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A SYSTEMATIC REVIEW OF HUMAN, ORGANIZATION AND TECHNOLOGY INFLUENCES IN HEALTH INFORMATION TECHNOLOGY IMPLEMENTATION FOR HEALTH CARE ORGANIZATIONS

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Abstract

Health Information Technology (HIT) has been an important topic in health care because it is known to improve access to and quality care, and most importantly reduce costs in the long run. However, implementing information technology in healthcare can be challenging, due to both the high cost of upfront investment, and resistance by hospitals and physicians to utilizing the system. In this paper, a literature review was performed to discuss the three significant factors: Human, Organization, and Technology (HOT), in adopting Health Information Technology (HIT) and its benefits. The result of searching the electronic bibliographic databases of Proquest, Scopus, Emerald, EBSCO and JSTOR show that human factor (physicians) resistance acceptance of HIT is due to limited computer skills, support of top management and lack of education and training. On the other hand, in countries with socialized medicine, the technology factor is more prominent. This article finds that regardless of Human or Organization factors, experts believe that information technology implementation can improve quality of care, reduce medical errors, and provide financial benefits in the long run.

Keywords: Information system; Health Information Technology; Human factors; Organizational factors; Human, Organization and Technology (HOT)

Introduction

Medicine today is changing rapidly and becoming more complex, and the pace of delivering care is more rapid and demanding. Thus, efficient sharing of information between clinics or hospitals have become even more important than in previous eras. Health Information Technology allows of registries of patient characteristics, histories, outcomes and adverse event that lead to fewer medical error and increase efficiency.

The successful implementation of Health Information System (HIS) relies on the mutual alignment or "fit" between HIS, and physicians and hospitals; this is commonly known as Human, Organization, and Technology elements (1). The following paragraphs briefly describe the three factors.

First, the "Human" factor is defined as the user of HIT, which includes physicians and nurses, as well as many more professionals involved in the health care process, such as pharmacists, dieticians, social workers, and case managers. Human factor characteristics can be attitude, for examples lack of computer skills, complexity of the system, time and cost burden, etc.

Second, the "Organization" factor is related to social influence; facilitating conditions and organizational support such as the leader of the human resources department or Human Resource Management (HRM). Kijsanayotin *et al.* suggests that information technology (IT) acceptance is related to social influence, for example, one's belief about whether health IT should be used. Facilitating conditions can be defined as providing basic information technology training, such as general knowledge related to basic personal computer (PC) components, or instruction in the basic functions of PC and the Internet (3). HRM and HIT personnel should acquire an in-depth understanding of the clinical and managerial aspects of organization (2).

Finally, the "Technology" factor, which is characterized by complexity, perceived usefulness, compatibility, and ease of use, can be tailored to focus on patient or clinician. Patient-focused technology centers on customer satisfaction for example: a quick transmission of information about a patient's discharge paperwork for payment, or electronic delivery of lab test results back to each patient's physician. Clinician-focused technology can increase access to health care, improve the quality of care, and decrease costs because the physician will be able to access their patient's medical details (including history, physical examination, investigations and treatment) in digital format. Overall, physicians and hospitals are implementing HIT because they offer several advantages over paper records. However, the drawbacks of HIT are high costs, it requires a deep understanding of current processes to deliver a particular function, willingness to map these processes and change them to adapt to the new systems, and a commitment to make the time and space needed for the key stakeholders to have the conversations that make adaptation possible (4).

In this study, the literature review was performed to discuss the three factors: human, organization, and technology to adopt health information technology in the hospitals of a country with a lack of health infrastructure. The literature was selected based on the following criteria: tools (Technology), subject (Human), and environment (Organization).

Methods

The literature review was performed based on the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA guidelines). The search keywords used were: Information System**;** Health Information Technology; Evaluation; Framework; Human factors; Organizational factors; Human, Organization and Technology (HOT). Published

article from ProQuest, Scopus, Emerald, EBSCO and JSTOR database from 2008 to 2016 were collected and selected based on the following criteria:
(1) general information: first author, year of publication, the location of the research;
(2) design research:
(3) literature content in relation to elements of Human, Organization, and Technology (HOT) in adoption Health Information Technology in Health Care Organization
Among 5 articles, one study had an observational design which adopt The Unified Theory of Acceptance and Use of Technology (UTAUT) Model, one study searched literature published from 12 database, one study used case study and 2 studies collected data from more than 500 questionnares.

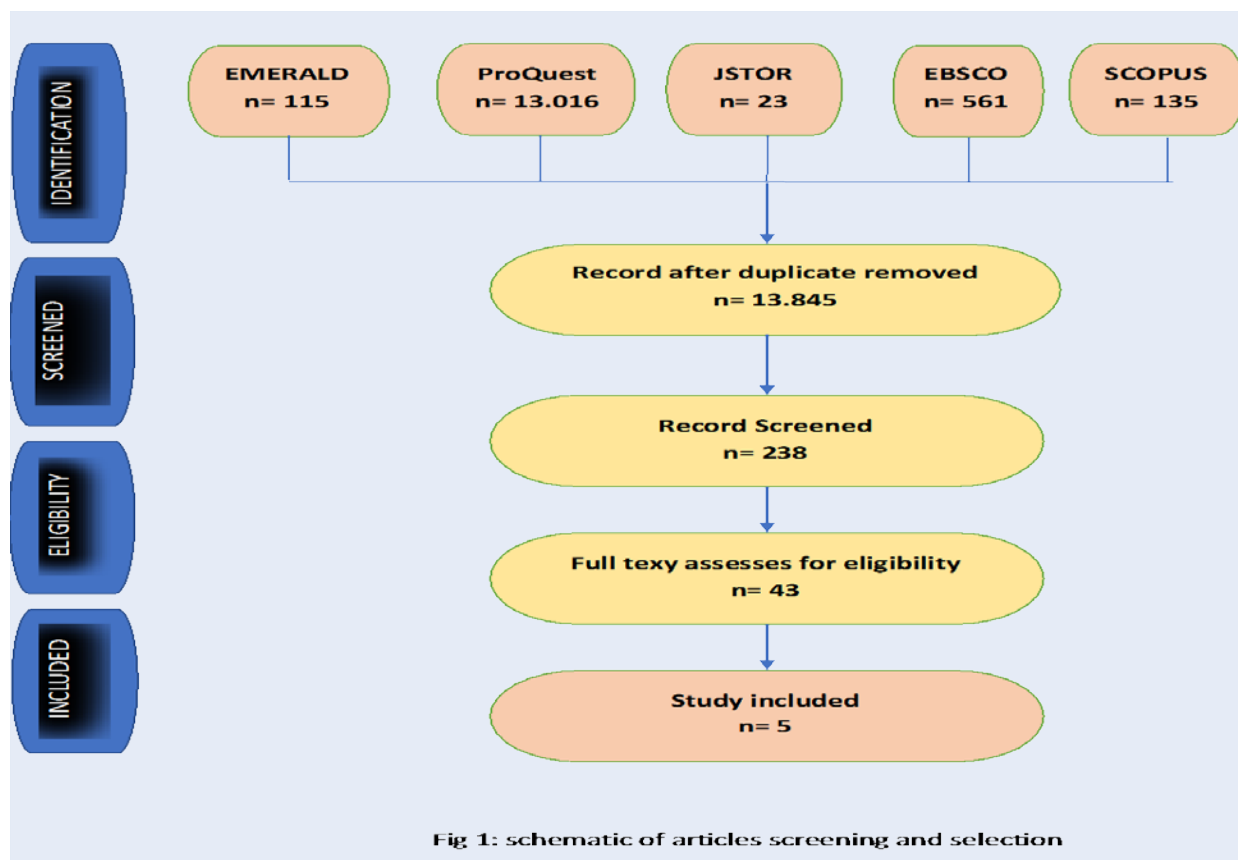

Fig 1: schematic of articles screening and selection

Human-Organization and Technology have a mutual alignment or fit and HOT-fit framework is presented by interrelated of these three factors. Based on this framework, forty three articles met the selection criteria (Fig.1) and only five articles were included in this study because these articles' primary focus is on HOT and met the previously mentioned selective criteria (fig 2)

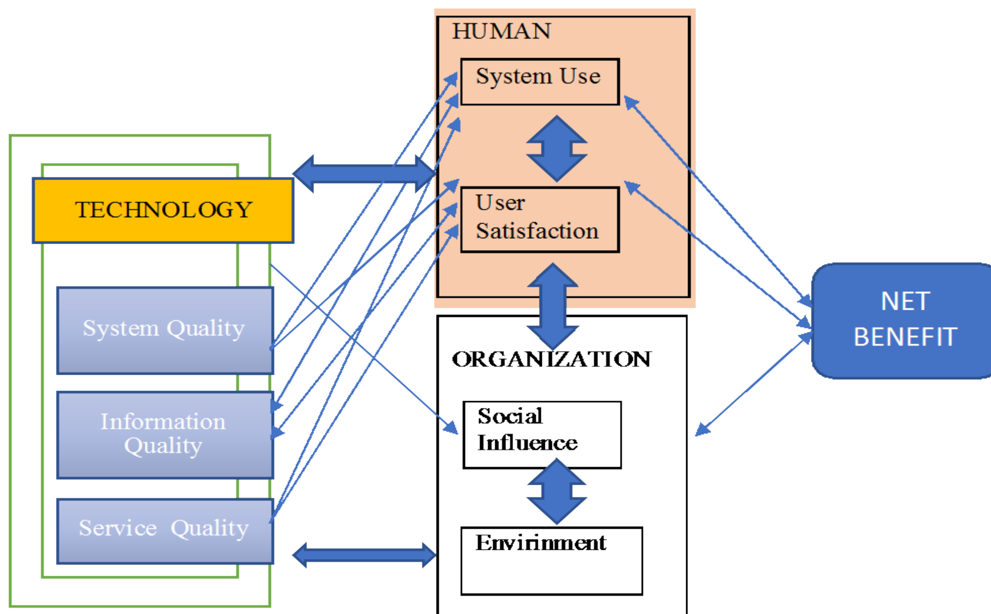

Fig 2. Human-Organitation-Technology (HOT-fit) Framework

TITLE & REFERENCE	METHOD	RESULT OF METHOD	SUMMARY OF MEASURES
A - 7	Twelve database were searched for literature published between 2000 and 2005	Finding the appropriate balance between sensitivity (recall) and specificity (precision) was achieved through the iterative process of refining and testing the search terms	Attitude of health care professional can be significant factor in the acceptance and efficiency of use of IT in practice
B - 1	The case study was conducted through observation, interview and document analysis.	The use of such a framework is argued to be useful not only for comprehensive evaluation of the particular Fundus Imaging system under investigation, but potentially also for any HIS in general	Comprehensive, specific evaluation factors, dimensions and measure in the framework (HOT-fit) are applicable in HIS evaluation
C - 3	An Observational research design. The research model was applied using the partial least squares (PLS) path modeling	This study validated UTAUT model in the field context of a developing country's healthcare system and demonstrated that PLS path modeling works well in a filed study and in exploratory research with a complex model.	The research model analyses suggest that IT acceptance is influenced by performance expectancy, effort expectancy, social influence and voluntariness.
D - 6	The collected data, 505 questionnaires, analyzed by structural equation modelling technique	This study showed that Attitude and organizational support ($p < 0.001$) were critical factors and these factors can explain 68.6% of the variance in intention to use computerize clinical practice guidelines	This study confirmed that some human, organization and technology factors mentioned in the activity theory should be carefully considered when introducing computerized clinical practice guidelines.
E - 9	The collected data, 550 questionnaires, valid response rate of 69.63%	Good convergent validity and sufficient reliability of the instrument were confirmed	The technological dimension is recognize as the most important dimension followed by organizational dimension, human and lastly environmental dimension

Table 1. The Review of the five relevant articles

A The attitudes of health care staff to information technology: A comprehensive review of the research literature B An evaluation framework for Health Information Systems: human, organization and technology-fit factors (HOT-fit) C Factors influencing health information technology adoption in Thailand's community health centers: Applying the UTAUT model. D Critical factors influencing physicians' intention to use computerized clinical practice guidelines: an integrative model of activity theory and the technology acceptance model. E Critical factors influencing decision to adopt human resource information system (HRIS) in hospitals.

Table 2. Relevant studies to the dimensions of the research model

Dimension (Variabel)	Ward, Stevens, Brentnall, & Briddon, 2008	Yusof et al., 2008	Kijsanayotin, Pannarunothai, & Speedie, 2009	Hsiao & Chen, 2016	Alam, Masum, Beh, & Hong, 2016
HUMAN					
Attitude	Significant	fit in order to ensure successful HIS implementation		Significant	
Task Uncertainty					
ORGANIZATION					
Social influence		fit in order to ensure successful HIS implementation	Significant		
Organizational Support			Facilitating Conditions	Significant	
TECHNOLOGY					
Complexity		fit in order to ensure successful HIS implementation			Significant
Perceived usefulness			Performance Expectancy		Significant
Compatibility					Significant
Perceived ease of use			Effort Expectancy		Significant

Results and Discussion

Based on the findings from the five articles, only one article, Yusof *et al.* (1), stated that the three factors: Human, Organization, and Technology, are interconnected and contribute to significant success in technology implementation in the healthcare setting. Table 2 shows that technology holds an important role from implementation to ease of use and increasing productivity. In addition, support from leadership to facilitate utilization of information technology and attitudes for clinicians in accepting the technology are the roots of the success for HIT in healthcare.

Human factor. Personal characteristics such as age, gender, background, value and beliefs can influence individual's attitude towards technology (1). However, Lai *et al*; Loomis *et. al* found that there were no statically significant differences in age or gender between users and non-users of Electronic Medical Records systems. In addition, Araujo *et al* found that computer technical skills, age, group and gender were not significant in explaining the attitude. Although in another study, Moffat *et al* found that 41% of female general practitioners were non EMR users compared with 28% of male general practitioners. Ward *et al*—found that among Human, Organization and Technology, attitude is the most significant factor in the acceptance and efficiency of use of IT in practise. A study by Hsiao & Chenshowed that attitude and organizational support toward using health technology in clinical practice guidelines were critical factors influencing physicians' interests in adopting the technology. Moreover, no matter of gender, age, or attitude, experience technology skill is the key in the successful of implementation HIT.

