. (2013). The commitment of Saudi nursing students to nursing as a profession and as a career. *Life Sciences Journal*, 10(3), pp. 591 – 603
- 8- Al-Waqfi, M. & Forstenlechner, E. (2010). Stereotyping of citizens in an expatriate-dominated labour market. *Employee Relations*, vol. 32(4), pp. 364 - 381
- 9- Allen, J. & Aldebron J. (2008). A systematic assessment of strategies to address the nursing faculty shortage, *US Nursing Outlook*, vol. 56, pp. 286-297
- 10- Arthur, D. (2008). Singapore nursing: poised for growth and leadership in the region. *Nursing and Health Sciences*, vol. 10, pp. 167-168
- 11- Brodie, D., Andrews, A., Andrews, J., Thomas, G. Wong, J. Rixon, L. (2004). Perceptions of nursing: confirmation, change, and the student experience. *International Journal of Nursing Studies*, vol. 31, pp. 721-733.
- 12- Brooks, J. A., & Kleine-Kracht, A. E. (1983). Evolution of a definition of nursing. *Advances in Nursing Science*, vol. 5, pp. 51-85.
- 13- Brace, N., Kemp, R. & Snelgar, R. (2000). SPSS for Psychologists. New York: Routledge
- 14- Buchan, J. (2002). *Global nursing shortages*. *British Medical Journal*, 751-2
- 15- Buchan, J. & Calman, L. (2006). *The Global Shortage of Registered Nurses: An Overview of Issues and Actions*. International Council of Nurses, Geneva. [Online]. [Accessed 10 April 2014]. <http://www.icn.ch/global/shortage.pdf>
- 16- Butters, C. (2003). Associate Degree nursing students: A study of retention in the nursing education program. *Unpublished Dissertation*, University of Massachusetts Boston, Boston, Massachusetts.
- 17- Dapremont, J. (2013). A Review of Minority Recruitment and Retention Models Implemented in Undergraduate Nursing Programs. *Journal of Nursing Education and Practice*, vol. 3(1), pp. 112-119.
- 18- Diekelmann, N.L., Ironside, P. M. & Gunn, J. (2005). Recalling the curriculum revolution, innovation with research. *Nursing Education Perspectives*, vol.26 (2), pp.70-77
- 19- El-Haddad, M. (2006). Nursing in the United Arab Emirates: a historical background. *Nurse Educator*, vol. 53, pp. 284-289
- 20- Eman, T., Seamus, C. & Edgar, A. (2012). A triangulation study: Bahraini nursing students' perceptions of nursing as a career. *Journal of Nursing Education and Practice*, vol. 2(3), pp. 81-92.
- 21- Fitzgerald, G., Almalki, M., & Clark, M. (2011). The nursing profession in Saudi Arabia: an overview. *International Nursing Review*, vol. 58(3), pp. 304-311
- 22- Foong, A. (1999). Socio-cultural perspectives on the image of nursing: the Hong Kong dimension. *Journal of Advanced Nursing*, vol. 29(3), pp. 542-548
- 23- Gallant, M. & Pounder, J. (2008). The employment of female nationals in the United Arab Emirates (UAE) -an analysis of opportunities and barriers. Education, business, and society – *Contemporary Middle Eastern Issues*, vol. 1(1), pp. 26 – 33!!
- 24- Glesne, C. (1999) *Becoming Qualitative Researchers: An Introduction*, 2nd Edition. New York: Longman
- 25- Glesne, C. (2006). *Becoming Qualitative Researchers: An Introduction: Longman*
- 26- Grainger, P. & Bolan, C. (2005). Perceptions of nursing as a career choice of students in the baccalaureate nursing program. *Nurse Education Today*, vol. 26, pp. 38-44.
- 27- Hassan, J., Hassan M. (2012). Nursing Image in Qatar: Past, Present, and Future. *Middle East Journal of Nursing*, vol. 6(4), pp. 26-28
- 28- Jeffreys, M.R. (2004) *Nursing Student Retention: Understanding the Process and Making a Difference*. Springer, New York.

- 29-Jeffreys', M. (2007) Nontraditional students' perceptions of variables influencing retention: a multisite study. *Nurse Education*, 32(4), 161-167
- 30-Jeffreys', M. (2014). Jeffreys' Nursing Universal Retention and Success model: Overview and action ideas for optimizing outcomes A-Z. *Nurse Education Today*. Vol. 35(3), pp. 425-31
- 31-Kirk, D. (2010). The development of higher education in the United Arab Emirates. *The Emirates Occasional Papers*, vol. 74, pp. 1-57
- 32-Kronfol, N. & Athique, M. (1986). Nursing education in the United Arab Emirates. *International Journal of Nursing Studies*, vol. 23(1), pp. 1-10
- 33-Law, W. & Arthur, D. (2003). What factors influence Hong Kong school students in their choice of a career in nursing. *International Journal of Nursing Studies*, vol. 40, pp. 23-32
- 34-Larocco, S. (2004). *Policies and practices that influence recruitment and retention of men in nursing: a grounded theory study of socializing men into nursing. Ph.D. thesis*, University of Massachusetts Boston
- 35-Mebrouk, J. (2008). Perception of nursing care: views of Saudi Arabian female nurses. *Contemporary Nurse*, vol. 28, pp. 149-161.
- 36-Ministry of Health (2011). Annual Report – Federal Department of Nursing. UAE: Ministry of Health. Progress [online]. [Accessed 11 March 2015] <http://nas.moh.gov.ae/Annual%20Report%202011.pdf>
- 37-Ministry of State for Federal National Council Affairs. (2008). Women in the UAE: A Portrait of Progress [online]. [Accessed 11 March 2015]. Available at: http://lib.ohchr.org/HRBodies/UPR/Documents/Session3/AE/UPR_UAE_ANNEX3_E.pdf
- 38-Nelson, C. (2004), UAE National Women at Work in the Private Sector: Conditions and Constraints, Centre for Labor Market Research and Information, Tanmia, Dubai [online]. [11 March 2015] <http://www.zu.ac.ae/infoasis/modules/mod8/business/documents/uaenationalwomenatworkinthepriatesector.pdf>
- 39- Sawatzky, J. A. V., Enns, C. L., Ashcroft, T. J., Davis, P. L., & Harder, B. N. (2006). Teaching excellence in nursing education: a caring framework. *Journal of Professional Nursing*, 25(5), 260-266.
- 40-National League for Nursing. (2001). Position Statement: Lifelong Learning for nursing faculty [online]. New York [accessed 2 October 2011]. Available: <http://www.nln.org/aboutnln/index.htm>
- 41-National League of Nursing. (2003). Position statement: Innovation in Nursing Education: A call to reform [online]. New York [accessed 2 October 2011]. Available <http://www.nln.org/aboutnln/index.htm>
- 42-Okasha, M. & Ziady, H. (2001). Joining the nursing profession in Qatar: motives and perceptions. *Eastern Mediterranean Health Journal*, vol. 7(6), pp.1025-1023
- 43-Polit, D. F & Beck, C. T. (2006). Essentials of nursing research- methods, appraisal and utilization, Philadelphia, Lippincott Williams & Wilkins
- 44-Safadi, R., Saleh, M., Nassar, O. Amre, H. Froelicher, E. (2011). Nursing students' perceptions of nursing: a descriptive study of four cohorts. *International Nursing Review*, vol. 58, pp. 420 – 427.
- 45-Shukri, R., Bakker, B., El-Damen, M. & Ahmed, S. (2012). Attitudes of students at Sultan Qaboos University towards the nursing profession. *Sultan Qaboos University Medical Journal*. Vol. 13(4), pp. 539-44.
- 46-Tan-Kuick, G. (2012). *Factors affecting student's preferences of nursing education in Singapore*. DBA thesis. Southern Cross University
- 47-Tong, Q. (2010). Wages Structure in the United Arab Emirates. *Institute for Social and Economic Research*, Zayed University.
- 48-Wittgenstein, L. (1953) *Philosophical Investigations*. Oxford: Blackwell
- 49-Wollin, J. & Fairweather, C. (2012). Nursing education: a case study of a Bachelor of Science Nursing program(s) in Abu Dhabi, United Arab Emirates. *Journal of Nursing Management*, vol. 20, pp. 20-27
- 50-World Health Organization. (2006). Working together for health [online]. [Accessed 13 March 2012]. Available at: http://www.google.com/search?hl=en&source=hp&q=world+health+organization+2006+report&gbv=2&oq=world+health+organization+2006+report&aq=f&aqi=g-v1&aql=&gs_l=hp.13..0i15.106218656101987413713210111111116091364013-3j2j31810.11sin
- 51-Yateman, S. (2004). *Nursing education: the experience of three non-traditional learners*. Master's thesis, Queen's University, Canada.