Organization factor. Chief Information Officers (CIOs), Chief Executive Officer (CEO), and Chief of Nurses leadership and support of the HIT process increase the probability of efficient and effective HIT implementation (8). Support from upper management has proven to be a critical starting point and has major influence in the realization of health information systems. Glaser *et al* believed that HIT implementation failure is often the result of the actions or inactions of senior leadership. Alam *et al* found that upper management support is the second most significant factor for human resources information system (HRIS) adoption among these same factors. The researchers attested that top management support has a critical role to overcome potential internal resistance after adopting HRIS and their support ensures successful implementation of HRIS.

Technology factor. The technological dimension is identified as the most important dimension for human resources information system adoption in the hospital. As expected, Information Technology infrastructure and perceived compatibility are the two most dominant factors in the technology dimension (9). However, recent research argued that perceived complexity was a less significant factor of Human Resources information system adoption. Staggers *et al* defined informatics competencies for nurses at four levels of practise; new nurses (level 1), experience nurses (level 2), informatics nurse specialists (level 3), and informatics innovators (level 4). The lowest level, New Nurses, have fundamental information management and computers technology skills. It means that for this current work, not only knowledge and attitudes, as well as computer-related skills needed by the nurses. Computer skills training has become a necessity, as information technology is implemented in the hospital: physicians and nurses enter patient information to the systems, and the patient information is digital.

Successful adoption of HIS contributed to the user's strong acceptance and commitment to learning to use the system (fit between human and technology) and the technical support provided by a staff member who acted as a system champion. However, a lack of internal fit can also be seen between technology and human: storage inconvenience, time and effort required from the busy physicians, aswell as poor technical support and assistance.
These five articles explain that HOT cannot be individually separated in explaining the technology implementation within healthcare. Each factor cannot be weighted higher or lower than the others; for instance, human factor is no more important than organization, and organization is not more important than technology. By combining the three HOT factors and valuing them evenly, the technology adoption will be smoother and more successful.

Disclosure of interests The authors does not have competing interest

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Association between obesity in pregnancy and the duration of postnatal length of stay

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Abstract

Background

The rate of obesity in Australia and globally has increased dramatically in the last 30 years[1]. Obesity in pregnancy is recognised as one of the major challenges in obstetric care. It is associated with higher rates of complications and poorer outcomes.

Method

A population based cohort study of 15,076 women who gave birth in Maitland, Australia between 2007 and 2016 was used. Inclusion criteria include singleton deliveries 34 weeks and over.

Results

We found that the mean postnatal length of stay was 2.27 days for all weight groups. The mean postnatal length of stay for normal weight, overweight and obese was 2.18, 2.27 and 2.38 days respectively. The percentage of patients having a normal vaginal delivery for normal weight, overweight and obese was 68.0%, 65.5% and 59.5% respectively. The percentage of patients having caesarean section for normal weight, overweight and obese was 21.7%, 25.9% and 34.4% respectively. The mean length of stay for normal vaginal delivery and caesarean section was 1.78 and 3.27 days for normal weight, 1.83 and 3.27 days for overweight and 1.85 and 3.28 days for obese.

Conclusion

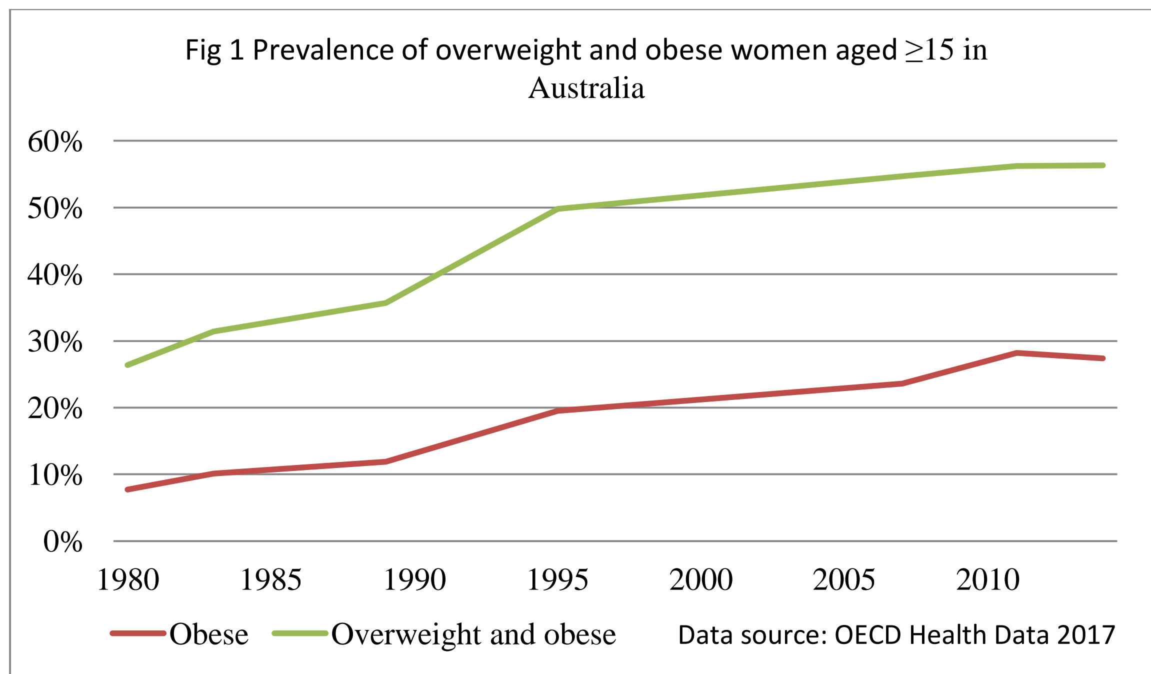
Obesity is associated with an increase in post-natal length of stay. This increase is predominantly due to the mode of delivery. Increasing BMI increases the risk of caesarean section, which in turn increases the postnatal length of stay.

Key words

Postnatal length of stay, obesity, Australia

Background

The rate of obesity in Australia and globally has increased dramatically in the last 30 years[1]. Over a quarter of Australian women ages 15 and over are obese[1]. Obesity in pregnancy is recognised as one of the major challenges in obstetric care. Women who are obese have increased antenatal risk that include hypertensive disorders of pregnancy[2,3], gestational diabetes[4], thromboembolic disease[2] and abnormalities in foetal growth and development[5]. Intrapartum there is an increase rate of shoulder dystocia[6], instrumental delivery, caesarean section and postpartum haemorrhage[7-9]. Postpartum there is increased risk of infection[2,10], delayed wound healing[2,3] and breastfeeding difficulties[11].



Method

We examined a computerised database of all deliveries at Maitland Hospital, a regional Australian hospital from 2007 to 2016. The study was approved by Hunter New England Human Research Ethics Committee, authorization number AU201705-15.

There were 16,298 babies delivered for the duration of the retrospective observational study period. Deliveries were excluded for multiple pregnancies, early premature delivery (<34 weeks gestation) and incomplete data for analysis. Both early prematurity and pregnancies with multiple gestations were excluded due to higher risk of complication and hence extended length of stay. A total of 15,076 women were included for analysis.

Maternal body mass index (BMI) was measured as weight in kilograms divided by height in meters squared at the first booking visit. BMI was categorise according to the WHO classification[12] of underweight (<18.50), normal (18.50 - <24.99), overweight (25.00 – 29.99) and obese (≥ 30). Postnatal length of stay was defined as the interval between time of birth and discharge.

Difference between groups was calculated with chi-square testing for categorical variables. For continuous variables, student's t-test was calculated for data that are normally distributed and non-parametric Mann-Whitney test was used for continuous data that are not normally distributed. P value was considered significant at 0.05 (two tailed).

Results

The characteristics of the different BMI groups are summarized in table 1. There is statistically significant increase in maternal age associated with increasing BMI categories. The obese group are older than normal weight group by 1 year. Women who are advanced maternal age, above 40 years of age are considered to be at high risk for obstetric complications[13-15]. There are greater proportion of patients who are advanced maternal age in the overweight and obese group. Overweight and obese groups have significantly lower proportion of nulliparity. There is a gradual increase in BMI with increasing age[16].
This may partially explained the decreasing proportion of nulliparity in the obese and obese groups as women's BMI are higher in subsequent pregnancies. Caesarean section rates increases and instrumental rates decreases with increasing BMI categories. Birth weights increase with increasing BMI categories.

Table 1: Characteristics based on BMI

		Underweight* N = 439	Normal Weight N = 5690	Overweight* N = 4212	Obese* N=4735
Maternal Age	Mean ± SD (years)	25.0 ± 5.7	27.1 ± 5.7	27.9 ± 5.7	28.2 ± 5.5
	p	P < 0.0001		P < 0.0001	P < 0.0001
Advanced maternal age	%	1.1%	1.9%	2.6%	2.6%
	OR (95% CI)	0.60 (0.24, 1.47)		1.37 (1.05, 1.80)	1.37 (1.05, 1.78)
	P	p = 0.2546		p = 0.0205	p = 0.0189
Nulliparity	%	46.7%	43.1%	37.3%	32.4%
	OR (95% CI)	1.16 (0.95, 1.41)		0.79 (0.73, 0.85)	0.63 (0.58-0.69)
	p	p = 0.1401		p < 0.0001	p < 0.0001
Caesarean rate	%	17.8%	21.7%	25.9%	34.4%
	OR (95% CI)	0.78 (0.61, 1.00)		1.27 (1.15, 1.39)	1.9 (1.74, 2.07)
	p	p =0.0537		p < 0.0001	p < 0.0001
Instrumental rate	%	10.7%	10.3%	8.6%	6.1%
	OR (95% CI)	1.04 (0.76, 1.42)		0.81 (0.71, 0.93)	0.57 (0.49, 0.66)
	p	p =0.8052		p =0.0032	p < 0.0001
Birth weight	Mean ± SD(g)	3180 ± 489	3391 ± 506	3468 ± 516	3562 ± 515
	p	P < 0.0001		P < 0.0001	P < 0.0001
Postnatal Length of Stay	Mean ± SD (days)	2.29 ± 1.64	2.18 ± 1.53	2.27 ± 1.53	2.38 ± 1.54
	p	P = 0.3427		P = 0.0013	P < 0.0001

* compared to normal weight

The average postnatal length of stay for all weight groups was 2.27 days. The average postnatal length of stay for normal weight is 2.18 days. The average postnatal length of stay for overweight and obese groups are 0.09 days ($p = 0.0013$) and 0.21 days ($p < 0.0001$) longer compared to the normal weight group. The mean length of stay for normal vaginal delivery and caesarean section was 1.78 and 3.27 days for normal weight, 1.83 and 3.27 days for overweight and 1.85 and 3.28 days for obese. The groups were further divided into three subgroups according to mode of delivery, as normal vaginal delivery, instrumental delivery and caesarean section. Comparisons between the groups are shown in table 2, 3 and 4.

Table 2: Postnatal length of stay for normal vaginal delivery

Vaginal Delivery	Nulliparas		Multiparas	
	Length of stay+	p*	Length of stay+	p*
Underweight	2.47 (0.6, 4.5)	0.1118	1.49 (0.3, 2.9)	0.5634
Normal weight	2.17 (0.5, 3.9)		1.55 (0.3, 3)	
Overweight	2.33 (0.7, 4.3)	0.0316	1.60 (0.3, 3.1)	0.0688
Obese	2.38 (0.8, 4)	0.0002	1.66 (0.5, 3.1)	< 0.0001

+ values are mean (10th and 90th percentile) in days

* compared to normal weight

Table 3: Postnatal length of stay for instrumental delivery

Instrumental Delivery	Nulliparas		Multiparas	
	Length of stay+	p*	Length of stay+	p*
Underweight	3.07 (1.3, 6.6)	0.2481	3.15 (0.6, 8)	0.2582
Normal weight	2.63 (0.9, 4.7)		2.01 (0.6, 3.9)	
Overweight	2.73 (1.0, 5.0)	0.3439	2.06 (0.8, 3.8)	0.6670
Obese	2.67 (1.0, 4.4)	0.5161	2.06 (0.9, 3.6)	0.5219

+ values are mean (10th and 90th percentile) in days

* compared to normal weight

Table 4: Postnatal length of stay for caesarean section

Caesarean section	Nulliparas		Multiparas	
	Length of stay+	p*	Length of stay+	p*
Underweight	3.61 (1.9, 6.5)	0.7504	3.22 (1.9, 5)	0.2141
Normal weight	3.46 (1.5, 5.2)		3.11 (1.3, 5)	
Overweight	3.53 (1.6, 5.4)	0.1188	3.10 (1.3, 5)	0.9905
Obese	3.60 (1.6, 5.8)	0.1792	3.10 (1.4, 4.9)	0.9129

+ values are mean (10th and 90th percentile) in days

* compared to normal weight

Obesity increases the postnatal length of stay of normal vaginal deliveries by 0.21 days for nulliparas and 0.11 days for multiparas. For normal vaginal deliveries of underweight and overweight groups, there is no difference in the postnatal length of stay. There is no difference in the length of stay for instrumental delivery and caesarean section between the different BMI groups.

It is calculated that the higher caesarean section rates in the obese group is responsible for two thirds of the overall increase in postnatal length of stay for the obese group compared to normal weight group. One third of the increase postnatal length of stay is attributed to the increase postnatal length of stay for normal vaginal delivery.

Discussion

We found that mothers with higher BMI have longer postnatal lengths of stay. Mothers with higher BMI also had bigger babies and higher risk of caesarean section. The increase risk of caesarean section may be due to greater risk of pregnancy complication and labour dystocia. There is no difference in the postnatal length of stay once the mode of delivery and parity is accounted for in the underweight and overweight groups. We found that the postnatal length of stay between BMI groups were the same for instrumental delivery and caesarean section once parity was accounted.

The increase in postnatal length of stay for the overweight group is due to a higher proportion of caesarean section. In the obese group, the increase is due to a combination of the increase length of stay for vaginal deliveries as well as the higher rates of caesarean section. Most of this increase is attributed to the higher rate of caesarean section.