Incentives System for Nurses in Assiut University Hospital

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ABSTRACT

Background: Incentives play an important role in organizations as it influences a variety of work-related behavior, as well as the motivation of employees. **Aims of the study:** The present study was conducted in the main Assiut University Hospital to assess nurse's awareness and satisfaction regarding the incentives system. **Subjects and Methods:** This study included 271 nurses who randomly selected from all units at the main Assiut University Hospital. The study included both quantitative and qualitative methods for data collection. **Results:** High percent of the participants reported that the most important incentives are fair remuneration, bounces, appropriate working hours, and different services (health/ education) (69.7%, 60.9%, 60.5, % 60.5%, respectively). The promotion, appreciation of work efforts, good relations with colleagues and superior encouragement were the most important morale incentives reported by (77.1 %, 71.2 %, 66.8 %, 64.6%) respectively. This is confirmed by the results of Focus group discussions as about half of the participants especially female nurses considered the morale incentives are more important than the financial one especially the good dealing and the respect from the physicians. **Conclusion and Recommendations:** In conclusion, this study indicates that nurses know what they want from incentives. Attention to priorities and flexible incentives system may help to create the cohesive work environment that nurses seek. Determine the objectives are the most important factors to increase the effectiveness of the incentive system.

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Keywords: Incentives; Nurses; Assiut University Hospital; Incentives System.

1. Introduction

Incentives play an important role in organizations as it influences a variety of work-related behavior, as well as the motivation of employees. Also, it can use to guide behavior and performance in an attempt to attract and retain the best-qualified employees and keep them satisfied and motivated (Gieter et al., 2006). Incentives defined as "all the rewards and punishments that providers face as a consequence of the organizations in which work the institutions under which operate and the specific interventions provide. Also, includes the factors and/or conditions within health professionals' work environments that enable and encourage them to stay in jobs, in the profession, and in countries (WHO, 2008).

Incentives can be financial or nonfinancial. Financial incentives involve the transfer of monetary values, such as salaries, pensions, bonuses, allowances, and loans. Non-financial incentives

include work autonomy, flexible hours, and scheduling, coaching and mentoring structures, support for career development, safe and clear workplaces, vacation days, study leave, planned career breaks, occupational health and counseling services, recreational facilities, equal opportunity policy, enforced protection of pregnant women against discrimination & parental, Also incentives may be positive which involve finance such as salaries, pensions, bonuses, allowances, psychological such as social support, respect and negative incentive such as punishment (WHO, 2008).

Nurses who feel treated fairly are most likely to give their education, experience, and effort to remain their jobs and would respond to the use of incentive with optimism and this sense of optimism would have a positive impact on their commitment to the hospital while those, who feel unfairly treated are most likely to look for other jobs (Mantler and



Armstrong, 2006). In other words, incentives may increase a person's effort; generally, it is thought that monetary incentives will increase effort and performance (Bonner et al., 2002).

Effective incentive systems present a well-designed and supported package, involve input from all relevant stakeholders in the design phase, embrace the principles of transparency, fairness and consistency, fit the purpose for which are intended and maintain the strategic impact of the incentive components, employ a combination of financial and non-financial incentives, carry out regular and systematic reviews and evaluate impact & motivate the target population (WHO, 2008).

The problem lies in the ability to measure and document the differences between the employees. This is a normal reason why incentive systems sometimes fail. The lack of objective criteria and measurement spreads mistrust among the employees towards management. Different departments within an organization may have different conditions to achieve good results, depending on what job assignment have. This may cause jealousy (Duberg, 2009).

2. Aims of the study:

The present study aims to: Explore nurse's awareness about the incentives system applied at main Assiut University Hospital. Identify nurse's satisfaction with the incentives system applied at main Assiut University Hospital and determine the problems of incentive system facing nurses in main Assiut University Hospital.

3. Subjects and Methods:

3.1. Significance of the study:

Although nurse job satisfaction has been linked to retention, a gap remains in identifying specific factors which can be managed or changed to improve satisfaction and reduce turnover. Knowing that nurse satisfaction is related to physician interactions, policies, or autonomy provides very broad areas of interest with few specific actions that can lead to immediate improvement. Benefits as incentives or disincentives are related to job satisfaction, perceived stress, and intent to stay on their current jobs.

3.2. Research Questions:

Q1. What about the awareness of nurses' awareness about the incentives system in Assiut University Hospital?

Q2. What is the satisfaction of nurses working in Assiut University Hospital with the incentives system?

Q3. What are the problems of incentive system facing nurses in main Assiut University Hospital and how overcome them?

3.3. Design:

This study was performed by using cross-sectional design and Focus Group Discussions (FGDs).

3.4. Study Setting:

The present study was conducted in the main Assiut University Hospital including all hospital units that offer incentives which are 23 units and their staff nurses are 572 and only three units do not offer incentives includes 165 nurses.

3.5. Sample Size:

The sample was calculated using Epi-Info statistical package, version 3.3 with power 80%, at 95% level of confidence (CI), with expected prevalence 50%. Accordingly, the sample size was estimated to be 267+ 10% individuals to guard against non-response rate. The computed sample size plus expected dropout rate was 295.

3.6. Sampling Technique:

A recent list of all health care units in the main Assiut University Hospital was obtained from hospital administration. 295 nurses selected randomly from a total number of 737 working nurses in the units offered incentives or not proportionate to their numbers in each unit. After an explanation of the study objectives, 284 nurses (214 from units offer incentives and 70 from units do not offer incentives) agreed to participate in the study with 96% response rate.

3.7. Ethical Consideration:

Formal administrative approvals were taken before the start of the study. These included approval by the ethical review committee of Assiut Faculty of Nursing, also include approval by the directorate of the main Assiut University Hospital. Informed consent is taken from the study participants and confidentiality of data is secured.

3.8. Pilot study:

Before starting to collect final data, a pilot study was carried out on a sample of 20 who were not included in the study.

3.9. Data collection:

Data were collected by using both quantitative and qualitative approaches during the period from February to May 2012. For quantitative data collection, a semi-structured questionnaire was used

for self-administered and filled anonymously. The questionnaire included sociodemographic data and work characteristics data. Questions to assess nurse's perception regarding incentives in the main Assiut University Hospital were measured by incentive system questioner that was developed by Shalaby (1997); modified by the researcher to be suitable for the nature of the study. It included 11 questions covering the following data: Types of incentives offered, the importance of financial and morale incentives applied at work place and important factors that increase the effectiveness of the incentive system. The response of participant to the questions using 5 Likert scales ranged from one (not important) to five (very important).

The focus group discussion guide explored participants' knowledge, experiences, preferences and assumptions about incentives in their work. The guide was tested with a group of nurses not included in the study.

Four focus group discussions were conducted among 27 nurses from units offer incentives and units do not offer incentives, two groups for males and two groups for females. Focus group discussions were carried out in the nurses' room. Groups ranged in size from 6-9 participants and each session lasted 45-60 minutes. Moderator used the protocol to ask open-ended questions and probe response. Prior to each discussion the researcher ensured the issue of confidentiality and they also made sure that there was a relaxed atmosphere before the discussion started. The note taker documented the sessions whether verbal or non-verbal aspects. All sessions were audio taped after taking permission of the participants.

3.10. Data Analysis:

For quantitative data: Questionnaires were reviewed and excluded 13 incomplete instruments, so 271 questionnaires were entered into Excel program. Data analyzed using SPSS version 16. The frequencies, the percentages, the mean and the standard deviation were computed. Chi-squared test was used as the test of significance; $P < 0.05$ was considered significant.

For qualitative data: The FGDs were translated into English by the researchers. The coded material was compared and organized into themes that were then grouped into central categories. The information in each FGD was summarized and grouped according to these predefined information categories.

4.Results:

Table (1) shows the socio-demographic characteristics of nurses in the present study. The total studied sample was 271 nurses their mean age was 29.9 ± 7.3 years. The vast majority of the respondents

(91.5%) were females and 89.7% had children ranged from one to six children and 69% were married and 53.1% of them were residents of rural areas.

As regards the educational level of respondents, Figure (1) demonstrates that 71.6% of them graduated from nursing secondary schools, 15.5% graduated from Heath Technical Institute, 11.4% had Bachelor of Nursing and few of them (1.5%) were postgraduates.

As shown in Table (2) and Figure (2), more than three-quarters of the respondents worked in units offers incentives compared with 23% in units do not offer incentives. Staff nurses represented 71.6% of the sample. Nearly 42% worked more than 10 years. The vast majority of studied nurses (96.3%) did not work in any place other than the main University Hospital. The public transportation was the main method of transportation to and from the hospital (74.2%).

Types of incentives offered in the work place depicted in Table (3). Less than half of the participants (47.6%) received positive incentives and 83.7% of them reported that the positive incentives offered were financial while a morale incentive was reported by 0.6%. A high percent of the nurses received negative incentives (68.3 %) in the form of sanction (59.5%), followed by deduction salary (37.3%) while the low percent of them reported inequity (3.2%).

The importance of financial incentives as reported by studied nurses showed in Table (4). A high percent of them reported that the most important incentives are fair remuneration, bounces, appropriate working hours, and different services (health/education) (69.7%, 60.9%, 60.5, % 60.5%, respectively). The promotion, appreciation of work efforts, good relations with colleagues and superior encouragement were the most important morale incentives reported by 77.1 %, 71.2 %, 66.8 %, 64.6% nurses, respectively.

Perception of studied nurses of incentives system revealed in Table (5). Below half of them (47.2%) reported that the aim of incentives was to compensate the shortage of the main salary, 78.6 % reported that the incentives system applied at their work place didn't fair, 73.4% thought that the incentives system applied at their work place need comprehensive change.