Maternal age is a potential confounder as older women are more likely to have high-risk pregnancy and complications with delivery. There is a one-year difference between the obese group and the normal group that is unlikely to explain the observed difference.

Early discharge has been proposed to provide women the choice of returning home early, improve integration of the new born into family life, reduce risk of hospital acquired infection and to improve healthcare efficiency. As high-income countries focus on early discharge, it is important to be reminded that there is limited evidence that early discharge improves maternal and foetal outcomes[17]. We need to be mindful that a longer postnatal stay may be required for obese women as there have a higher risk of infection, delayed wound healing and greater likelihood for need of support to establish breastfeeding in obese patient.

We conclude that BMI is an important factor determining the postnatal length of stay predominantly due to its impact on the mode of delivery.

Disclosure of interest

The author declare that there is no competing interest

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BEHAVIORAL FACTORS INFLUENCING ADOLESCENTS LIFESTYLE

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Behavioral Factors Influencing Adolescents Lifestyle

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Abstract

Background: About 34 million adolescents aged 10-19 constitute 21% of total population of Bangladesh. This is a unique group of people with special needs and it is also important to realize and address their health and lifestyle problems.

Objective: The present study was undertaken to assess lifestyle and behavioral patterns of adolescents along with identification of the factors influencing their lifestyle.

Methods: This descriptive type of cross sectional study was conducted among 319 students of purposively selected English medium schools in Dhaka city. Their socio demographic, life style and behavior related data were collected by using Self administered, pre-tested, semi-structured questionnaire. Among the lifestyle factors only few factors were focused-their food habit, smoking habit, and recreational activity were included in this study.

Results: Among the respondents 59.9% was male and the rest were female. Majority [95%] of respondents were Muslims. Out of total, 56.4% respondents reported as fascinated to fast food. About 73.4% of them took fast food daily in a week. 79.3% of them took fast food regularly in Tiffin and snacks. 47% of them preferred to soft drinks than any other drinks. This study found only 40 (12.5%) adolescents out of all respondents as occasional cigarette smoker and Peers influence was the most common reason to start smoking. A few (9.1%) of them were also reported as occasional user of "Shisha"(Hukkah or waterpipe tobacco).Regarding Late night activities of the respondents, 12.5% female were habituated to regular late night study, 17.3% male were fascinated to regular late night browsing and Significant association was found between gender and late night activities [$p<.05$]. Internet browsing [27.40%] and TV watching [13.16%] were the prime sources of recreation. Among the students regarding preference of TV channels, most (89%) of them was inclined to English and Hindi channels, only 11% of them watched Bengali channels.

Conclusion: In this study it was found that, unhealthy food habit, cigarette smoking, excessive internet and TV addiction along with enormous diversion to foreign media were the leading unhealthy behaviors among the respondents. The rapidly changing socio economic and cultural pattern poses a constant threat to adolescent's life style. Therefore early attention of families and social awareness is much needed to combat the threatening issues of adolescents.

Key words: Behavioral factors, Adolescents, Lifestyle.

Introduction-The World Health organization has defined adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to 19 years (WHO) [1].Around 1.2 billion adolescents aged 10-19 years today make up 16 per cent of the world's population. More than half of all adolescents around 340 million globally live in Asia. About 34 million adolescents aged 10-19 constitute 21% of total population of Bangladesh (UNICEF 2016).[2]Adolescence is a time of tremendous growth and potential, it is also a time of considerable risk during which social contexts exert powerful influences. This young population has tremendous demographic and economic significance. This is the turning point of human life, in which they build the foundation for their future. At the same time they become more exposed to the various social interactions, apart from the parental influence, which may leads them to adopt different adverse life style practices. Lifestyle is the way a person lives. This includes patterns of social relations, consumption, and entertainment. The term lifestyle also reflects an individual's attitudes, beliefs and, essentially, the way the person is perceived by himself/herself and, at times, also how he/she is perceived by others. It is evident that there is association between life style and health of an individual. Many current day health problems like coronary heart disease, lung cancer, obesity, accidents, drug addiction, malnutrition, infection etc, are associated with life style changes[3]. Rapidly growing epidemic of non communicable diseases is responsible for 60% of the world's deaths[4].At least 50% of the deaths in the US each year are due to unhealthy lifestyle[5]. It is well documented that behaviors developed during this period influence health in adulthood [6] .Several health-compromising behaviors (e.g., smoking, alcohol) as well as health-enhancing behaviors (e.g., physical exercise, nutrition) are adopted in adolescence, and they often persist into adulthood. The WHO estimates that 70% of premature deaths among young adults are due to behavior (smoking, illicit drug use, reckless driving) initiated during adolescence[7].The most prevalent sedentary behavior in western society is television viewing and internet browsing. Previous study reported 14.8% as heavy internet user (>4 h/day) and such use was associated with lower likelihood of engaging in health-promoting activities such as exercising and seeking medical care. At the same time, heavy Internet use was correlated with multiple risk behaviors such as skipping meals and sleeping late as well as poorer health outcomes such as higher likelihood of being overweight or having hypersomnia[8].In Bangladesh few studies has done to reveal adolescents life style and factors influencing them. Media explosion and communication development through Information Technology and the rapidly changing global conditions are influencing young people to modify their lifestyle. Previous Study in two schools of Dhaka city shows that 13% of children aged 4-10 years are obese using the criteria of weight for height. The study also reveals that obesity is positively correlated with family income and Changes occurring in dietary constituents including higher derivation of energy from nutritionally poor and energy dense foods, increased sweetened drink consumption, more frequent intake of food outside home has been found with unhealthy diets and higher weight[9].Study investigated smoking behavior and attitudes among 555 male teenagers from 2 metropolitan high schools in Dhaka and found 29% of students as regular smoker and were influenced by smoking behavior of peers and parents[10] .Therefore, helping adolescents establish healthy lifestyles and avoid developing health risk behaviors is crucial and should be started before these behaviors are firmly established. The demands on young people are new and unprecedented; their parents could not have predicted many of the pressures they face. How we help adolescents meet these demands and equip them with the kind of education, skills and outlook they will need in a changing environment will depend on how well we understand their world. The present study, provides an overview of the behavioral factors and lifestyle of school adolescents living in urban settings in a manner that can inform programs and policies directed toward this underserved population.This study will be a part of broader needs

assessment to inform several urban adolescent health programs. The findings will have implications for existing and future program strategies for promoting adolescent well-being. This report presents data on multiple dimensions of adolescents' lives in urban settlements in Dhaka. The study provides evidence on the lives of young people in urban Bangladesh in a manner that can inform programs and policies directed toward this underserved population.

Methodology and materials

This cross-sectional study was conducted in different English medium schools of Dhaka city. Schools were selected purposively as those schools are located in the centre of the Dhaka city and renowned for their student density coming from a certain (high) socio economic background. The study period was between January to June 2011. A total of 319 students of both sexes between 12 and 17 years of age were purposively selected from class VI to IX of those schools. A self-administered and pre-tested questionnaire was prepared based on the objectives of the study. Students were given the questionnaire and briefed about the objectives of the study and methods of answering the questionnaire. They were assured about the confidentiality of the information provided by them. Response rate was 100% .After collection of data each questionnaire had an unique ID number given by the researcher. Data entry and analysis was done by the software SPSS 17.0.After entry data were checked and rechecked for any error. The descriptive statistics such as frequencies, percentage were calculated. To find out association between life style variables and other socio demographic variables x^2 test was done. Ethical permission was obtained from the ethical review committee of National Institute of Preventive and Social Medicine (NIPSOM) Dhaka Bangladesh.

Results – Out of total 319 students majority of the students (32.0%) were in the age group of 14 years, male were (59.9%) and rests were female. Maximum respondents were Muslims (94.4%). About one-third of students read in class VI and additional one-third were in class VII, and rest was in class VIII and class IX (Table-1). Almost half of the respondents (56.4%) were fascinated to fast food and 31.3% restaurant meal, only 12.3% liked regular home meals. About 47% of the respondents were fascinated to different kind of soft drinks and only 22% preferred fruit juice (Fig-1).They mainly took fast food in Tiffin time (79.3%) and snacks 63%. Most of them took homemade food during breakfast (57.4%), lunch (77.4%) and dinner (71.2%). Very few among them skip any one of whole day meals (Table-2). All the respondents showed multiple responses in their used means of recreations. Among these the most popular means were internet browsing (27.40%),Others like shopping, swimming, dancing (18%) and watching TV (13.16%) (Table-3).Among the respondents 57% liked English TV Channel, 32% liked Hindi Channel and only 11% liked Bengali Channel. Maximum of the respondents (61.1%) liked English 35.1% Hindi movies and only few (3.8%) liked Bengali movie (Fig-2). Therefore it was revealed that most of them were fond of English & Hindi TV Shows. Significant association was not found between the type of food they preferred most and their gender. Out of total 319 respondents only 40 (12.5%) of them were smokers and the rest were non smokers .It is to be noted that among the smokers all were occasional smokers. Very few (9.1%) of them were used to intake shisha (Hukkah or waterpipe tobacco)occasionally. No association was found between their gender and smoking habit and reason of initiation of smoking (Table-4).Late night study were compared by gender (P=<.05), and found that 12.5% female were habituated to regular late night study and only 8% were male (Table-4).On comparison of late night internet habit and gender of the

respondents (P=<.05) 17.3% male were regular user of late night internet and only 4.7% were female (Table-4).There was an association between gender and their percentage of use of internet as recreation (P = <.05) 58% male were regular user of internet as recreation purpose and 53% were female (Table-4).Association was found between their most favorite TV channel and gender (P = <.05). Maximum male respondents (68%) preferred English Channel and 50% female preferred Hindi channel (Table-4). In this study internet browsing was identified as most popular among these young populations as a means of recreation and late night activity. A considerable number of respondents developed or at the threshold to develop various adverse habits such as smoking, late night internet browsing and unhealthy food habit.

Discussion- The present study was done with the aim to see the life style pattern of adolescent and to find out the important influencing factors on their life style. The challenges facing by the adolescents in this new millennium, is a subject that has not received enough attention. The study may act as a platform on which future investigators may give a look at this topic. In this study majority (94.4%) of the respondents were Muslims studying from class VI to IX in English Medium School. The socio economic and demographic characteristics and the place of education of the respondents showed that the study population was from upper middle class family. So the findings of this study only represent the population with similar socio economic status. Most of the respondents took meals thrice a day. Among them 56.4% said fast foods were fascinating to them. Maximum respondents preferred soft drinks rather than other drinks. Previous study revealed that the changing food habit to westernized food pattern along with high socio economic status appears to pose a risk for unhealthy food habit practice among adolescents, especially of English medium schools of Bangladesh. A study on 209 children in Dhaka city revealed the risk factors of child obesity. The choice of fast food by the respondents was alarming. 92.3% of the respondents choose fast foods like beef burger and French Fries.[11] Another study on 202 adolescents in Dhaka city on life style and overweight showed that the number of times of taking chocolate, ice-cream, Soft drinks and other fast food in a weak was higher among the respondents[12].Meanwhile a study revealed that fast food has become a prominent feature of the diet of children in the United States and increasing throughout the world.[13] This study found only 12.5% out of 319 respondents as occasional smoker. And very few of them took shisha regularly. Most of them 3.8% developed smoking habit in their 14 years of age. A house hold survey on smoking in six areas of Bangladesh by BRAC found that smoking habit in 10 to 19 years age group was 10.3%. Friends influence was the main reason of initiation of smoking[14]. A study in India also found that primary reason for trying first cigarettes was influenced from smoker friend. The study showed that most (67.1%) of the respondents getting seven to eight hours of sleep daily. Carskadon, a researcher at brown University discovered important patterns in adolescents sleep. She determined that teens, far from needing less sleep, actually needed as much or more sleep than they had gotten as children-nine and a quarter hours[15].Moreover, extensive television viewing and computer use during adolescence may contribute to the development of sleep problems. In this study 36.1% respondents were occasionally habituated with late night internet use. Among them 17.3% male was regular user of late night internet[15]. Youth risk behavior surveillance carried out in the US in 2007 mentions TV watching and internet use as a priority health risk behavior.[16] Recreational activity which includes hobbies and extracurricular activities of the respondents is associated with both short and long term indicators of positive development including school achievement and educational attainment. In this study internet browsing was identified as most popular among these young populations both as a means of recreation and hobby. Previous study revealed that the recent media explosion technological advance, repeated live

concerts by home and overseas artists might have influenced these adolescents. Lack of sports ground, Public Park, and other outdoors public recreational facilities may lead them to adopt indoors and media based recreation.[17] Previous study on adolescents computer use and quality of sleep showed that among 160 adolescents irregular sleep pattern were associated with nightly computer use (P = 0.006) which deteriorated their sleep quality.[18].In this study male respondents 60% were habituated to late night browsing and female respondents were habituated to late night study (40%).Among 319 respondents. 35% of them used internet as recreation purpose. Previous study on computer use and academic achievement revealed that there was a gender differences found a cross grade point average and time spent doing home work on and off the computer[19].Among the respondents 56.1% used to watch English TV Channel and English movie during their leisure period. And surprisingly only 3.8% respondents had been watching Bengali TV Channels and movies. Study revealed that internet addiction and attraction to foreign culture is increasing day by day in these young groups and detected as leading factor influencing their lifestyle. The life style of these young groups is changing rapidly. As we can see students from English Medium Schools are only following the English culture they are totally influenced by mass media. It's a question of great concern that students of this age group are massively spending their time in late night internet browsing. Smoking habit and unhealthy food habit are increasing day by day. It is necessary to take up attention in this regard and to explore the changing pattern of adolescent's life style and behavior and also find out the factors influencing their life style. So in order to have a prosperous new generation we have to think about ways and means to formulate a balance life style for our adolescent population.