Nurse's satisfaction with incentives showed in Table (6). The majority of nurses (87.5%) reported that the incentive system applied in work place did not satisfy basic (actual) needs of employees, for the following reason, the administration is not caring to study the employees' needs (54.0%). A high percent of them (81.9%) reported that the incentive system applied not achieve job security because the following reasons, unsatisfied the actual needs of employees;

don't provide incentives on a regular basis and unfairness (35.1%, 20.0%, 19.4%, respectively).

5. Results of Focus Group Discussions (FGDs):

5.1. Characteristics of Participants:

A total of 27 nurses, 12 males and 15 females participated in the FGDs. The mean age of the participants was 30 years.

5.2. Concept of incentives:

In probing how this concept is known by the participants, we observed that the majority of the respondents defined incentives as a way to boost employee productivity "*individualized variable pay based on performance*".

5.3. Types of incentives:

There was a general opinion among all the participants that incentives offered in the main Assiut University Hospital are financial in the form of profit share and non-financial incentives to keep morale high, reward workers for good effort and meet work goals. Either type should be based on clearly specified behaviors or outputs.

About half of the participants, especially female nurses considered the morale incentives more important than the financial one especially the good dealing and the respect from the physicians. One participant said that "*The moral incentive is the most important. It should be a difference between who works hard and who does not work. We must encourage the premier even by a certificate of appreciation*".

Involvement in decision making, conducive work environment, participation in professional conferences, job security, working conditions, or job prestige, these non-wage characteristics of employment are more favorable in the public sector.

A number of nurses demonstrated that "financial incentives, though important, are not the sole reason, and often not the main reason for motivation. Other important motivating factors include recognition, appreciation, and opportunities for career advancement."

The bad dealing at work was a general statement that was elaborated by the respondents as a form of negative incentives used by the work supervisors or physicians. Other forms of negative incentives were a re-dedication of the main salary wage and inequality and "ignorance" in the dealing by the boss. Double standards were one of the major problems that faced the nurses in their work place provides a model of inequity that can trigger or provoke job dissatisfaction.

5.4. The relation between the work performance and incentives:

Incentives are certain (if the targeted performance occurs, the employee will receive the extra compensation); the effectiveness of individual monetary incentive systems can be attributed to the fact that when employees are offered individual incentives, with or without guaranteed base pay, the amount they earn in incentive pay is dependent upon the number of units of work they complete.

Pay-for-performance plans and quality-monitoring systems had ensured that measuring and reporting patient satisfaction is an important part of value-based health care. Support from opinion leaders of professional organizations is also considered very helpful to promote the work.

About half of the participants reported that there is no relation between the offered incentives and the work performance. They added, payments to nurses are standardized across the main Assiut University without regards to outcomes, quality of care, or years of experience.

Incentives are considered to influence behavior and attitudes but only when the reward criteria are clearly known to the recipients. The nurses' acceptance of management bonuses tended to depend on the direct support provided by the managers. Economic incentives linked to financing conditions of work were seen to be significant for nurses' daily lives. In general, nurses were sensitive to efforts to facilitate or impede their work.

Nurses continued to claim that their interventions could not easily be measured in a relevant manner (quality versus quantity) although standards of practice had been developed and were applied during the clinical audit. The potential negative impact of performance-related pay on interpersonal relationships within the nursing and health teams (e.g. competition) was also feared. The physicians received the biggest incentive and the other amount was divided among the team members, the resulting reward may be quite small ("peanuts") and not a sufficient financial incentive.

5.5. Rules of incentive distribution:

Incentives should be based only on the employee's own performance. Benefits as incentives or disincentives are related to job satisfaction, perceived stress, and intent to stay on their current jobs. One nurse said that "*I think an additional motivation should be offered to make sure that we are practicing good practice*".

5.6. Problems in the current incentive system:

5.6.1. The injustice in the incentive distribution:

The governmental hospitals offered more incentive as 60 Egyptian pounds for night shift

compared to 25 Egyptian pounds in our University Hospital. So, we feel with inequality and many of them leave their work and go to work in other places as the private hospital or even travels abroad. There is no clear base to incentive distribution. Lack of motivation of health workers and poor wages were the most important factor affecting health workers' decisions to leave.

5.6.2. Changes after Egypt's revolution and strikes:

After the strike, the financial is better but there are fears from the unsafe working conditions resulting from the accompanying exceeded beat them if in the case of death of the patient or objection of nurses on the presence of visitors while giving treatment to patients.

Most of the participants shared in the strike but they refused the general strike and very sad because there were some patients died as a result of the strike.

5.7. Recommendations to improve the incentive system:

Nurses believed that incentives/disincentives facilitate should be changed to make reward systems more likely to be relevant. While many nurses recommended a general increase in salary as the most relevant economic incentive, as much importance was given to the relative salary and its impact on social status as to financial gain. Other suggested economic incentives were modest in nature and may reflect certain personal characteristics of individuals attracted to nursing.

Table (1): Socio-demographic characteristics of the studied nurses in the main Assiut University Hospital, 2012.

Items	No. (n= 271)	%
Age: (years)		
< 25 years	79	29.2
25 - < 30	61	22.5
30 - < 35	50	18.5
≥ 35 years	81	29.9
Mean ± SD (Range)	29.87 ± 7.34 (19 – 58)	
Sex:		
Male	23	8.5
Female	248	91.5
Place of residence:		
Rural	144	53.1
Urban	127	46.9
Marital status:		
Single	77	28.4
Married	187	69.0
Widow	4	1.5
Divorced	3	1.1
Having children: (n= 194)		
Yes	174	89.7
No	20	10.3

Number of children:		
One	28	16.1
Two	55	31.6
Three	61	35.1
4 or more	30	17.2
Mean ± SD (Range)	2.6 ± 1.1 (1 – 6)	
Type of accommodation:		
Ownership	191	70.5
Rent	80	29.5

Table (2): Work characteristics of the studied nurses in the main Assiut University Hospital, 2012.

Items	No. (n= 271)	%
Work status:		
Head nurse	35	12.9
Associate nurse	42	15.5
Staff nurse	194	71.6
Years of experience:		
Less than 5 years	48	17.7
5 – 10 years	104	38.4
> 10 years	119	43.9
Working in a place other than the hospital:		
Yes	10	3.7
No	261	96.3
Place of working: (n= 10)		
Pharmacy	1	10.0
Private hospital	2	20.0
Private clinic	7	70.0
Method of transportation to/from hospital:		
On foot	5	1.8
Private car	8	3.0
Motorcycle	12	4.4
Hospital's bus	45	16.6
Public transportation	201	74.2

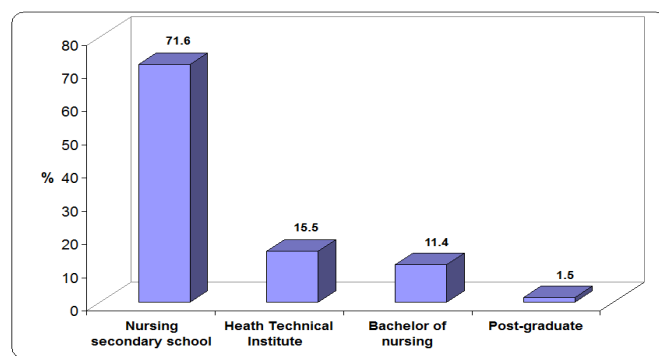


Fig. (1): Educational level of the studied nurses in the main Assiut University Hospital, 2012

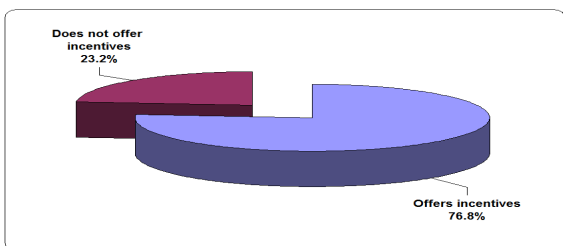


Fig. (2): Distribution of the studied nurses according to offering incentives or not in the main Assiut University Hospital, 2012.

Table (3): Types of incentives offered at the main Assiut University Hospital, 2012.

Items	No. (n= 271)	%
Positive incentives in work place:		
Yes	129	47.6
No	142	52.4
Types of positive incentives (n= 129):		
Financial	108	83.7
Morale	8	0.6
Others	13	10.1
Negative incentives in work place:		
Yes	185	68.3
No	86	31.7
Types of negative incentives: (n= 185)		
Sanction	110	59.5
Deduction from salary	69	37.3
Bad dealing by doctors	27	14.6
Cancellation of paid vacation	20	10.8
Inequity	6	3.2
Do not know	27	14.6
The most effective type of incentives:		
Positive incentives	36	13.3
Negative incentives	2	0.7
Both	188	69.4
Do not know	45	16.6

Table (4): Importance of positive incentives as reported by the participants at the main Assiut University Hospital, 2012.