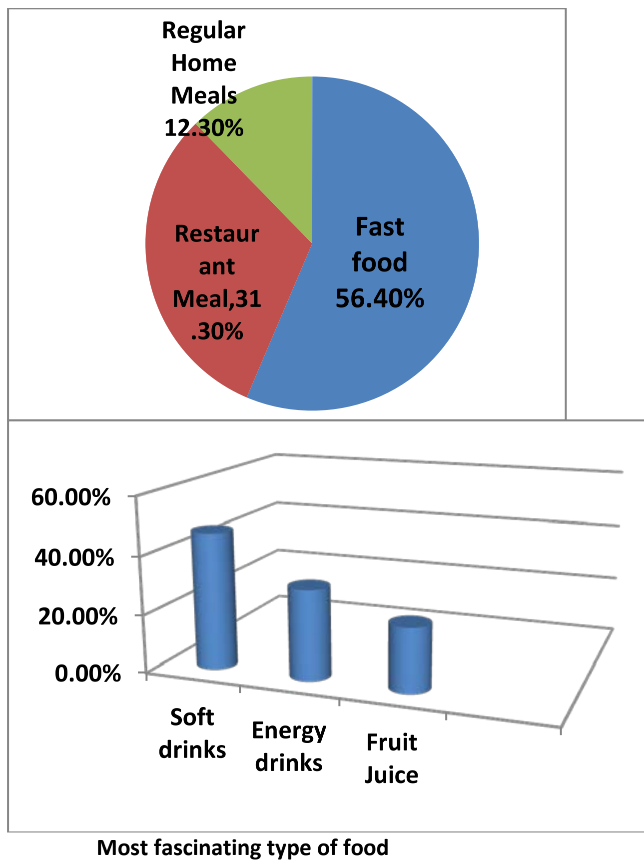
Table-1: Distribution of respondents by socio demographic characteristics

(n=319)

Socio demographic Variables	Frequency (no)	Percent (%)
Age in years		
12	14	4.1
13	73	22.9
14	102	32.0
15	41	12.9
16	66	20.7
17	23	7.5
Sex		
Male	191	59.9
Female	128	40.1
Class		
VI	102	32.0
VII	112	35.1
VIII	67	21.0
IX	38	11.9
Religion		
Islam	301	94.4
Hinduism	18	5.6

Figure-1: Distribution of the respondents by their Fascinating type of food and drinks

(n=319)



Most fascinating type of food

Most fascinating type of drinks

Table-2: Distribution of the respondents by their food Pattern.

(n=319)

Parameter	Frequency (no)	Percent (%)
Break Fast	293	91.8%
Homemade	183	57.4%
Continental	110	34.5%
Skips Meal	26	8.2%
Tiffin	291	91.2%
Fast food	253	79.3%
Homemade	36	11.3%
Skips meal	28	8.8%
Lunch	311	97.5%

Homemade	247	77.5%
Chinese / Thai	58	18.2%
Indian	6	1.7%
Skips meal	8	2.5%
Snacks	271	85%
Fast food	200	62.7%
Local	71	22.3%
Skips	48	15%
Dinner	304	95.3%
Homemade	227	71.2%
Chinese / Thai	71	22.3%
Indian	6	1.9%
Skips meal	5	4.7%

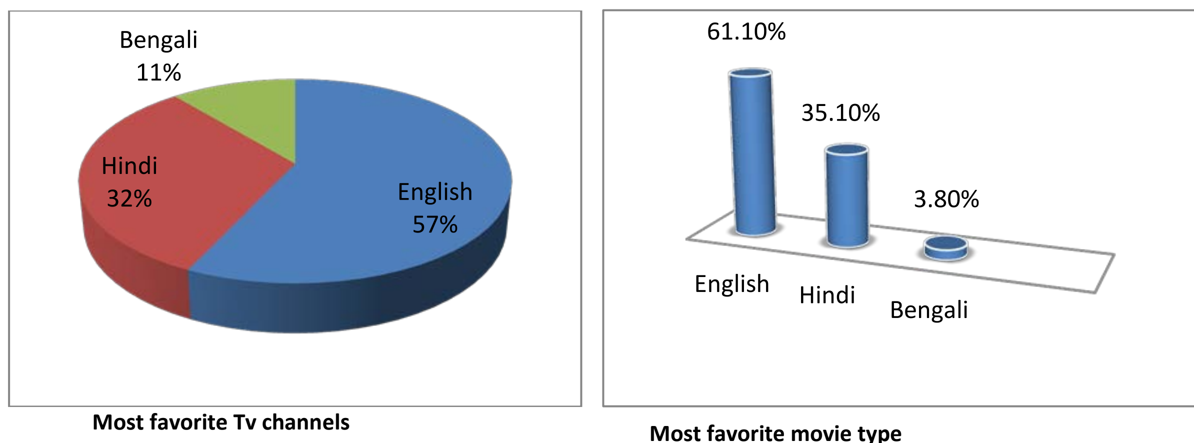
Table-3: Distribution of respondents by their recreational activities.

(n=319)

Type of Recreation	Frequency (no)	Percent (%)
Internet Browsing	85	27.4%
Watching TV	42	13.16%
Listening Music	40	12.5%
Gossiping	37	11.5%
Hang out with friends	33	10.3%
Reading books/magazine	25	7.6%
Others (Music Class, Dance Class, Outdoor Games, swimming)	57	17.4%

Figure -2.Distribution of respondents by their most favorite TV channel and type of movie

(n=319)



Most favorite Tv channels **Most favorite movie type**

Table-4: Gender wise distribution of factors related to lifestyle and behavior.

(n=319)

Variable	Male (n = 191)	Female (n = 128)
Most Preferred food		
Fast food	99 (51.8%)***	58 (45.3%)***
Restaurant meal	46 (24%)	46 (33.9%)
Regular home meal	46 (24.1%)	24 (18.8%)
Habit of Smoking tobacco /shisha	(n-30)	(n-10)
Never	161 (37.7%)	118 (42.3%)
Occasional	30 (75.0%)***	10 (25.0%)***
Reasons of initiation of smoking	(n-30)	(n-10)
Follower of friends	24 (12.6%)***	5 (3.9%)***
Influenced by family members	3 (1.6%)***	0 (0%)
Others (curiosity, Depression)	3 (1.6%)***	5 (3.9%)***
Habit of late night study		
No	69 (36.1%)	29 (22.7%)
Regular	17 (8.9%)	16 (12.5%)*
Occasional	105 (55.0%) *	83 (64.8%)
Habit of late night internet use		
No	100 (52.4%)	65 (50.8%)***

Regular	33 (17.3%) *	6 (4.7%)*
Occasional	58 (30.4%)	57 (44.5%)*
Use of internet as recreation		
No	50 (26.17%)	30 (23.4%)
Regular	111 (58.1%) *	68 (53.1%)*
Occasional	30 (15.7%)	30 (23.4%)
Most favorite TV channel		
English	129 (68.0%)*	50 (39.0%)
Bengali	23 (12.0%)	10 (7.8%)
Hindi	39 (20.4%)	65 (50.8%)*

*p<0.05, **p<0.01,***p>0.05 by using $\chi 2$ test.

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CONTEXTUALISING IMPACT OF CLINICAL TRIALS ON INDIAN TRIBES

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India is progressively becoming a noteworthy player in the global market of clinical research and drug manufacturing. It is a potential drug trial site for multinational corporations who benefit from not only its literate human resource but also from high poverty stricken populace eager to participate in clinical trials in lieu of free treatment. Along with a significant contribution towards clinical trials, Indian annual pharmaceutical exports are worth 17 billion with a trend showing double the figure in next decade. The increased number of clinical trials will increase the responsibility of the regulatory authorities to safeguard the rights and health of participants especially those living in remote tribal areas who are less aware of the regulations. The tribal population of India has been marginalised and has a lower literacy rate. The formulation of legislation or a policy is done, as per the perspective of most of the population, while the minority's perspective is usually not considered. This presentation will attempt to contextualise how the plethora of clinical trials has an impact on the Indian tribes.

ENGAGEMENT WITH COMMUNITY: PROPOSED AND ACCEPTED, A SITUATIONAL ANALYSIS ON WOLBACHIA PROJECT IN SELANGOR, MALAYSIA.

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ABSTRACT

Introduction: Community acceptability is important for the future use and success of *Wolbachia* Project in public engagement**. Objective:**This study aims to obtain community acceptability of the *Wolbachia* project in AU2, Taman Keramat, Selangor, Malaysia. **Method:**The target group consists of community leaders and residents of this area. Universal sampling was used to select the respondents. Initially several methods of data collection were used for this study using *self-administered* questionnaires, face to face interview with minimal guidance thru house to house visit and put questionnaire in the post box to gauge the full range of views**. Results:**Until March 2017, studies have been successfully conducted and 100% house been covered in this area. The number of houses in this area is 1060. However, 80 houses been rejected because being in the exclusion criteria. The findings showed that 509 (51.9%) of respondents have responded and of these 501 (98.43%) agreed to support the release. On March 28, 2017, the first Mosquitoes with *Wolbachia* finally released at AU2, Taman Keramat, Selangor, Malaysia by Institute for Medical Research, Ministry of Health, Malaysia. **Conclusion:**In approaching community engagement aspects of site selection, the involvement of local communities very important in the success of a project.

Keywords: Malaysia, Community Engagement, Acceptability, Wolbachia

Epidemiological Characteristics of Cervical Cancer Patients in Bali, Indonesia

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Abstract

Backgrounds: Cervical cancer is the leading cause of cancer death among women in developing countries. Identification of epidemiological characteristics in cervical cancer is important to help prevention and screening target. This research aims to identify the epidemiological characteristics of cervical cancer patients in Bali Indonesia.

Methods: This research was retrospective cross sectional study from medical record of 60 histopathology confirmed cervical cancer patients at tertiary healthcare institute in Bali Province from June 2016-February 2017. The variables were age when being diagnosed, education, occupation, hormonal contraception, menopausal status, and parity.

Results: Average age was 49.533 years ranging from 13-73 years old and peak incidence was 45-54 years old (40%). Education was mainly low education (53%), middle education (35%), and high education (12%). Occupation predominantly was housewife (47%) followed by officials (28%), farmer (12%), trader (7%), businesswoman (3%), and students (3%). The use of contraception was 33.3% and 76.67% women had experienced menopause. Multiparity (>4) was observed 11.67%, paucyparity (1-4) 63.3%, and no parity 25%.

Conclusion: Cervical cancer was more likely to occur in post-menopause women with low education and housewives. Hormonal contraception and multiparity was not found to affect cervical cancer in this study.

Keywords: *cervical cancer, epidemiology, Bali*

Introduction

Cervical cancer is the fourth most common cancer in women worldwide. In developing country, it is the most common and leading cause of cancer death among women. WHO estimates there were 528,000 cases of cervical cancer globally in 2012. In the same year, approximately 266,000 women died from cervical cancer and 85% were from less developed country.[1]

Cervical cancer is cancer which arising from cervix. It mostly originates from Human Papilloma Virus (HPV) infection that can be transmitted through sexual or skin contact to the genital organs. HPV will cause pre-cancerous lesions before develop into malignant cervical cancer. These infections can show no symptoms but recurrent infections can occur if the individual has sexual intercourse with an infected partner. Pre-cancer lesions will develop into cervical cancer in some individuals. It is influenced by several factors such as the infecting HPV type, immune system, unhealthy lifestyle, and genetic factors. The development of pre-cancerous lesions takes 15-20 years to become cancerous in women with normal immunity and 5-10 years in women with weak immunity.[2]

Prevention efforts have been made to suppress morbidity and mortality rates of cervical cancer. The HPV vaccine has been found for HPV types 6, 11, 16, 18. This vaccine was given to adolescents aged 9-25 who have never had sexual intercourse. However, the use of this vaccine was still few in Indonesia because of high price and lack of awareness from the society. Another obstacle found was the high rate of sexual activity in adolescents that resulted in a reduction of targets for the use of this vaccine. Other preventive measures include early screening/detection of pap smears, HPV tests, and visual inspection with acetic acid (VIA) recommended for women who have had sexual intercourse. Implementation of this detection is also constrained by the awareness and knowledge of the community to carry out early examination because of early lesions that do not cause symptoms. All of those reasons made the incidence of cervical cancer in developing country remains high.[3]

Identification of epidemiological characteristics in cervical cancer is important in order to help planning prevention program and screening target to be more precise. None of the studies has been so far carried out in Bali province about epidemiological characteristics of cervical cancer patients. The aim of this research is to identify the epidemiological characteristics of cervical cancer patients in Bali Indonesia.

Materials and Methods

This research was retrospective cross sectional study. Sources of data were medical records of 60 histopathology confirmed cervical cancer patients at tertiary healthcare institute in Bali Province, Indonesia, from June 2016-February 2017. This hospital is the main referral hospital for cancer case in East Indonesia. Method to obtain samples was by using total samples method. The parameters being analyzed were age when being diagnosed, educational level, occupation, hormonal contraception use, menopausal status, and parity. Data were analyzed by descriptive statistic ($p<0.05$)

Result

Sixty histopathology confirmed new cases were included in this study. Mean age of cervical cancer patients was 49.533 years ranging from 13-73 years old and peak incidence was 45-54 years old (40%). Detailed age distribution of the patients can be seen in figure 1.

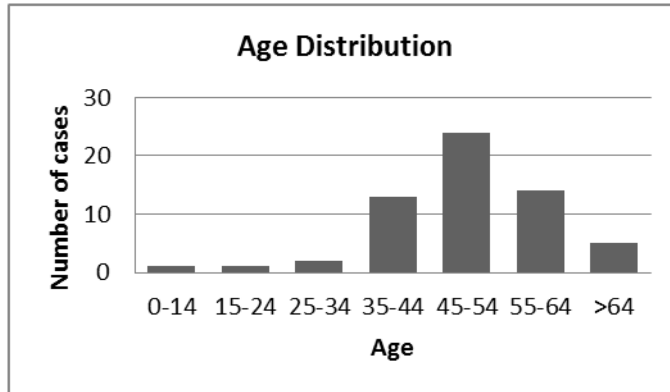

Figure 1. Age Distribution of Cervical Cancer Patients in Bali, Indonesia

Education of the patients was mostly categorized as low education (no school and elementary school graduate) 53%, middle education (junior high school and senior high school graduate) 35%, and lastly high education (university graduate) 12%.

Table 1. Educational Level of Cervical Cancer Patients in Bali, Indonesia

Education	Number	Percentage
No school	8	13%
Elementary school	24	40%
Junior high school	7	12%
Senior high school	14	23%
University	7	12%

Occupation of the patients predominantly was housewife, followed by officials, farmer, trader, businesswoman, and students as shown in table 2.

Table 2. Occupation of Cervical Cancer Patients in Bali, Indonesia

Occupation	Number	Percentage
Housewife	28	47%
Trader	4	7%
Farmer	7	12%
Official	17	28%
Businesswoman	2	3%
Student	2	3%

From all patients, 20 patients (33%) use hormonal contraception. Types of hormonal contraception were varied from pills, injection, implant, and intra uterine device (IUD) and no statistically significant differences were found among the choice of contraception.

Table 3. Hormonal Contraception Use of Cervical Cancer Patients in Bali, Indonesia

Hormonal Contraception	Number	Percentage
Pills	4	7%
Injection	8	13%
Implant	2	3%
IUD	6	10%
None	40	67%

Based on menopausal status, 77% patients had experienced menopause. Only 2 patients (3%) had delayed menopause and the rest had normal menopausal age.

Table 4. Menopausal Status of Cervical Cancer Patients in Bali, Indonesia

Menopause Status	Number	Percentage
Menopause Age		
41-45	12	20%
46-50	15	25%
51-55	17	28%
56-60	2	3%
Not menopause	14	23%

Multiparity (parity more than four) was observed in 11.67% women, paucyparity (parity between one until four) in 63.3% women, and no parity in 25% women.

Table 5. Parity of Cervical Cancer Patients in Bali, Indonesia

Parity	Number	Percentage
No parity (0)	15	25%
Pauciparity (1-4)	38	63%
Multiparity (>4)	7	12%

Discussion

Cervical cancer as well as the other cancer was reported to appear in menopause age. In this study, patient's mean age is 49 years old and peak incidence 45-54 years old. Similar study in India result peak incidence of 55-59 years old[4], in Europe 55-64 years old[5], and in China 56-65 years old[6]. This suggest that cervical cancer onset in Bali province tend to be earlier and need further investigation. The onset which tend to appeared in old age was hypothesized due to development of pre-cancer lesions which need fifteen until twenty years to develop into cervical cancer. Pre-cancer lesion usually already occur at sexually active stage and become malignant in age older than 45. Therefore, early detection is also important in sexually active stage to prevent pre-cancer lesion become malignant and harder to manage.

Many studies related low educational level with cervical cancer.[4-6] This is in line with this study where most patients were in low education level. The explanation is women with low education are less likely to have access to health promotion programs and lack of self-awareness toward cervical cancer. This finding suggests that health education and promotion is very important and must reach low socioeconomic society.

It was found that most of the patient's occupation was housewife in this research. This can be useful for planning cervical cancer screening program in Bali to reach housewife as target. Meanwhile, study in China reported farmer and study in Europe reported industrial worker as patient's main occupation.[5,6] The different result between country pointed out distinct epidemiological character across country and resemblant with majority of women's job in respective country.

The association between hormonal contraception and cervical cancer is still controversial. Some study reported that hormonal contraception can increase the risk of cervical cancer.[7] In this study, hormonal contraception was found to not have association with cervical cancer. The finding was similar with previous reports in Turkey, Iran, and Nigeria.[8-10] This may indicate the safety of

hormonal contraception, but cohort study is still needed to ensure the association of hormonal contraception and cervical cancer.

Cervical cancer in previous study was most likely occurred in post-menopause women. The finding in this research was consistent with another literature where most patients were already had menopause. The menopause age in most patients were normal, not too early nor delayed. This phenomenon was related to hormonal changes during post-menopause period, and mucosal change which prone to inflammation in pathogenesis of malignancy. Sex without condoms is also discovered more often in post-menopause women, thus increasing the risk of HPV infection.[11]

Previous multicenter case control study and cohort study showed that multiparity increase the risk of cervical cancer.[12,13] In this study, multiparity was not found to have association with cervical cancer. This opposing result suggest for more and larger study.

Conclusion

Cervical cancer was more likely to occur in post-menopause women with low education and socioeconomic status. Hormonal contraception use and multiparity was not found to affect cervical cancer in this study.

Conflicts of Interest

The authors declare no conflict of interest.

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Exposure Assessment of Phthalates for Workers in Plastic Film and Bag Manufacturing Plants

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Abstract

The workers of the plastic bag/film manufacturing may expose the phthalate esters from the working environment. Therefore, it is important to investigate the occupational phthalate exposures and adverse health effects for plastic manufacturing workers. All of the personal air PAEs levels were not detected in 99 recruited subjects and lower than those in other PVC factory workers. We divided the subjects into high and low exposure dose group by back-calculated DEHP exposure doses calculating with urinary DEHP metabolites. In male groups, we found the testosterone concentration (high vs. low= 5.03 vs. 6.20 ng/mL, $p=0.011$) and SHBG (high vs. low= 32.0 vs. 45.5 nmol/L, $p=0.004$) and E_2 (high vs. low= 57.0 vs. 46.4 pg/mL, $p=0.011$) in high exposure group was significantly different than those in low exposure group. In female groups, the Dihydrotestosterone (high vs. low = 307 vs. 209, $p=0.015$) in high exposure group was significant higher than those in low exposure group.

In male workers, the urinary levels of MEHP, MEHHP, MEOHP, MECPP, ΣDEHP and DEHP exposure dose were significantly negative with testosterone (Spearman γ_s =-0.333, -0.440, -0.413, -0.290, -0.364, and -0.390, all $p<0.05$). The urinary levels of MEHP, MEOHP, MEHP(%), ΣDEHP and DEHP exposure dose were significantly negative with SHBG (γ_s =-0.349, -0.249, -0.332, -0.286 and -0.386, all $p<0.05$). However, there was no correlation between urinary metabolites of DEHP and serum reproductive and thyroid hormone in female workers. After adjusting for confounding factors, MEHP(%) was positively associated with estradiol (E_2) ($\beta=0.655$, $p<0.05$), which reveals that MEHP exposure will increase the levels of E_2.

The reason for the low concentration of PAEs in this study may be due to the fact that after the plasticizer incident, the relevant government departments have established the laws for the regulation of relevant plasticizers in consumer products and food containers.

Key words: Plastic Film and Bag Manufacturing Plants, phthalates, health outcomes

Introduction

Plastic manufacturing industry, a series of economic cycle, is an important part and downstream industry of petrochemical industry in Taiwan. The purified raw materials, such as polyvinyl chloride, polypropylene, polyethylene, polystyrene and acrylonitrile-butadiene-styrene were used to produce plastic products. The plastic industry can be divided into seven subsectors, namely: leather, plate, tube, film, bag, necessaries and others according to the purposes of various plastic products. General applications for the plastic bag/film included food industry, electrical and electronic industry, necessaries, agriculture and aquaculture. Based on the statics of industrial production in 2014, the usage of plastic materials for the plastic bag/film manufacturing was 0.44 million tons, 58.6 % for plastic bag and 41.4 % for plastic film. The main products included multilayer film bag, plastic wrap, mesh bag, weaving bag, packaging bag, ziploc® bag and etc. The manufacturing processes of plastic bag/film can be roughly divided into four categories: Mix the raw material and additives, Molding technology, Plastic Printing, Crop and finished product. The plastic powder/ pellet, plasticizers, stabilizer, slip agents, fillers, pigments, inks and solvents were used as ingredients for the plastic bag/film manufacturing. The workers of the plastic bag/film manufacturing may expose the plastic dust and phthalate esters from the working environment. EPA classified DEHP in Group B2 (probable human carcinogen), which means exposure to those hazardous substances may increase the carcinogenic or endocrine disruption risks for workers. The permissible exposure limit- time weighted average (PEL-TWA) of Taiwan Ministry of Labor for DEHP is 5 mg/m^3. Epidemiological researches reported that dust will contribute to pneumoconiosis or lung cancer; plasticizers (such as phthalate esters) will lead to oxidative damage, endocrine disruption, adverse reproductive or developmental effects and testis cancer. Therefore, it is important to investigate the occupational exposures and adverse health effects for plastic manufacturing workers.

Materials and methods

Study Participants and Study design

We recruit at least 3 representable plastic bag/film manufacturing plants with high potential risk and group the workers into the similar exposure groups. And then, we measure personal exposure concentrations of phthalates for 99 workers and establish the exposure profiles database. We also conduct the examinations of blood biochemical, thyroid hormones and reproductive hormones. The demographics, working history, medical disease, work status, life and dietary styles, self-reported health scale and time activity pattern of workers were collected with the standardized questionnaire which contained. And we integrate personal exposure data and time activity pattern with questionnaire to carry out the health risk assessment as well as present the conclusions and improving strategy.

Calculating Daily Intakes (DIs).

To calculate the DIs of each phthalate, the urinary phthalate metabolite levels in the spot urine samples and the individual age, body weight (BW), and body height (ht) data of each participant were combined. The individual DIs of phthalates based on urinary phthalate metabolites were calculated using the method described by Koch et al.[1]:

$$\text{Daily intake } (\mu\text{g/kg/day}) = \frac{\text{UE}_{\text{sum}} \times \text{CE}_{\text{smoothed}}}{\text{F}_{\text{UE}} \times 1000} \times \frac{MWd}{MWm} \quad \text{(Equation 1)}$$

(1) UE_{sum} is the molar urinary excretion sum of the measured urinary phthalate

metabolites;

(2) The smoothed creatinine excretion (CE) rates $CE_{smoothed}$ are age, body weight (BW) and height (ht), and gender-based values for urinary CE[2, 3]. The formulae of $CE_{smoothed}$ estimates for adults and minors in this study are listed below:
Adults (≥ 18 years old) (Equation 2)
$CE = 1.93 \times (140 - Age) \times BW^{1.5} \times ht^{0.5} \times 10^{-6}$…(male)
$CE = 1.64 \times (140 - Age) \times BW^{1.5} \times ht^{0.5} \times 10^{-6}$…(female)

(3) where Age (years old) and ht (cm) are the participant's age and height, which were obtained from the questionnaire;

(4) F_{UE}, the molar fraction, describes the molar ratio between the excreted amounts of the specific metabolites of each phthalate corresponding to the dietary intake of the parent phthalate[4,5].

Statistical Analysis.

We report phthalate results as µg/g of creatinine (µg/g Cr). Creatinine was used to adjust for individual variations in urine concentration. The non-detectable (ND) levels, i.e., those below the limit of detection, were calculated as half of the detection limit of each phthalate metabolite, and the detectable rate as the number of urine samples with the level of each phthalate metabolite above the detection limit, divided by all of the analyzed urine samples. The Mann-Whitney U test was used to evaluate differences between demographic data, e.g., age and gender, and the Kruskal-Wallis test was used to evaluate differences between each level of phthalate metabolites. SPSS 22.0 for Windows was used for all statistical analyses. Significance was set at $p < 0.05$.

Results

All of the personal air PAEs levels were not detected in 99 recruited subjects and lower than those in other PVC factory workers. In addition, the postshift urinary PAEs metabolite levels were also lower than those in other PVC factory workers. And the highest PAEs metabolite level were found in MnBP (median: 14.9 µg/g creatinine; Cr), and followed by MECPP (median: 9.11 µg/g Cr), MiBP (median: 6.58 µg/g Cr) and MEP (median: 5.91 µg/g Cr).

According to the job category and DEHP exposure possibility, the workers are divided into high exposure group (operator on-the-spot, n=73) and low exposure group (office staff, n=26).The postshift urinary levels of MiBP (high vs. low = 10.98 vs. 5.51 µg/g Cr, p=0.076), MnBP (high vs. low = 21.31 vs. 17.41 µg/g Cr, p=0.486), MECPP (high vs. low = 17.93 vs. 9.70 µg/g Cr, p=0.290) and MEOHP (high vs. low = 7.93 vs. 4.54 µg/g Cr, p=0.034) in high exposure group were significantly higher than low exposure group ($p<0.05$). The index of ΣDEHP and ΣDBP were calculated by the sum of all DEHP metabolites and DBP, respectively. The index of ΣDEHP (high vs. low = 0.12 vs. 0.06 µmol/L, p=0.240) and ΣDBP (high vs. low = 0.15 vs. 0.10 µmol/L, p=0.178) in high exposure group were also higher than index in low exposure group ($p<0.05$).

We further compare the urinary PAEs level of preshift and postshift in the same worker. In high exposure group, the postshift urinary levels of MMP (level difference: 1.41 µg/g Cr, p=0.005), MBzP (difference: 0.30 µg/g Cr, p=0.001), MnOP (difference: 0.06 µg/g Cr, p=0.011), MINP (difference: 0.25 µg/g Cr, p<0.001) and MIDP (difference: 0.38 µg/g Cr, p<0.001) were significantly higher than corresponding preshift urinary PAEs level. But no significant difference was found in urinary DEHP

metabolites in high exposure worker. In low exposure group, the postshift urinary levels of MMP (difference: 1.17 μg/g Cr, $p=0.004$), MEHHP (difference: 0.79 μg/g Cr, $p=0.033$), MBzP (difference: 0.13 μg/g Cr, $p=0.049$), MnOP (difference: 0.19 μg/g Cr, $p<0.001$), and MIDP (difference: 0.81 μg/g Cr, $p=0.009$) were significantly higher than corresponding preshift urinary PAEs level.

We also divided the subjects into high and low exposure dose group by back-calculated DEHP exposure doses calculating with urinary DEHP metabolites. In male groups, we found the testosterone concentration (high vs. low= 5.03 vs. 6.20 ng/mL, $p=0.011$) and SHBG (high vs. low= 32.0 vs. 45.5 nmol/L, $p=0.004$) and E_2 (high vs. low= 57.0 vs. 46.4 pg/mL, $p=0.011$) in high exposure group was significantly different than those in low exposure group. In female groups, we found the Dihydrotestosterone (high vs. low = 307 vs. 209, $p=0.015$) in high exposure group was significant higher than those in low exposure group.