	Most important		Very Important		Important		Important to some extent		Not important	
	No.	%	No.	%	No.	%	No.	%	No.	%
Financial incentives										
Appropriate working hours	118	43.5	61	22.5	44	16.2	20	7.4	28	10.3
Different services (health/ education)	144	53.1	59	21.8	46	17.0	18	6.6	4	1.5
Participation in profits	164	60.5	77	28.4	16	5.9	5	1.8	9	3.3
Working conditions	164	60.5	76	28.0	20	7.4	9	3.3	2	0.7
Bounces remuneration	165	60.9	70	25.8	24	8.9	10	3.7	2	0.7
Fair remuneration	189	69.7	39	14.4	22	8.1	8	3.0	13	4.8

Morale incentives	113	41.7	74	27.3	51	18.8	19	7.0	14	5.2
Participation in the administrative work	181	66.8	66	24.4	20	7.4	3	1.1	1	0.4
A good relations with colleagues	209	77.1	47	17.3	8	3.0	5	1.8	2	0.7
Promotion of work efforts	193	71.2	55	20.3	17	6.3	2	0.7	4	1.5
Superior encouragement	193	71.2	55	20.3	17	6.3	2	0.7	4	1.5

Table (5): Nurses' awareness of incentives system in the main Assiut University Hospital, 2012.

Items	No. (n= 271)	%
Aims of the incentives:		
Compensate the shortage of the main salary	128	47.2
Employee performance	95	35.7
Both	37	13.7
Do not know	11	4.1
Do you think that the incentives system applied at your work place is transparent enough for the workers?		
Transparent	18	6.6
Transparent some extent	78	28.8
Not transparent	175	64.6
Do you agree that the incentives system applied at your work place fair and equitable?		
Yes	58	21.4
No	213	78.6
Reasons for injustice: (n= 213)		
Does not commensurate with the work effort	113	41.6
Does not distinguish between the active and inactive employees	77	28.4
Does not encourage the required needs from the point of view	23	8.4
The current incentives system:		
Does not need to be changed.	2	0.7
Needs to be changed to some extent.	70	25.8
Needs a comprehensive change.	199	73.4

Table (6): Nurses' satisfaction with incentives in the main Assiut University Hospital, 2012.

Items	No. (n= 271)	%
Do you think that the incentives system applied in your work satisfies actual needs of nurses?		
Yes	34	12.5
No	237	87.5

If Yes, what are the reasons? (n= 34)		
The system changes to achieve the constant saturation for these needs.	14	41.2
The ability of individuals to communicate their wishes and needs, which reflect the satisfaction.	13	38.2
An ongoing study by management to the needs and motivations of employees.	7	20.6
If No, what are the reasons? (n= 237)		
The hospital administrators were not caring to study the employee's needs.	128	54.0
The system is applied without consideration of the actual needs of the employees.	117	49.4
Employees incapable to express their wishes and opinions.	74	31.2
Do you think that the incentives system achieves the nurses' job security?		
Yes	49	18.1
No	222	81.9
If no, what are the reasons? (n= 222)		
Unsatisfied the actual needs of employees	95	35.1
Does not provide incentives on a regular basis	54	20.0
Unfair	52	19.4
Inflexible	36	13.3

6. Discussion:

Policy makers, planners, and managers are challenged to identify and apply a combination of financial and non-financial incentives that are responsive and effective in meeting policy objectives related to recruitment and retention (ICN, 2005). Incentives and incentive systems are fundamental to developing capacities and translating these capacities into better performance (Wignaraja, 2006).

From the findings of the present study, 77% of the respondents received incentives from their work places but 47.6% reported that positive incentives offered in their work place either financial or non-financial. On the other hand, more than two-thirds of the respondents reported negative incentives in the form of sanction, deduction from salary, bad dealing by doctors etc. 13.3% believed that positive incentives are more effective than the negative ones but 69.4% thought the both types of incentives are required in the work place. A study exploring the factors affecting motivation of health workers in six African countries found that poor wages in countries like Uganda and Zimbabwe were the most important factor affecting health workers' decisions to migrate. However, in Cameroon wages factored below "lack of promotional opportunities, poor living conditions and a desire to

gain experience" as the reasons workers decided to leave (Stilwell et al., 2004).

In the present study high percent of nurses reported that the most important incentives are fair remuneration, bounces, appropriate working hours, and different services. The promotion, appreciation of work efforts, good relations with colleagues and superior encouragement were the most important morale incentives reported by more than two third. Also, from the Focus Group Discussions about half of the participants especially female nurses considered the morale incentives are more important than the financial one especially the good dealing and the respect from the physicians. These results are agreed with other studies that demonstrated financial incentives, though important, are not the sole reason, and often not the main reason, for motivation. Other important motivating factors include recognition, appreciation, and opportunities for career advancement (Dieleman and Harnmeijer, 2006). Non-financial rewards are particularly vital for countries and organizations where limited funding constrains their capacity to provide financial rewards (Alamri, 2011). This is on the same line with the study findings of ICN (2008) as non-financial incentives, involving work autonomy, flexibility hours, and scheduling, recognition of work and support for career development, etc.) Play an equally crucial role. This is in well-resourced countries where the staff is able to maintain a high standard of living, as well as in relatively poorly resourced ones.

Wieck and other researchers (2009) found that the most important incentives were the work environment described as cohesive work environment: working with people who help you, share the work and pull together as a team. The least important preferences were fairly consistent across generations: luxury items, day care, and subsidized transportation.

The majority of nurses in our study reported that the incentive system applied in work place did not satisfy basic needs of employees. Only 0.7% of them satisfied by the present incentives system. This is in consistence with the findings of other study conducted by Wick et al. (2009) as they found that over three-quarters (78.5%) satisfied by their incentives system. Also, it is consistent with the findings of Armstrong and Cameron (2005) and Baumann et al. (2006) as the salary inequity is clearly the major barrier for recruitment and retention as indicated by both nurse leaders and front-line staff. Nurses' perceptions of rewards and their possible impacts have been examined by Kingma (2003) using individual interviews, focus groups and observations. She identified two main categories of economic rewards: the financial incentives (e.g. salary and petrol

allowance) involved a monetary transfer to the nurses, whereas the financed rewards (e.g., subsidized continuing education and paid sabbatical leave) represented a cost for the employer without any monetary transfer to the nurses themselves.

From the findings of the present study, 78.6% of the respondents confirmed the current incentive system does not achieve justice, this is due to for the following reasons, does not commensurate with the work effort (41.6%) and does not distinguish between the active and inactive employees (28.4%).

In Focus Group Discussions about half of the participants especially female nurses considered the feel with inequality and many of them leaves their work and go to work in other places as the private hospitals or even travels abroad, there is no clear base to incentive distribution. These results are agreed with other studies that demonstrated that the fairness in distribution the incentives affects the manner in which individuals view their jobs and the organization, and it can affect the amount of effort they expend in accomplishing tasks (Kingma, 2003). An open procurement process, fair treatment in awarding the contract to the best bid, is important in building investor confidence (Ajayi et al., 2002).

In the present study, high percent of respondents (81.9%) believed that the incentive system applied in main Assiut university hospital did not achieve job security, this is due to the following reasons, unsatisfied the actual needs of employees, do not provide incentives on a regular basis and unfair (35.1%20.0%, 19.4%, respectively). This is consistent with study found out the reasons behind the request of nurses move outside the hospital, the findings showed that the vast majority of the respondents believe that the basic requirements, and services, and facilities provided by the hospital is one of the main reasons behind their desire to move, as well as ventilation and amplitude and public services, leisure and material and morale incentives is one of the reasons behind the request to move (Khleifat et al., 2013).

From the findings of the present study, below half of the studied nurses reported that the incentives aim to compensate the lack of basic wage (42, 2%). In congruence with these findings of Pritchard et al. (2010) found that the monetary incentives effect on goal choice, goal commitment, and task performance.

In Focus Group Discussions about half of the participants reported that there is no relation between the offered incentives and the work performance. They added that currently payments to nurses for their services are standardized across the main Assiut University without regards to outcomes, quality of care, or years of experience. Results are agreed with other studies that demonstrated pay for performance

can (when implemented properly) be positive and deliver performance improvement, especially when it gives a financial reward to employees for reasons of both equity and recognition and gives direction to employees by aligning rewards with the organization's goals and objectives. It is based on the performance of groups, individual performance and rewarded by honors. In short, total reward programs, which integrate both financial and non-financial incentives to reward staff, can offer an organization the building blocks to help incentives, recognize and motivate employees to deliver improved levels of performance (Gieter, 2006).

Respondents recommended some issues to improve the current incentive system in the main Assiut University Hospital such as a general increase in salary as the most relevant economic incentive, as much importance was given to the relative salary and its impact on social status as to financial gain. Improving nurses' work environments, including nurse staffing, meals, and safe working environments. Other researchers have shown that a positive working environment is an important element in efforts to recruit and retain staff (Buchan, 1999; Gilson et al. 2004; ICN 2007b). This includes providing a safe working environment for staff and proactively responding to emerging risks, as well as creating a positive organizational culture can play a role in providing a positive environment where people will want to work.

7.Conclusion:

Less than half of the participants received positive incentives in the form of financial rewards. The promotion, appreciation of work efforts, good relations with colleagues and superior encouragement were the most important morale incentives reported by participants. Both the qualitative and quantitative data revealed that a number of psychological and non-financial rewards were important for nurses in addition to their monthly pay and other remunerations.

8.Recommendations:

The study recommended that: Integrating between different types of incentives system should include incentives both the financial and morale especially the promotion, appreciation of work efforts, good relations with colleagues and superior encouragement together. Determine of the incentive system objectives are the most important factors to increase the effectiveness of the incentive system and achieve justice in the distribution of incentives, and periodic assessment of incentives must examine the efficiency and utility of it.

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- 1- Ajayi, O. C., Franzel, S., Kuntashula, E., & Kwesiga, F. (2003). Adoption of improved fallow technology for soil fertility management in Zambia: Empirical studies and emerging issues. *Agroforestry systems*, 59(3), 317-326.
- 2- Alamri, M., & Zuraikat, N. (2011). Financial Incentives System for Nursing in the Kingdom of Saudi Arabia. *Journal of Accounting and Finance*, 11(2), 53.
- 3- Arling, G., Job, C., & Cooke, V. (2009). Medicaid nursing home pay for performance: Where do we stand? *The Gerontologist*, 49(5), 587-595..
- 4- Armstrong-Stassen, M., & Cameron, S. J. (2005). Concerns, satisfaction, and retention of Canadian community health nurses. *Journal of Community Health Nursing*, 22(4), 181-194.
- 5- Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: theories, evidence, and a framework for research. *Accounting, Organizations and Society*, 27(4), 303-345.
- 6- Dieleman M and Harnmeijer J (2006): Improving health worker performance: in search of promising practices. Geneva, Pp17. At website: http://www.kit.nl/net/ KIT_Publicaties_output/ShowFile2.aspx?e=1174
- 7- Duberg C (2009): Reward system, Health care, Geriatric care, the view of leader, Drawbacks of reward systems; 25-27. gupea.ub.gu.se/bitstream/2077/21844/1/gupea_2077_21844_1.pdf
- 8- De Gieter, S., De Cooman, R., Pepermans, R., Caers, R., Du Bois, C., & Jegers, M. (2006). Identifying nurses' rewards: a qualitative categorization study in Belgium. *Human resources for health*, 4(15), 1-15.
- 9- Gilson, L., Khumalo, G., Erasmus, E., Mbatsha, S., & McIntyre, D. (2004). *Exploring the influence of workplace trust over health worker performance: preliminary national overview report: South Africa*. Unpublished report.
- 10- ICN (2007a): Positive practice environments: quality workplaces quality patient care, ICN, Geneva, accessed 19 February 2008.
- 11- ICN (2007b): Incentives and the recruitment/retention of nurses, A paper presented at National Experiences in Assessing and Reducing Shortcomings and Negative Trends Affecting Human Resources of the Health System: An International Symposium on Health Workforce Pp.10-12, Lisbon, Portugal.
- 12- ICN (2008): Guidelines: incentives for health professionals, Pp27: 101.
- 13- Khleifat S, Elhabaha M, and Ataiwrh Y (2013): Reasons for working in the hospitals desire Princess Haya Bint Al Hussein, the transition to outside hospital, the Jordanian Ministry of Health, Jordan, pp 1-2.
- 14- Kingma, M. (2003). Economic incentive in community nursing: attraction, rejection or indifference. *Human Resources for Health*, 1(2), 1-12.
- 15- Mantler, J., Armstrong-Stassen, M., Horsburgh, M. E., & Cameron, S. J. (2006). Reactions of hospital staff nurses to recruitment incentives. *Western Journal of Nursing Research*, 28(1), 70-84.
- 16- Shalaby N (1997): Incentive system at The Egyptian governmental system, Thesis, Political Science, Faculty of Commerce, Assiut University.
- 17- Stilwell, B., Diallo, K., Zurn, P., Vujcic, M., Adams, O., & Dal Poz, M. (2004). Migration of health-care workers from developing countries: strategic approaches to its management. *Bulletin of the World health Organization*, 82(8), 595-600.
- 18- World Health Organization. (2008). World malaria report 2008. World Health Organization.
- 19- Wieck, K. L., Dols, J., & Northam, S. (2009). What nurses want: *The nurse incentives project? Nursing Economics*, 27(3), 169.
- 20- Wiganaraja, G. (2006). Competitiveness in a rapidly globalizing economy: *Lessons of experience*. ILO.

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Results of a Hospital Waste Survey in Tabriz Hospitals

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Abstract: Hospital wastes because of the presence of hazardous, toxic and pathogenic agents has a particular sensitivity in many countries. Proper management of medical wastes is a very important role in the control of environmental pollution. In this study management of hospital wastes in all hospitals affiliated to Tabriz University of Medical Sciences with the goal of providing comprehensive and appropriate information for planning and improvement of health services in the future were studied. Information obtained through questionnaires, visits, interviews and weighing waste from hospitals during the years 2010-2011. In investigated hospitals were 2283 active beds that per capita waste generation was calculated 3.79 kg per bed per day. According to cluster analysis, hospitals in terms of waste production, were divided into four groups. Comparison of the staffing of hospitals with criterion announced by the research section of medical places of Iran housing company showed that some hospitals are facing with a shortage of services that can be effective in the management of hospital wastes. All hospitals have used the autoclave for disinfecting wastes. The average waste generation rate was calculated 2.75 kg regular and home-quasi, 0.128 kg sharp, 0.875 kg infectious-medical-chemical and 0.043 kg pathological. Finally, management of hospital wastes in studied hospitals was almost acceptable, but at some stage needed more attention.

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Keywords: Waste management; Environment pollution; Infectious waste; Tabriz.

1. Introduction:

According to the definition given by the environmental protection organization of Islamic republic of Iran about waste management, medical wastes are all infectious residues from hospitals, health centers, clinical laboratories and other similar places (EPA, 1995). Hospitals are one of the medical centers that have been impressively developed because of population growth in recent years. These transformations have caused an increase in the number of clients and variety in service facilities in hospitals which cause an increase in the amount of wastes produced in such places (Shojaei Tehrani, 2004).

The spread of infectious illnesses and other illnesses in developing countries has caused an increase in the amount of dangerous hospital wastes which requires an ordered and decent management for excreting these wastes. The world health organization (WHO) classifies hospital wastes to types of regular

wastes, pathological wastes, radioactive wastes, chemical wastes and infectious wastes and according to the statistics, 75 to 90 percent of these wastes are regular and homemade quasi and the other 10 to 25 percent are known as dangerous and bacterial (Chaerul, Tanaka & Shekdar, 2008). Also according to the researches, more than half of 630 types of chemicals which are mostly used in hospitals are less dangerous and 300 types of them are poisonous and dangerous most of which can be found in hospital wastes (Ebrahimi, Hashemizade & Foadifard, 2008; Takdastan, Jafarzade & Pazoki, 2008). Hospital waste management has different steps, but generally, it has 6 main steps which are: 1- Separating, 2- Packing and labeling, 3- Collecting, 4- Transportation, 5-Waste minimization and 6- Purifying and excretion (Monavari, Omrani & Rezaee, 2008).

Several studies have been done about hospital waste management in the world, for instance studies done in Poland (Altin, Altin, Eleveli & Cerit, 2003),

Turkey (Alagoz & Kocasoy, 2007; Alagoz & Kocasoy, 2008), India (Kumar, DK & Kumar, 2004), Portugal (Alvim Ferraz, Barcelos Cardoso & Ribeiro Pontes, 2000), Switzerland (Prüss, Giroult & Rushbrook, 1999), Bahrain (Mohamed, Ebrahim & Al-Thukair, 2009), Mongolia (Shinee, Gombojav, Nishimura & Hamajima, 2008), Africa (Nemathaga, Maringa & Chimuka, 2008), South Korea (Jang, Lee, Yoon & Kim, 2006) and Nigeria (Coker et al., 2009). Also different studies have been done in our country in the following cities; Mashhad (Ariyae & Hamidian, 2012), Sanandaj (Firouzmanesh, Qavami, Shahmoradi & Rahimi, 2008), Yasouj (Raygan Shirazi & Mary Ariad, 2008), Sabzevar (Yaqubifar & Khamirchi, 2007), Karaj (Khazae, Hamidian, Taheri, Babakan, Mashoof, Rabizadeh & Khazae, 2015), Arak (Dehghani, Fazelinia, Omrani, Nabizadeh & Azam, 2011), Tehran (Monavari, Omrani & Rezaee, 2008), Khorram-abad (Mirhosseini, Dahestani Athar & Vaseqi, 2008), Babol (Amouei, Tahmasbizadeh, Asgharnia, Fallah & Mohammadi, 2012), Kermanshah (Karami-Matin, 2001), Semnan (Noorisepehr, 2008), Rasht (Taghavi, 2005), Shiraz (Askarian, Vakili & Kabir, 2004) and Gorgan (Shahryari, Nooshin & Borghei, 2011), that this studies have been focused on average production rate and quantitative and qualitative features of produced hospital wastes.

According to the studies, hospital wastes management in developed countries like Portugal, Sweden, and South Korea have a more perfect and more coherent process comparing to undeveloped countries like most of the African countries. For example; in most of the undeveloped countries, infectious and non-infectious wastes are not separated from each other (Alvim Ferraz, Barcelos Cardoso & Ribeiro Pontes, 2000; Prüss, Giroult & Rushbrook, 1999; Shinee, Gombojav, Nishimura & Hamajima, 2008; Nemathaga, Maringa & Chimuka, 2008; Jang, Lee, Yoon & Kim, 2006; Coker et al., 2009).