The Spearman correlation between urinary metabolites of DEHP and serum reproductive and thyroid hormone were evaluated. In male workers, we found the urinary levels of MEHP, MEHHP, MEOHP, MECPP, ΣDEHP and DEHP exposure dose were significantly negative with testosterone (γ_s =-0.333, -0.440, -0.413, -0.290, -0.364, and -0.390, all $p<0.05$). The urinary levels of MEHP, MEOHP, MEHP(%), ΣDEHP and DEHP exposure dose were significantly negative with SHBG (γ_s =-0.349, -0.249, -0.332, -0.286 and -0.386, all $p<0.05$). However, there was no correlation between urinary metabolites of DEHP and serum reproductive and thyroid hormone in female workers. After adjusting for age, BMI, smoking and drinking, MEHP(%) was positively associated with estradiol (E_2) ($\beta=0.655$, $p<0.05$), which reveals that MEHP exposure will increase the levels of E_2.

Discussion

The reason for the low concentration of PAEs in this study may be due to the fact that after the plasticizer incident, the relevant government departments have established the laws for the regulation of relevant plasticizers in consumer products and food containers. In addition, people pay more attention to the environmental protection and food safety, and the plasticizer raw materials have been gradually replaced by environmentally friendly plasticizer in the plastic film bag industry.

We didn't find any certificate application record for the operation of hazardous chemicals on Taiwan EPA website for the sampling plants. However, the usage of personal protective equipment was suggested to effectively reduce the DEHP and VOCs exposure. In addition, DEHP is known endocrine disruptor, further studies are suggested to determine the long-term health effects of DEHP exposure, and to verify the availability of protection of PEL for workers.

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FACTORS AFFECTING PUBLIC HOSPITAL SERVICE QUALITY: A SYSTEMATIC REVIEW

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ABSTRACT

Public hospital as a vital service sector with certain challenging problems needs to improve its service quality, but there are no systematic review data shown which major factors associated with public hospitals quality services. This study is intended to investigate the major factors affecting public hospital service quality. The literature databases were searched by Googlescholar, Proquest, and Scopus by using "public hospital", "factors", "service quality", "countries". The selected articles were assessed by using Systematic Review method PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses) statement. From the total 5782 articles with relevant content, 2858 were selected based on the title. These were filtered based on the spesific objective of the research and eliminating the duplications, to obtain relevant articles. Among these, 479 were checked by the abstracts and 756 were excluded. The articles were reassessed, searching full-text for eligibility. After 38 articles were found then selected by inclusion criteria and reviewed. Finally, seven articles were reviewed . The result findings that the major factor associated with patients' satisfaction was measured by using SERVQUAL analysis and there were different dimensions rank among countries.

Keywords : public hospital, factors, service quality, countries.

INTRODUCTION

Healthcare is one of importance of human rights in all over the world. Declaration of Human Rights in 1948 stated that everyone has the right to a standard of living adequate for health and well-being as an individual and family. Every government has to create conditions that allow every individual to live a healthy life, with efforts to provide adequate health care facilities and affordable health care for the community. In all health systems, hospitals are important sectors providing vital services with challenging problems(1). In the developing and developed countries, 40% and 80 % of resources are allocated to hospitals which impact the health systems' efficacy(1),(2). Hospital is a complex and dynamic organization which needs to asses its performance in order to serve patients' healthcare(3). Hospital services are carried out both by public and private institutions. Indonesian Ministry of Health in 2014 stated that Indonesia has established 2080 hospitals which consists of 1610 public hospitals and 470 private hospitals that shown most of hospital care served by government. Some studies among countries have shown that numbers of public hospitals are larger than private ones(4),(5), (6), (7).

Public and private hospitals among countries have different structure and functioning. In most of developing countries, the traditional hierarchal structure of public hospitals is prominent which contributes to the stereotyping health services given to patients. Thus, public hospital should be given more attention to service quality improvement issues(5).

Various factors affect the quality of hospital service. Healthcare service quality is associated with patient satisfaction, loyalty, and healthcare organizations productivity and profitability(8). Internal factors which contribute to hospital quality are hospitality service, hospital officials, and speed in service. A literature study identified six factors regarding the service quality as perceived in both public and private hospitals which are : empathy, giving priority to the inpatients needs, relationships between staff and patients, professionalism of staff, food and the physical environment(5). Meyer (2004) stated that external factors influencing on hospital service quality were local market competition, and public or private health quality initiative and standards.

In USA and European healthcare sectors, there are less comparative assesment of service quality in public and private hospital since their structure and functioning are different(5). This probably reflect that developed countries have standardized public and private hospitals equally with high performance. Many public hospitals among developing countries have limited facilities and infrastructures, including image of low staff performance and low standard than private hospitals that need to be assess(9). They are blamed and criticized for the inflexibility of their traditional hierarchal structure to deal with quality improvement(5). However, Public hospital as part of the field of health services industry in need to approach a comprehensive analysis to assess its quality service. In several studies, various have been applied to assess and compare hospital service quality between public and private hospital(5),(4),(10),(11), but there are no systematic data shown which prior factors associated with public hospitals quality services. This systematic review study is intended to investigate and introduce the major factors affected public hospital quality service in order to give priority improvement to its service.

METHODS

This is a systematic review of articles about factors affecting public hospital service quality. It is conducted following a protocol specifically designed for this purpose and reported according to the recommendations of the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses) statement.

Data Sources and Search

Studies were identified by searching e-journals. This search was conducted in googlescholar, ProQuest, and Scopus. The last search was run on 20s December 2016.

Search Strategy

Search startegy was a combination of "public hospital", "factors", "service quality", and "countries". Limitation of searches to English language journals from January 2008 to December 2016.

Eligibility Criteria

This study included empirical studies that identified assessment of public hospital service quality and used qualitative methods among developed and developing countries.

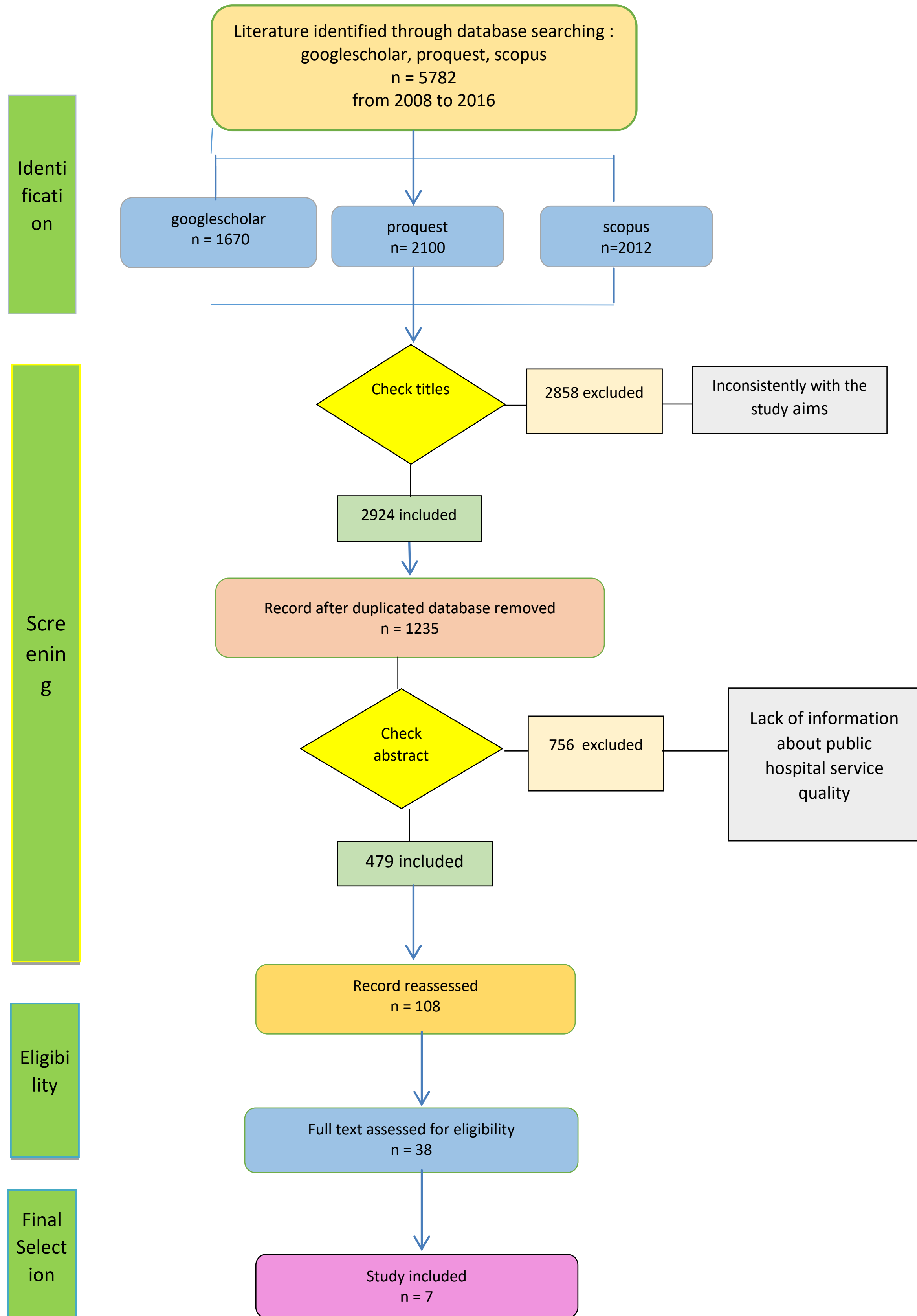
Screening

The technique for screening based on reviewed titles of articles and then abstracts of the selected articles. Full text of the articles was studied and more relevant articles in the area of public hospital quality service were reviewed. Finally, the quality of selected articles was assessed (Figure 1). The articles were reviewed by author, identifying the attributes and themes, and then writtens in extraction tables.

Data Collection Process

Data from included articles were recorded in a localyy developed data extraction form by author. Data item collected were the full text reference, country, period of data collection, study type, study aims, methods, and findings.

Figure 1
Literature Review Procedure



RESULTS

Table 1. Characteristic of the includes studies

Study (Author-Year)	Study Design	Country (Setting)	Participants	Data Collection (Method)	Measure Type	Results (Factors associated)
Siddiq A, Baloch QB, Takrim K (2016)	Descriptive-Analytical	Pakistan	500 public hospital's inpatients	Modified SERVQUAL scale questionairres. Likert-type scale	Outcome	Patients' satisfaction rank : process of healthcare, tangible, empathy
Mosadeghrad AM (2014)	Qualitative design	Iran	64 doctors at Public (Ministry of Health) hospital	Digital Interview Data Record -qualitative data analysis-Nvivo software version 7	Outcome	patient : socio-demographic variables, cooperation, illness; physycian : socio-demographic variables, competency, motivation & satisfaction ; environment : healthcare system; resources & facilities; collaboration & partnership development
Restuccia JD, Mohr D, Meterko M, Stolzmann K, Kaboli P (2014)	Cross-sectional studies	USA	Physicians at 124 Department of Veterans Affairs (VA) acute care hospitals	Descriptive study of Quality Improvement Activities (QIAs) using a survey of Chiefs of Medicine (COM). Survey questions covered four domains: 1) respondent characteristics; 2) inpatient medicine structure and staffing; 3) policies, procedures, and processes; and 4) perceptions of internal processes	Outcome	Medical staff' perception rank : prevention, infrastucture, information gathering
Irfan SM, Ijaz A, Farooq MM (2012)	Qualitative design	Pakistan	369 patients	Modified SERVQUAL scale questionairres, analysis technique Structural Equation Modelling Technique (SEM)	Outcome	Patients' satisfaction rank : empathy, tangible, assurance, timeliness, responsiveness
Al-Borie HM, Damahouri AMS (2013)	Descriptive-Analytical	Saudi Arabia	500 public hospital's inpatients	Mix-methods, SERVQUAL scale questionairres; stratified random sampling	Outcome	Patients' satisfaction. Better rank : Tangibles (Staff appearance, convenient and accessible location,modern equipment and technology; empathy, safety . Worst : medical specialization,dealing with hospitals, employee cooperation
Arasli H, Haktan E, Salih E, Katircioglu T, Camilleri D, O'Callaghan M (2008)	Descriptive-Analytical	Cyprus	454 public hospital's inpatients	Modified SERVQUAL scale questionairres; purposive sampling	Outcome	Patients' satisfaction rank : Food, phisycal environment, giving priority to patients' needs

Rishard MHM, Kodithuwakku SS (2008)	Case study	Sri Lanka	Patients, doctors, nurses at 9 division in a public -teaching hospital (external customer and internal customer)	Qualitative-Quantitative tools using SERVQUAL, ANOVA	Outcome	Patients' satisfaction rank : acceptance (service delivered by staff); doctors and nurses rank : reliability (staff performance)

A total of seven studies were identified for inclusion in the review.The search of databases provided a total of 5782 citations. First, author reviewed all articles and 2858 excluded due to inconsistency with the study aims. After removed duplicates, 1235 articles remained. After checking abstract, 756 were excluded due to lack of indication to public hospital service quality. Remaining articles were reassesed to meet the criteria of eligibility. Finally, seven studies meet the criteria and were included in the literature review. Most of studies used SERVQUAL analysis to meet the quality based on expectation versus perception by measuring five dimensions which consist of realibility, tangible, responsiveness, assurance, and empathy (figure 2) (4),(9),(12). Reliability is the ability to execute the promised services consistently and accurately. Tangible is about the physical facilities like infrastructure, laboratory, equipment and human resources involved in delivering the services. Responsiveness is the degree of willingness to help and facilitate the customers by providing prompt services to the customers. Assurance is about knowledge, skills and expertise of the employees involved in delivering services and the ability to create trust and confidence among the customers. Empathy is about the individual attention and care provided to the customers by the service provider and its human resource(7).

The studies listed above (figure 1) has shown that most of public hospital quality were measurd by using patients' satisfaction . Meanwhile, there were studies measured by using hospital staff perspective showed that factors were associated with hospital quality were infrastucture, prevention, and information gathering(13). One study showed that patients' satisfaction were most on tangible dimension which were food (33.1%), physical environment (29.4%), Giving priority to patience needs (21.9 %), and relationship (15.3%)(5).