In this study, the situation of hospital waste management of hospitals under the supervision of Tabriz Medical Science University has been studied. Tabriz is one of the major cities of Iran that has faced many environmental problems because of population increase. Therefore, some actions like giving practical suggestions and solutions have been done based on the results of the researches to improve the waste management process in the studied hospitals.

2. Materials and Methods:

2.1. Introducing the studied region and the status of the Reviewed hospitals

Tabriz is the biggest city in North West of Iran with an area about 45/481 square kilometers and a population about 1/525/000 and is one of the biggest

cities of Iran, which is the provincial capital of East Azerbaijan. According to the statistics, Tabriz has 22 hospitals, over 35 clinics and infirmaries, 51 radiology centers and over 90 medical laboratories and some of these clinics, infirmaries, laboratories and radiology's are working independently and some are working together with hospitals while some are working together with hospitals, but out of the hospitals.

2.2. Research method:

In this study, 10 hospitals under the supervision of Tabriz medical science university have been studied in a one-year period (2010-2011). After getting the required permissions from Tabriz medical science university, authorization for this action was achieved. All the data have been gathered by completing questionnaires and blank tables, interviewing and visiting and the type of study was descriptive-sectional. All the aspects related to the 6 steps of hospital waste management were considered in the questions of the questionnaire.

The questionnaire was made based on the instructions are given by The World Health Organization (WHO) to study hospital waste management in developing countries (Alagoz & Kocasoy, 2007) and was frequently reviewed and corrected by University of Tehran professors. The questionnaire was designed packed and had 2 parts; general and professional. The professional part of the questionnaire contained 44 questions and it helped us gather some information about different steps of hospital waste management.

Interviewing the environment health undertaking and experts of infection control of hospitals was done from 9 to 10 A.M and inspecting the place of temporarily keeping residues at the hospitals was done from 10 to 11 A.M. During these steps, in addition to determining the status of production, separation, storing, collection, purification, transportation and getting rid of the hospital wastes, total weight of the wastes and the average production rate and the weight of different kinds of wastes were determined separately.

All the wastes produced in studied hospitals were weighed 4 times with SECA scale; once a month in each hospital in both morning and afternoon shifts during January and February 2010 and March and April 2011 (Ariyae & Hamidian, 2012). Overall, about 180 samples from the studied hospitals were weighed. Samples were weighed by trained people with safety tools and ultimately the information was processed in Excell-2010 and SPSS-19 and for sorting the studied hospitals by waste production rate, clustered analysis was done on the results (Zaree Chahouki, 2010).

Table 1: The total production and per capita production of hospital wastes.

Hospital	Total produced wastes (kg/d)	Regular and home-quasi (kg/d)	Sharp (kg/d)	Infectious, medical & chemical (kg/d)	Pathological and cut body organs (kg/d)	Per capita of waste generation (kg/b/d)	Per capita of home-quasi wastes (kg/b/d)	Per capita of sharp wastes (kg/b/d)	Per capita of infectious, medical & chemical wastes (kg/b/d)	Per capita of Pathological wastes (kg/b/d)
Imam-Reza	3220	2150	67/8	968/5	33/7	5/36	3/58	0/113	1/61	0/056
Sina	416	325	21/1	66/3	3/6	1/89	1/47	0/095	0/301	0/016
Shohada	758	540	17/7	190/4	9/9	3/03	2/16	0/07	0/761	0/039
Madani	650	464	27/5	154/4	4/1	4/3	3/07	0/182	1/01	0/027
Taleghani	830	673	19/2	128	9/8	8/3	6/73	0/192	1/28	0/098
Nikou-Kari	186	124	14/5	44/6	2/9	2/77	1/85	0/216	0/665	0/043
Koudakan	628	453	17/7	63/9	3/4	3/32	2/87	0/093	0/338	0/017
Alavi	325	198	10/6	112/2	4/2	4/85	2/95	0/158	1/67	0/062
Razi	1343	877	32/5	433/5	-	2/31	1/51	0/056	0/747	-
Al-Zahra	423	312	18/3	87	5/7	2/62	1/93	0/113	0/54	0/035
Total / Average	8779	6206	246/9	2248/8	77/3	3/79	2/75	0/128	0/875	0/043

3. Results:

The total number of beds in use in all 10 hospitals was 2383 which produce 8779 kilograms of waste in a day. The occupancy rate for the beds of the studied hospitals was 87.53%. The types of wastes produced in the studied hospitals were sorted into 4 categories; regular and home quasi, sharp, infectious-medical-chemical and pathological. In this research, the amount of waste generated per capita was examined to separate the different components in kg per day per patient in each hospital (Table 1). The results showed that the wastes produced in the studied hospitals contained 71% regular and home-quasi, 25% infectious-medical-chemical, 3% sharp and 1% pathological (Figure 1). Also, the average per capita waste production in 10 studied hospitals in Tabriz was 3.79 kilograms per day for each in-use bed which was sorted like this; 2.75 kg regular and home-quasi, 0.128 kg sharp, 0.875 kg infectious-medical-chemical and 0.043 kg pathological.

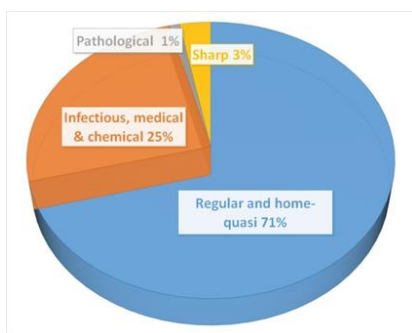


Figure 1. Percentage of different kinds of wastes produced in the studied hospitals.

For sorting the studied hospitals by waste production, cluster analysis was done on the results. According to the results of cluster analysis, hospitals under supervision of Tabriz medical university were

sorted into 4 groups by waste production. Hospitals "Sina, Al-zahra, Alavi, Nikou-kari" were placed in one group, hospitals "Shohada, Madani, Taleghani, Koudakan" in one other group and hospitals "Razi" and "Imam-Reza" were separately placed in one group each (Figure 2).

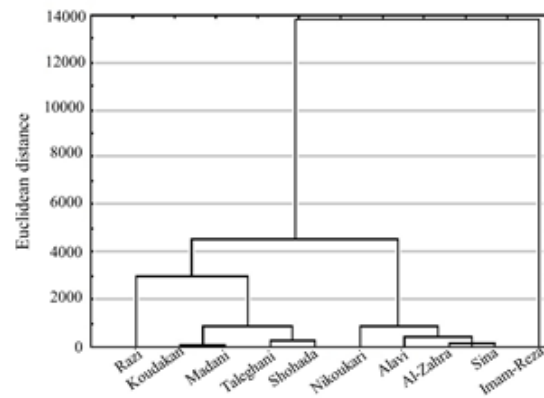


Figure 2. Results of the cluster analysis for studied hospitals based on waste production by "Ward" method.

For confirming the chart above, assessment analysis was used. The results of assessment analysis showed that the first two functions have justified the %100 of variances. Also, according to this analysis, all the places have been grouped correctly (Table 1).

Table 2: Check of trueness of grouping studied hospitals in cluster analysis by assessment analysis.

Group	Anticipation				Total
	1	2	3	4	
Actual (%)	1	2	3	4	
1	100	0	0	0	100
2	0	100	0	0	100
3	0	0	100	0	100
4	0	0	0	100	100

Fortunately, in all of the hospitals, the workers and the staff of residue collecting were adequately trained. Also, in 72.7% of the studied hospitals, the staff had special uniforms. Comparing the studied hospitals in terms of the number of beds in use and the staff of collecting residues to the total amount of produced waste and per capita waste generation of each hospital was done (Figure and Table 3). The results show that "Imam-Reza, Madani, Taleqani and Alavi" hospitals have a higher waste production rate than the average per in-use bed. Also "Imam-Reza, Taleqani and Madani" hospitals have a much higher waste production rate regarded to their in-use beds.

On the other hand, manpower is an important factor for collecting residues from different parts and sections of the hospitals. The service section is responsible for collecting residues from other sections. According to the standards announced by the research section of medical places of Iran housing company, the number of workers of service section per number of beds is:

Table 4: The standards of the research section of medical places of Iran housing company about the number of service section of the hospitals per number of in-use beds.

Number of beds	Less than 100	100-200	200-300	300-400	400-500
Number of service staff	12	21	33	45	58

So we can say that Al-Zahra, Razi, Koudakan, Imam-Reza and somehow Alavi hospitals have a lack of manpower in their service section which affects their waste management quality. There is a temporary residue storing site in all 10 studied hospitals and in 90% of them different kinds of residues are kept separately, but only in 60% of hospitals, yellow buckets are kept separately from black buckets in the temporary storing site. Temporary residue storing site in some of the studied hospitals were metallic chambers, concrete storages and special modules and 70% of the hospitals used special room modules.