Figure 2. Dimension of Hospital Serivce Quality(9)

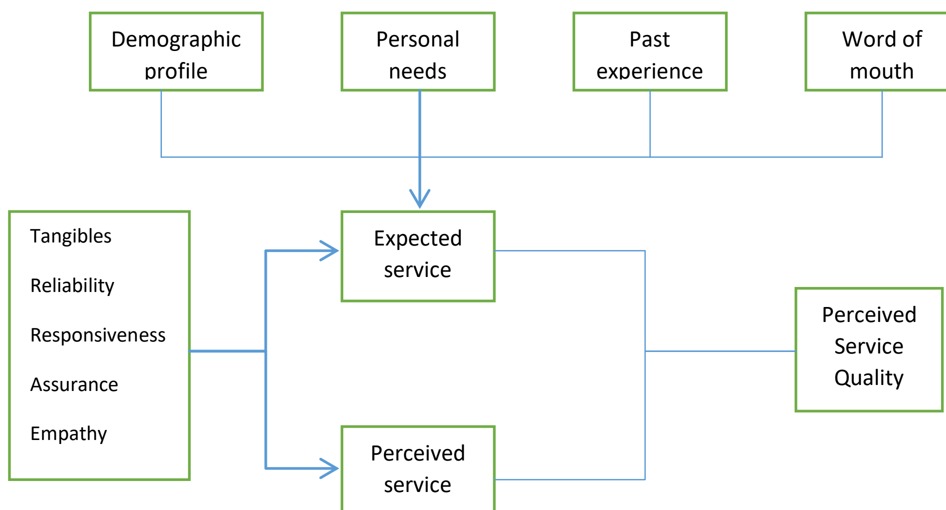


Figure 3. Factors affecting public hospital service quality

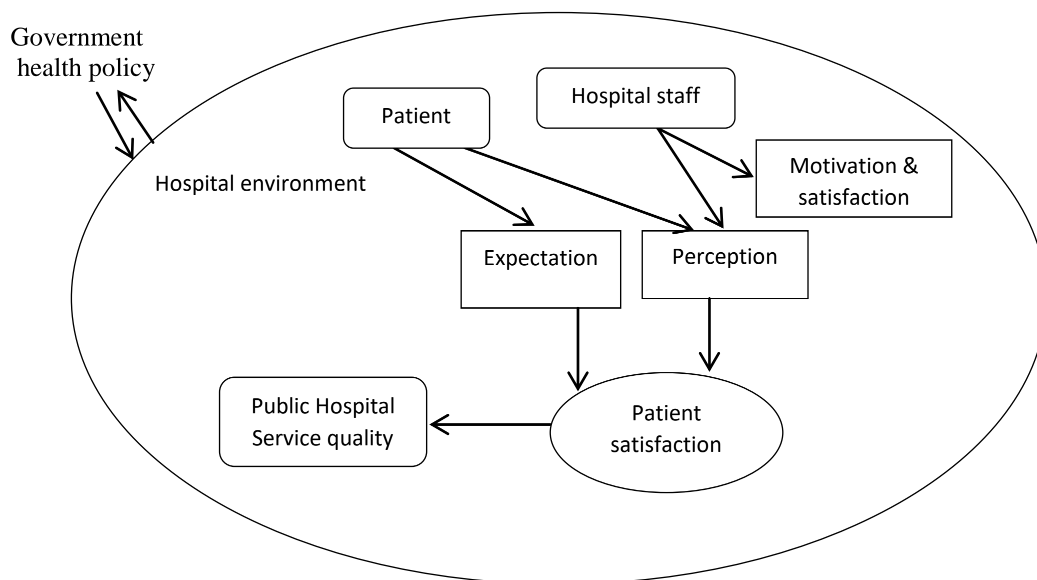


Figure 3 showed that factors associated with public hospital service quality by measuring patient satisfaction, the gap analysis between expectation and perception .

DISCUSSION

Based on literature studies above (figure 2), most of measurement using qualitative method, widely known as SERVQUAL analysis (Pasuraman, Berry, Zeithaml 1988), and its modification. This analysis is based on five dimension which measure consumer's satisfaction and analysis between expectation beyond perception. Most of the literature studies took place at developing countries such as in Asia and Middle East shown that public hospital service quality were measured by using patients' satisfaction that have different prior dimensions of SERVQUAL analysis. This might be happened because there were associated factors such as socio-demographic factor and different healthcare system based on government policy among countries.

Limitation

There were lack information about public hospital service quality in developed countries such as USA and European countries. The author has limited data access to someE Journal. This limitation was also considered because missing key words or made little use of potentially effective subject headings.

Conclusion

Factors affecting public hospital service quality among developing countries mostly investigated by using patients'satisfaction view as they were external customer. The measurement of public hospital service quality mostly using SERVQUAL analysis. The findings have certain implications for directing public hospitals policy to improve their service quality.

Competing interest

The author declare no competing interests.

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Factors related to the consumption of illicit drugs in Portuguese adolescents

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Abstract

The World Health Organization estimated that in 2012, 0.6% of the world population had problems related with illicit drug use. The main causes of premature death and morbidity related to drugs abuse are overdose, human immunodeficiency virus (HIV) infection, hepatitis B and C infection, suicide and trauma. This behavior during adolescence is also related to low schooling, a factor that can reduce opportunities for individual development, with repercussions throughout life. This study aims to explore the relationship between illicit drugs use in the last 30 days and sociodemographic variables, the influence of peers and the relationship with parents.
This is a descriptive-correlational study, transversal approach, whose sample consisted of 450 students from a high school in the north of Portugal. In the data collection we used a self-report questionnaire validated for this purpose, which was applied in the classroom. In data processing we used the Statistical Package for Social Sciences, using descriptive and inferential statistics. The significance level was 5%.
Most of the sample was female (60.2%) and belonged to the age group between 15-17 years (46.9%). The prevalence of illicit drugs use in the last 30 days was 6% (n= 450), being that the majority reported having consumed two or three times a month (70.4%, n = 27), the most commonly used drug was cannabis (81.5%). The proportion of male consumers is significantly higher than the girls (χ^2: p <0.000), as well as older consumers ≥ 18 years (χ^2: p <0.016). The frequency of this consumption is higher in boys (Mann-Whitney: p <0.017). This consumption was not related with peer influence, neither the type of relationship with their parents. The study reveals the need of intervention in this area to prevent the consumption of these substances, with special emphasis on males, avoiding negative repercussions on their development.
Key words: Adolescent; Drug users; Peer influence; Public health.

1. Introduction

According to the World Health Organization (WHO), adolescence is a stage in the life cycle of human beings, comprising the period between 10 and 19 years of age, triggered by anatomical changes resulting from physiological maturation, as well as sociological changes that characterize this transition phase into adulthood (UNICEF, 2011, Coob, 2010). This stage is also characterized by multiple experimental behaviors, in which the consumption of licit or illicit substances has particular relevance (Maia, Freira, Fonseca, Pedro e Silva, 2010).

According to the WHO, cited by Neto, Fraga and Ramos (2012), 4.8% of the world population between 15 and 64 years old used illicit drugs at least once in the twelve months prior to the evaluation in 2005/2006, which corresponds to 200 million people.

The same organization estimates that 0.6% of the world population has problems associated with the use of illicit drugs. The main causes of premature death and morbidity associated with drugs abuse are overdose, HIV infection, Hepatitis B and C virus infection, suicide and trauma (Neto et al., 2012).

The European School Survey Project on Alcohol and Other Drugs (The ESPAD Group, 2016), conducted with a sample of 96046 students aged between 15-16 from 35 countries, reports that lifetime use of drugs varied widely across ESPAD Countries. In the Czech Republic, 37% of the students report having used any illicit drug at least once which is more than twice the average of 18%. Particularly low levels (10% or less) of illicit drugs were noted in countries like Albania and Cyprus. Portugal has an average of 16%. On average, 21% of boys and 15% of girls have tried illicit drugs at least once during their lifetime. The most prevalent illicit drug in all ESPAD countries was cannabis. In average, 16% of the students have used cannabis at least once in their lifetime. The average lifetime prevalence of cannabis use among adolescents in ESPAD countries was significantly lower than the one recorded in comparable school surveys in the USA (31%) or Spain (27%). A general upward trend between 1995 and 2003 can be seen in the prevalence of illicit drug use. Since 2003, the prevalence has remained largely unchanged.

A study carried out in Portugal, designated the National Survey on School Environment (Feijão, 2011a), with 33,000 students from the 3rd cycle (7th, 8th and 9th grades), found that illicit drugs use in the last 12 months remained in the case of cannabis and slightly decreased the consumption of other drugs. The consumption of drugs in the last 12 months was 9%, being that cannabis 8% and other drugs 1%. In the last 30 days, the consumption stood at 6%, with cannabis users at 5% and other drugs at 1%.

Another study (Feijão, 2011b), with a sample of 32,000 secondary school students (10th, 11th and 12th year), recorded that in 2011, 28% of students had already tried cannabis, which is the only relevant psychoactive substance. The other illicit drugs were tried by 2% of the students. About 23% of the subjects consumed cannabis at least once in the past 12 months. In other drugs the rate was 2%. Cannabis use in the last 30 days was 16% and other drugs 1%. This consumption increased from 2006 to 2011.

The Health Behaviour in School Aged Children Study (HBSC) (Matos, Simões, Camacho, Reis e Equipa Aventura Social, 2015), carried out with a partial sample of 3869 students (8th and 10th year), aged between 11 and 15 years old, found that 6.3% of students had tried illicit drugs (8.1% boys and 4.8% girls) and 3.2% reported having consumed in the last month. These young people report that they experienced more often solvents, followed by cannabis. The boys and the older young people mentioned tried drugs more often.

According to the Adventive Service of Addiction Behavior and on Dependences (SICAD, 2016), in a study carried out in 2015, targeting 18-year-olds, the prevalence of illicit drugs use was 31% over a lifetime, 24% in the last 12 months and 15% in the last 30 days. The consumptions were more expressive in boys. In 2010 and 2011 there was an increase in drugs consumption followed by a decrease of these consumptions in 2014 and 2015. At this time, cannabis continued to be the preferred drug.

Regarding to risk factors related to illicit drugs use Maia et al. (2010) present a classification of risk factors and protective factors for harmful consumption in adolescence, organizing them into

biological/genetic factors (Family dysfunction, history of pathology in the family, high individual vulnerability), environmental factors (Precarious socioeconomic conditions, ethnic minority/social discrimination, social disorganization), personality factors (Low self-esteem, low tolerance for frustration, ease of passage to the act, etc.) and behavior factors (Evidence of behavior problems, consumption of harmful substances, unsafe and multiple sexual relations, etc.).

In their study, Guimarães, Godinho, Cruz, Kappann and Júnior (2004) reported that male subjects consumed more drugs than females, a factor that is also associated with higher consumption of illicit drugs by Matos et al. (2015).

In turn, Maia et al. (2010) argue that the age of first consumption is also a factor to be taken into account, since early onset correlates with a higher risk of developing dependence later.

Trigo, Silva, Fraga and Ramos (2015) emphasize the availability and easy access to risk factors for drug use, the existence of weak neighborhood ties and community disorganization, high crime rate and violence, high morbidity rate population, extreme economic and social deprivation, strong affective support and good supervision and communication between parents and children are elements of protection.

Also the authors Paiva and Ronzani (2009) indicate that the relationship with the family, the pressure of the group, the academic performance and the connection with the school, the insertion and incorporation of community values, the ability to decode messages from the media, as well as individual aspects such as self-esteem, problem-solving ability and functional expectations regarding to alcohol and other drugs use are fundamental aspects for understanding these behaviors.

Even with regard to the factors that influence the use of drugs in adolescence, Cerutti, Ramos and Argimon (2015), affirm that the use of psychoactive substances by parents is a variable related to that phenomenon. In their view, adolescents in families whose parents are more tolerant and drug-abusing are more likely to consume psychoactive substances than those who receive counseling and are discouraged from using them. A fragile bond between mother and child is associated with the development of personality traits that favor the use of drugs.

According to Dietz, Santos, Hildebrandt and Leite (2011), the data show that adolescent relationships with family, friends, school and community are among the factors that lead to drugs use. Also Maia et al. (2010) report that family dysfunction, parental and parental drug addiction, low self-esteem and the presence of concomitant psychopathology are risk factors.

Another factor is pointed out by Naia, Simões and Matos (2007) when they affirm that there is a relation between the consumption of illicit substances and the contexts frequented by young people in their free time. For these authors, the fact that adolescents spend their free time in unstructured social contexts, like parties and exits at night is related to greater use of substances.

This article only reports on the relationship between illicit drugs use and socio-demographic variables, sex and age, relationship with parents and perception of the number of friends who use drugs.

The European Union Drugs Strategy 2013-2020 aims to contribute to the reduction of demand and supply of drugs within the European Union, as well as to reduce the social and health risks and harm caused by drugs, thanks to a strategic approach to support and complement national policies, in order to create a structure for coordinated and joint action to serve as the basis and political framework for the European Union's external cooperation in this field (European Union, 2012).

It is within the scope of this problematic that our study emerges in which we outline the following objectives: i) Characterize the consumption of illicit drugs in the sample; ii) Analyze the relationship between the frequency of illicit drugs use and sociodemographic variables, relationship with parents and perception of the number of friends who use drugs.

There are national and regional studies on the prevalence of illicit drugs use and its characterization, but few analyze the relationship with some factors, trying to identify factors that may contribute to adjust the interventions to be performed.

2. Methodology

This is a descriptive-correlation, observational, transversal and quantitative approach (Fortin, Côté and Filion, 2009).

2.1. Participants

The target population of this study consisted of 768 3rd cycle students and 1135 secondary school students, with a total of 1903 students attending a secondary school in a county in the north of Portugal. In the definition of this target population we established as inclusion criteria to attend the 3rd cycle and the secondary education in the school of this study and to be between 12 and 19 years old.

As exclusion criteria we have defined don´t complete at least 80% of the questions. The accidental sample was thus composed of students who were present at the time of data collection and who met the criteria established, out of a total of 450 students, about 23.6% of the population.

Of the total number of students participating in the study (n = 450), the majority were female (60.2%), belonged to the 15-17 age group (46.9%) and attended secondary education (62.9%) (Table 1). The average age was 15.86 ± 1.934 years old and the mode was 18 years, minimum 12 years and maximum 19 years, data not included in the table.