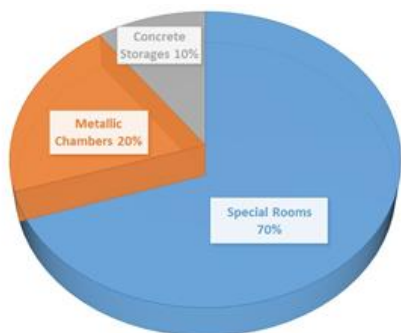
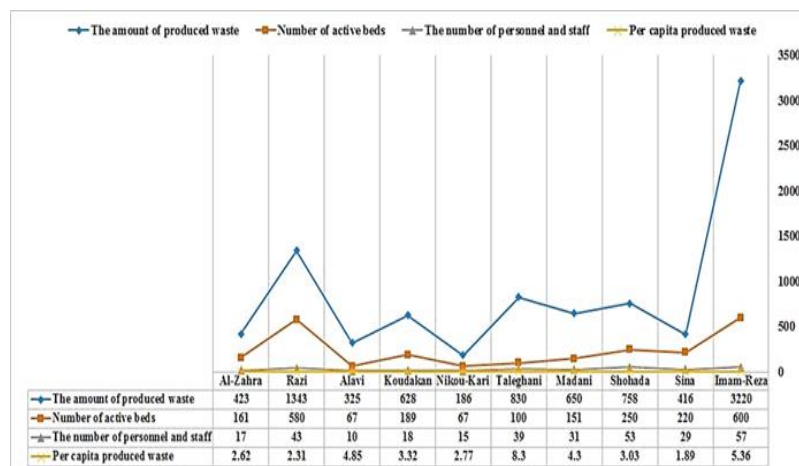


Figure 4. Types of residue temporary storing sites in the studied hospitals.

Figure and Table 3: Comparing the in-use beds and the number of staff of residue collecting to the amount of wastes produced in each hospital in kilograms per day.



In all hospitals under the supervision of Tabriz medical science university, infectious, sharp and chemical residues, are separated from the regular ones and the yellow bags are used for infectious, chemical residues and the black bags are used for collecting regular residues and for collecting sharp residues safety box (special resistant boxes) are used. In 60% of the hospitals washing and disinfecting the buckets and residue transportation facilities are done every day. None of the studied hospitals use incinerators to avoid air pollution and environmental problems and all the hospitals had disinfecting devices (autoclave) which their performance in all 10 hospitals was acceptable and after disinfecting, all the residues are shattered(to have less volume) and collected by municipal vehicles with other regular residues and gotten rid of.

In 80% of the hospitals, different types of residues mixed after disinfection and directly taken to the final excretion place. In 10% of hospitals, dangerous residues (infectious, chemical and sharp ones) are separately taken to the final excretion site and in the rest 10%, residues are separately first taken to city transfer station, and then taken to the final excretion site. Transporting the residues in all hospitals is done by the municipality. Collecting the residues from sections at all hospitals is done at the end of each business shift and is done once every 8 hours in a day.

According to the observations and interviews done with the experts of the hospitals, it was observed that in more than 50% of these hospitals there was no recycling being done on the residues inside the hospitals and in rest of the hospitals recycling is mostly done on dried bread and paper. This causes the

dried breads or other foods mix with bacterial and chemical residues in most cases and that causes the illnesses to thrive outside the hospitals.

4. Discussion and Conclusion

This research shows that the amount of wastes produced for each in-use bed in the hospitals of Tabriz Medical Science University is 3.79 kilograms per day and 1.046 kilograms of that is infectious which is 29% of total produced wastes. This is even higher than the 10-25% limitation given by world health organization for the amount of production rate of infectious wastes for the hospitals of developing countries. According to the other researches done in Iran, per capita waste generation in hospitals of Tehran (Monavari, Omrani & Rezaee, 2008), Karaj (Khazaei Mashhad (Ariyae & Hamidian, 2012), Araak (Dehghani, Fazelinia, Omrani, Nabizadeh & Azam, 2011), Karaj (Fazili, Salehi, Abdoli, Jafari & Sheykh Pour, 2010), Gorgan (Shahryari, Nooshin & Borghei, 2011), Shahre-kord (Rakhshan, Dadkhah & Sadeghian, 2010) and the hospitals of Sistan-balouchestan province (Bazrafshan & Kord Mostafapoor, 2007) in order were reported 3.406, 2.95, 4.6, 3.12, 2.53, 1.8 and 2.76 kilograms per day which in order contained 39, 31.58, 38.97, 46.67, 47.42, 27.77, 51.6 percent infectious residues.

On the other hand, according to the statistics of health and medical education ministry, the average amount of hospital residues in Iran has been estimated 2.71 kilograms for each bed. Studies done between years 1994-2008 about qualitative and quantitative management of hospital waste production in Africa (Nemathaga, Maringa & Chimuka, 2008), Libya (Sawalem, Selic & Herbell, 2009), United States of America (MWC, 1994), Turkey (Alagoz & Kocasoy, 2007; Alagoz & Kocasoy, 2008), India (Kumar, DK & Kumar, 2004), Portugal (Alvim Ferraz, Barcelos Cardoso & Ribeiro Pontes, 2000), Peru (Diaz, Eggerth, Enkhtsetseg & Savage, 2008), Italy (Lee, Ellenbecker & Moure-Ersaso, 2004), Greece (Tsakona, Anagnostopoulou & Gidakos, 2007), Korea (Jang, Lee, Yoon & Kim, 2006) and Jordan (Oweis, Al-Widyan & Al-Limoon, 2005) showed that the amount of waste production in these countries for each bed in order was 0.6, 1.3, 5-7, 1.92, 0.5-2, 3.8, 0.76, 2.6, 3-5, 1.9, 0.14-0.49, 0.77-2.21.

On the other hand, in the research that Taghipour and Mosaferi did in 2007 about hospital waste management in Tabriz, the amount of the residues produced for each bed was estimated 3.48 kilograms every day (Taghipour & Mosaferi, 2009). The comparison between 3 similar studied hospitals and the statistics that Taghipour and Mosaferi announced about these 3 hospitals in 2007 shows that in 4 recent years, the amount of waste production has

reached 1367 from 1206 kilograms per day which show a 13.31% increase in the amount of waste production.

The results of Taghipour and Mosaferi show that the average amount of medical waste, dangerous and infectious residues and general home-quasi waste production rate in Tabriz has been in order 3.48, 1.039, 2.439 kilograms per day for each bed. Also, general and home-quasi, infectious and dangerous and sharp wastes in order are 70.11, 29.44, 0.45 percent of total wastes produced. As the results of this study show, the percentage of different kinds of residues produced in Tabriz hospitals other than the small difference is true according to Taghipour and Mosaferi's research. Of course, there has been an 8.9% increase in the amount of waste production per capita in the past 4 years. Assigning over 29% of the produced residues to infectious wastes, shows weak and incorrect separation of infectious and home-quasi wastes which requires more attention. If we compare the total amount of produced wastes of 3 studied hospitals to the same hospitals in the year 2007, there has been a 0.033% annual growth in waste production.

Suppose this increase is constant and knowing that the produced wastes in these 3 hospitals including 15/57% of total production waste in Tabriz, we can estimate that in 2020 the amount of waste produced by the studied hospitals will be 11760 kilograms per day. According to the estimated weight about 99.58 kilograms per m³ by Taghipour and Mosaferi for hospital wastes of Tabriz, it is expected that this amount of produced waste, will take 118.09 m³ and this is while the international estimation for disinfecting 1 m² of soil 5-50 thousand dollars is needed. So, the importance of separating and minimizing the production of hospital wastes and applying a dynamic system for correct separation of infectious residues from home-quasi residues will cause an impressive decrease in the costs. During the researches that Rezayi has done on Mashhad hospitals, has said that if there be an accurate supervision and control on separation at the first place, a lot of dry residues will be recyclable every day and the income from selling these residues will save money. So that the cost of organizing the produced wastes in hospitals comparing to the situation before the separation will show a 19.51% decrease (Rezaee, Mansormoghadam & Amanishahri, 2008).

Comparing the amount of per capita hospital waste production in Iran and the world shows that the amount of wastes produced in our country is in the middle of the world average limitation for waste production. Unfortunately the average amount of waste production for each bed in-use in Tabriz,

compared to other cities of Iran, has a high amount which needs general planning and aggressive following up by the undertaking about this. The results of this study are warnings for the undertakings so that with their help and cooperation and spending not so much costs, try to solve this problem as soon as possible.

Of course, the consequences of such a process which has mostly been furtive and there have been no statistics for it in our country until now. Especially with the money being spent on medication and peripheral services of hospitals, we can observe that doing such a basic and healthy thing, despite health and conscionable duty, is totally affordable. As we said, the other part of this research is about determining types of residues and their percentage and with earning information and providing general statistics about this, we can use it for designing and planning the decent management for the collecting system and the healthy excretion of infectious residues. According to this, we can estimate the total policy of required facilities, manpower, and other related costs so that based on a motivated and conscious management there can be an aggressive supervision of this process. Also for studying and refining the current condition, it is required that the management method of the wastes be done in each one of different steps and alongside a more general study in all the hospitals of the city and the proper implementation of the residues separation plan and supervision on the right excretion of them be considered.

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References

1. Alagöz, B. A. Z., & Kocasoy, G. (2007). Treatment and disposal alternatives for health-care waste in developing countries—a case study in Istanbul, Turkey. *Waste management & research*, 25(1), 83-89.
2. Alagöz, A. Z., & Kocasoy, G. (2008). Determination of the best appropriate management methods for the health-care wastes in Istanbul. *Waste Management*, 28(7), 1227-1235.
- 3- Altin, S., Altin, A., Elevli, B., & Cerit, O. (2003). Determination of hospital waste composition and disposal methods: a case study. *Polish Journal of Environmental Studies*, 12(2), 251-255.
- 4- AMOUEI, A., TAHMASBIZADEH, M., ASGHARNIA, H., FALLAH, H., & MOHAMMADI, A. (2012). QUANTITY AND QUALITY OF SOLID WASTES IN THE HOSPITALS OF BABOL UNIVERSITY OF MEDICAL SCIENCES, NORTH OF IRAN. *Journal of Applied Sciences in Environmental Sanitation*, 7(3). (In Persian).
- 5- ARIYAEI, M., & HAMIDIAN, A. (2012). *Management of Hospital Wastes in Mashhad*. 65(1), 1-12. (In Persian)
- 6- Askarian, M., Vakili, M., & Kabir, G. (2004). Results of a hospital waste survey in private hospitals in Fars province, Iran. *Waste management*, 24(4), 347-352.
- 7- Bazrafshan, E., & KORD, M. F. (2009). *Quantifying the Rate of Hazardous Wastes Production in Sistan and Baluchestan Province in 2007*.
- 8- Chaerul, M., Tanaka, M., & Shekdar, A. V. (2008). A system dynamics approach for hospital waste management. *Waste Management*, 28(2), 442-449.
- 9- Coker, A., Sangodoyin, A., Sridhar, M., Booth, C., Olomolaiye, P., & Hammond, F. (2009). Medical waste management in Ibadan, Nigeria: Obstacles and prospects. *Waste management*, 29(2), 804-811.
- 10- Dehghani, M. H., Fazelinia, F., Omrani, G. A., Nabizadeh, R., & Azam, K. (2011). Investigation of Management Status on Medical Wastes in Public Hospitals of Arak City. *Iranian Journal of Health and Environment*, 4(1), 93-104.
- 11- Diaz, L. F., Eggerth, L. L., Enkhtsetseg, S., & Savage, G. M. (2008). Characteristics of healthcare wastes. *Waste management*, 28(7), 1219-1226.
- 12- Ebrahimi, A., Hashemizade, B., & Foadifard, R. (2008). Proposal On Process And Disposal Management Of Hospital Wastes. *The 4th National Conference On Waste Management*. Mashhad Recycling Organization. Mashhad, I.R.Iran. (In Persian).
- 13-Environment protection agency, *waste management act*. (1995). Environment protection agency press.
- 14- Fazili, A., Salehi, A., Abdoli, M.A., Jafari, H.R., & Sheykh Pour, M. (2010). Review of hospital wastes management in Karaj. *International Journal of Environmental Studies*. 36(53), 99-106. (In Persian).
- 15- Ferraz, M. A., Cardoso, J. B., & Pontes, S. R. (2000). The concentration of atmospheric pollutants in the gaseous emissions of medical waste incinerators. *Journal of the Air & Waste Management Association*, 50(1), 131-136.

- 16- Firouzmanesh, M., Qavami, A., Shahmoradi, B., & Rahimi, Y. (2008). Study of Quality And Quantity Of Hospital Waste Management In Sanandaj Medical And Health Centers In 2005. *The 4th National Conference on Waste Management. Mashhad Recycling Organization. Mashhad, I.R.Iran.* (In Persian).
- 17- Jang, Y. C., Lee, C., Yoon, O. S., & Kim, H. (2006). Medical waste management in Korea. *Journal of environmental management*, 80(2), 107-115.
- 18- Karami-Matin, B. (2001). *The study of hospital waste management in Kermanshah teaching hospitals* [dissertation]. Tehran University of Medical Sciences. (In Persian).
- 19- Khazaei, M., Hamidian, A. H., Taheri, M., Babakan, T., Mashuf, A., Rabizadeh, S., & Khazaei, A. (2015). Assessment of medical waste management in Karaj hospitals, Iran. *International Research Journal of Applied and Basic Sciences*, 9(10), 1750-57.
- 20- Kumar, R., Patel, D. K., & Kumar, R. (2004). A survey of trace metals determination in hospital waste incinerator in Lucknow City, India. *Online Journal of Health and Allied Sciences*, 3(2).
- 21- Lee, B. K., Ellenbecker, M. J., & Moure-Ersaso, R. (2004). Alternatives for treatment and disposal cost reduction of regulated medical wastes. *Waste management*, 24(2), 143-151.
- 22- Medical Waste Committee (MWC). (1994). Medical waste disposal. *Journal of the Air & Waste Management Association*. 44, 1176-1179.
- 23- Mirhosseini, H., Dahestani Athar, S., & Vaseqi, F. (2008). Investigation of Solid Waste Management in Khoramabad Hospitals in 2008. *The 4th National Conference on Waste Management. Mashhad Recycling Organization. Mashhad, I.R.Iran.* (In Persian).
- 24- Mohamed, L. F., Ebrahim, S. A., & Al-Thukair, A. A. (2009). Hazardous healthcare waste management in the Kingdom of Bahrain. *Waste management*, 29(8), 2404-2409.
- 25- Monavari, S.M., Omrani, G.H., & Rezaee, F. (2008). Quality and quantity of wastes in private hospitals of Tehran. *International Journal of Environmental Science and Technology*, 10(4), 232-45. (In Persian).
- 26- Nemathaga, F., Maringa, S., & Chimuka, L. (2008). Hospital solid waste management practices in Limpopo Province, South Africa: A case study of two hospitals. *Waste management*, 28(7), 1236-1245.
- 27- Noorisepehr, M. (2008). *The Necessity of Hospital Waste Management and the Role of Local People Contribution*. The 4th National Conference on Waste Management. Mashhad Recycling Organization. Mashhad, I.R.Iran. (In Persian).
- 28- Oweis, R., Al-Widyan, M., & Al-Limoon, O. (2005). Medical waste management in Jordan: A study at the King Hussein Medical Center. *Waste Management*. 25(6), 622-625.
- 29- Prüss, A., Giroult, E., & Rushbrook, P. (1999). *Safe management of wastes from health-care activities*. World Health Organization.
- 30- Rakhshan, N., Dadkhah, F., & Sadeghian, P. (2010). Investigation of hospital wastes management in Shahr Kord hospitals. *Med Soc Sec J*. 9(52-53), 127-30. (In Persian).
- 31- Raygan Shirazi, A., & Mary Ariad, H. (2008). An Investigation on the Status of Hospital Waste Management in Yasuj City in 2006. *The 4th National Conference on Waste Management. Mashhad Recycling Organization. Mashhad, I.R.Iran.* (In Persian).
- 32- Rezaee, E., Mansormoghadam, Z., & Amanishahri, A. (2008). The Location of Waste Separation in Hospital Waste Management. *The 4th National Conference on Waste Management. Mashhad Recycling Organization. Mashhad, I.R.Iran.* (In Persian).
- 33- Sawalem, M., Selic, E., & Herbell, J.D. (2009). Hospital waste management in Libya: A case study. *Waste Manage.* 29(4), 1370-1375.
- 34- Shahryari, A., Nooshin, S., & Borghei, P. S. (2011). Medical Waste Management in Gorgan Hospitals. *Journal of Health*, 2(1), 49-55.
- 35- Shinee, E., Gombojav, E., Nishimura, A., Hamajima, N., & Ito, K. (2008). Healthcare waste management in the capital city of Mongolia. *Waste management*, 28(2), 435-441.
- 36- Shojaei Tehrani, H. (2004). *Textbook of Preventive and Social Medicine*. Volume Tehran: Samat Publication. (In Persian).
- 37- Taghavi, K. (2005). Investigation and Physical Analysis of Medicine and Infectious Wastes of Rasht university hospitals and proposals to control the adverse effects on the environment. *The 8th National Conference on Environmental Health. Tehran University of Medical Sciences and Iranian Association of Environmental Health. Tehran, I.R.Iran.* (In Persian).
- 38- Taghipour, H., & Mosafieri, M. (2009). Characterization of medical waste from hospitals in Tabriz, Iran. *The science of the total environment*, 407(5), 1527-1535.
- 39- Takdastan, A., Jafarzade, N., & Pazoki, M. (2008). *Study of Quality and Quantity of Hospital Wastes and Introducing Methods for Safety, Minimization, Treatment and Disposal Management of Hospital Wastes in Iran*. The 4th National Conference on Waste Management.

- Mashhad Recycling Organization. Mashhad, I.R.Iran. (In Persian).
- 40- Tsakona, M., Anagnostopoulou, E., & Gidakos, E. (2007). Hospital waste management and toxicity evaluation: a case study. *Waste Management*. 27(7), 912-920.
- 41- Yaqubifar, M.A., & Khamirchi, R.A. (2007). Investigation of the status of collection and disposal of hospital wastes in hospitals and medical centers of Sabzevar. *Asrar Journal of Sabzevar Medical Sciences*. 14(2), 128-34. (In Persian).
- 42- Zaree Chahouki. M.A. (2010). *Data Analysis in Natural Resources Research Using SPSS Software*. Jahad Daneshgahi Tehran Publication. (In Persian)

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