Table 1
Characterization of the study participants (n = 450)

Variables		Af	Rf (%)
Sex	Female	271	**60,2**
	Male	179	39,8
Age group	12-14 years	124	27,6
	15-17 years	211	**46,9**
	18-19 years	115	25,5
Level of Education	3rd Cycle	167	37,1
	High level	283	**62,9**

Legend: Af – Absolute frequency; Rf – Relative frequency.

2.2. Material

In the collection of data we used a self-filling questionnaire, anonymous and confidential, constructed and validated for this purpose. This instrument was organized in two parts: part I aimed to obtain data on the sociodemographic characterization of the students regarding to the sex, age and year of schooling attended; Part II was intended to describe the consumption of psychoactive substances, specifically the consumption of tobacco, alcohol and illegal drugs. The only purpose of this study was the use of illicit drugs.

The characterization of illicit drugs use involved drug experimentation, the initiation age of drugs, the frequency of consumption in the last 30 days, the type of illicit drug used, and the perceived number of friends who used drugs.

2.3. Procedures

In order to collect data, a request for authorization was made to carry out the study to the Directorate-General for Education (Portugal), which gave a favorable opinion (No. 0444700001) and the Director of the School Group, who also authorized. Then we met with the Coordinating Teacher of the School's Health Education Project (HEP), who was informed about the study. They have been asked to cooperate to carry it out and agreed the data collection procedure. The HEP coordinator articulated with the teachers in each class. These teachers collected the informed consent returned by the students, who agreed to participate in the study, distributed the questionnaires, which were completed by the students in the classroom. Then they collected the

completed questionnaires, which were returned to us by the HEP Coordinator. The data collection period ran from 6 to 13 June 2014. Ethical principles were respected in accordance with the Helsinki Convention.

In the data processing we used SPSS Software (22.0). We used descriptive statistics, with absolute and relative frequency and mode calculations for all variables and the mean and standard deviation for the variables of measurement-level ratio. We also used inferential statistics, using non-parametric tests U of Mann-Whitney (MW) and H of Kruskal-Wallis (KW) to test the hypotheses formulated. We considered the 5% as a level of significance (Marôco, 2014).

3. Presentation and discussion of results

The prevalence of illicit drugs experimentation in this sample was 13.3% (n = 60), with a prevalence in males (19.5%) higher than females (8.8%).

This prevalence is lower than the one obtained in the ESPAD 2015 study (The ESPAD Group, 2016), which was 16% in Portugal, remaining lower in both the male and female percentage. Also in this study, males had a higher prevalence than females. However, the prevalence of illicit drugs experimentation in this study is higher than the one obtained in the HBSC (Matos et al., 2015), both in the overall prevalence of 6.3% and in the prevalence by sex (8.1 % in boys and 4.8% in girls), with the highest prevalence in males. These differences can be explained by the age factor of the participants. The ESPAD 2015 study involved youngsters aged 15 and 16, our study involved youngsters between the ages of 12 and 19 and the HBSC study young people aged from 11 to 15 years old.

Regarding to the age of initiation of illicit drugs, the minimum age was 12 years. This age is slightly below the age of initiation taken as an indicator in ESPAD 2015 (The ESPAD Group, 2016), which was 13 years old and the one of the HBSC (Matos et al., 2015), at 14 years old, which is worrying, since the consumption of illicit drugs in our sample starts earlier than in these studies.

About the prevalence of illicit drugs use in the last 30 days (n = 60), the largest group consumed once or twice a month (31.6%), being also the most marked category, both in males (45.7% %), and females sex (12%). Daily consumption is more significant in males (8.6% versus 4.0%) (Table 2).

In the study by Rodrigues, Carvalho, Gonçalves and Carvalho (2007), with a sample of 467 youngsters (2nd, 3rd and secondary) from the North and Central Region of Portugal, it was verified that 9.2% of the young respondents also consumed once or twice a month, a percentage that compared to our study, is much lower. This fact happens because our sample does not include the 2nd cycle, in which the students are younger and habitually with less consumption of these substances.

Concerning to the most consumed illicit drug type, cannabis is by far the predominant drug (80.0), both by boys (85.7%) and by girls (72.0%). Followed by other drugs (8.3%) and cocaine (5.0%). It should be noted that the last one is more consumed by girls. The most commonly used drug type (Cannabis) in our study coincides with the National Survey on School Environment study (Feijão, 2011a) and ESPAD 2015 (The ESPAD Group, 2016), but in HBSC (Matos et al., 2015) is the second place after the solvents (Table 2).

With regard to the company with they usually consume illicit drugs, the majority of consumers in the sample do with friends of the same age (68.3%), being the largest group in both boys and girls. It should be noted, however, that 3.3% (n = 60) consume alone. Almeida (2011) also reports that drugs use is very often in the company of colleagues, friends or acquaintances (Table 2).

Table 2
Characterization of illicit drug use (%) (n= 60)

Variables	Categories	Sex		Total n=60
		Male n=35	Female n=25	
Frequency of consumption in 30 days	Never	40,0	**76,0**	**55,0**
	1 ou 2 times	**45,7**	12,0	31,6
	Weekly	5,7	8,0	6,7
	Daily or almost every day	8,6	4,0	6,7
Type of drug consumed	Cannabis	**85,7**	**72,0**	**80,0**
	Cocaine	2,9	8,0	5,0
	Ecstasy	2,9	4,0	3,3
	Heroin	0,0	4,0	1,7
	Hallucinogens	0,0	4,0	1,7
	Others	8,6	8,0	8,3
With whom do they usually consume	With the parents and family	0,0	4,0	1,7
	With the brothers	5,7	4,0	5,0
	With the friends of the same age	**85,7**	**44,0**	**68,3**
	With older companies and friends	17,1	28,0	21,7
	Alone	2,9	4,0	3,3

Regarding to the relationship with their parents, the great majority of the sample showed a very good relationship with the father (70.2%) and the mother (79.8%), with slightly higher percentages in the male sex (Table 3).

Concerning the perception of the number of friends who consume drugs, we found that the largest group of students (41.6%) reported that their peers who consume drugs are few, and 6.7% reported that most of their peers consume. The first view is less expressive in boys than in girls instead of the second one in which the proportion is slightly superior in boys (Table 3).

Table 3
Relationship with parents and perception of the amount of friends who consume illicit drugs (%) (n= 450)

Variables	Categories	Sex		Total n=450
		Male n=179	Female n=271	
Relationship with father	Very good	**72,1**	**69,0**	**70,2**
	Good	19,6	2,4	22,2
	Not very good	2,2	4,8	3,8
	Not good	3,9	18	**2,7**
Relationship with mother	Very good	**81,0**	**79,0**	**79,8**
	Good	17,9	18,5	18,2
	Not very good	0,6	2,2	1,6
	Not good	0,6	0,4	**0,4**
Perception of the number of friends who use drugs	None	18,4	17,2	17,6
	Do not know	36,9	32,5	34,1
	Few	**37,4**	**44,3**	**41,6**
	Most	7,3	6,3	6,7

There were no statistically significant differences between the frequency of illicit drugs use in the last 30 days of the age groups (KW: $p \geq 0.643$) and the groups perceiving the number of

friends who used illicit drugs (KW: $p \geq 0.689$), the relationship categories with the father (KW: $p \geq 0.339$) and the relationship with the mother (KW: $p \geq 0.367$).

Also Dietz et al. (2011) report that the data shows that family interactions should be considered among the factors that lead adolescents to initiate drug use. The influence of family and friends constitutes one of the main responsible for the introduction of adolescents to the consumption of psychoactive substances. In this study, the influence of these variables was not observed.

The frequency of illicit drugs use differs significantly between sexes (MW: $p < 0.017$), with males having an average order higher than females (34.59> 24.78), that is, consuming illicit drugs more frequently.
This result is in line with the ESPAD 2015 study (The ESPAD Group, 2016), and the HBSC study (Matos et al., 2015), in which boys consume more illicit drugs (Table 4).

Table 4
Results of the statistical tests between the frequency of illicit drug use and the study variables (n=450)

Variables		n	Average order	Test value	Degrees of freedom	*p*
Frequency of use of illicit drugs x Sex	Male	35	34,59	294,5	-	**0,017**
	Female	25	24,78			
Frequency of use of illicit drugs x age group	12-14 years	6	25,67	0,883	2	0,643
	15-17 years	27	32,09			
	18-19 years	27	29,98			
Frequency consumption of illicit drugs x Perception of the number of friends who consume illicit drugs	None	3	34,33	1,47	3	0,689
	Do not know	6	28,25			
	Few	40	39,30			
	Most	11	35,05			
Frequency of illicit drug use x Relationship with father	Very good	37	27,53	3,366	3	0,339
	Good	12	29,50			
	Not very good	5	36,20			
	Not good	4	39,38			
Frequency of illicit drug use x Relationship with mother	Very good	43	29,21	3,164	3	0,367
	Good	14	31,71			
	Not very good	2	37,75			
	Not good	1	54,50			

Legend: n – Total of sample; p – Probability.

4. Conclusion

The prevalence rate of illicit drugs testing is slightly lower than the ESPAD 2015 study (The ESPAD Group, 2016), but much higher than the HBSC study (Matos et al., 2015). Therefore, it remains a problem in which the school health teams will have to have a close eye, taking into account the repercussions that this behavior can have on the health, learning and development of these students.

The pattern of illicit drugs use is characterized by a minimum age of initiation of 12 years, a frequency of consumption in the last 30 days, once or twice a month, predominantly cannabis use in the company of friends of the same age. The very early consumption of illicit drugs is underlined.

We found a relationship between the frequency of illicit drugs use in the last 30 days and the variable sex, with boys consuming more frequently than girls, which accentuates the need for intervention strategies to be differentiated and more targeted to males and use peer influence.

The main limitation of the study is that the sample is accidental, which conditions the inference of the sample to the population.

This study may contribute to the professionals responsible for intervention in the prevention of illicit drugs use, to become better acquainted with the characteristics of these students and their consumption behaviors and to be able to improve the adequacy of their intervention strategies. The present study was developed in partnership with those professionals, and the final report was made available to them.

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Health Promotion Behaviors among Korean High School Students

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Purpose:
The health of adolescents is the most important criterion in life. Because health promotion habits in adolescent are likely to persist even after becoming adults. The purpose of the study was to identify the level of health promotion behavior and associated factors among high school students in South Korea.

Methods:
A cross-sectional descriptive study was conducted on 452 students (girls, 57.3%; boys, 42.7%) from five schools selected by multi-stage random sampling in Gyeonggi province. Data collection was based on a self-reporting questionnaire on the adolescent health promotion scale (AHP-SF). The data were analyzed using descriptive statistics, independent *t*-test, and one-way ANOVA by using IBM SPSS 20.

Results:
The score of the total health promotion scale was 2.85 ± 0.58 points out of 5 points. The scores of the sub-dimensions were: nutrition, 2.71 ± 0.75; social support, 3.45 ± 0.78; health responsibility, 2.16 ± 0.79; life appreciation, 3.25 ± 0.85; physical activity, 2.43 ± 0.99; and stress management, 2.94 ± 0.86. Significant differences in health promotion behavior resulted from several characteristics. Students who had higher self-perceived health status spent over 2 hours daily with a parent and those who had higher perceived degree of family support displayed more health-promoting behaviors.

Conclusions:
It is important to practice healthy lifestyle habits during adolescence. High school students need to improve their health responsibility and physical activity. Based on our findings, health promotion programs that include family support should be developed to encourage adolescents to improve their lifestyle habits.

Keywords: adolescent, health behavior, health promotion

Identifying intellectual capital in independent pharmacies: Qualitative research in Chiang Mai, Thailand

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Abstract

Independent pharmacies are facing increasing and changing healthcare needs. Because of this growth and expansion of healthcare requirements, each independent pharmacy is required to develop a business model to accumulate intellectual capital for competitive advantage by applying an intellectual capital perspective to manage these challenges. This study explored intellectual capital in independent pharmacies, which consists of three elements that all affect performance levels as human, structural and relational capital.

This qualitative study surveyed fifteen independent pharmacies in Chiang Mai, Thailand which were pharmacist-owned businesses as single-store operations with the pharmacy owner working as a pharmacist. Interviews were conducted using a semi-structured questionnaire and triangulation and respondent validation methods confirmed the internal validity and interpretation of the findings respectively.

The interviews identified three types of intellectual capital as human, structural, and relational capital with mixtures of these classified as integration capital. Human capital refers to work experience in hospitals and pharmacies, knowledge of pharmaceuticals, healthcare, business administration and regulations, counselling, communication skills, good memory and a positive attitude. Structural capital refers to goals and strategic plans (location, product and brand), professional pharmacy services, inventory management systems, financial management system, and customer/patient information management systems. Relational capital refers to customer/patient satisfaction, customer/patient loyalty, good relationships with customers/patients, suppliers and the community. Finally, integration capital refers to effective management, competitive advantage, trust, individual service and perception of image. The findings identified performance indicators consisting of profit, sales, number of customers/patients and positive feedback from customers/patients.

The benefits of intellectual capital include gaining the confidence of customers/patients to trust independent pharmacies to deliver quality services without the risk of a non-standard performance. Independent pharmacies will then become recognised as efficient operations which present minimal risks.

Keywords

Intellectual capital, Human capital, Structural capital, Relational capital, Integration capital, Independent pharmacy

Introduction

Community pharmacies in Thailand are primary healthcare services and people have confidence in them to care for primary medical conditions. Community pharmacies also play a significant role regarding awareness in the appropriate use of medicines and the provision of pharmaceutical and healthcare services, including promoting the correct use of medicines in the community. Furthermore, the role of Thai community pharmacists differs from pharmacists in other countries as it also involves dispensing medications without prescriptions (Yotsombat, Pengsuparp, & Palapinyo, 2012). Therefore, an independent pharmacy owner needs education and knowledge with skills in quality management and must practice compliance and ethics. The pharmacist also provides particular services and participates in the community. Moreover, equipment and support facilities are capital assets in an independent pharmacy.

Community pharmacies are now facing increasing patient numbers with expanding global healthcare needs. Because of this growth, changing economics and consumer centrality regarding healthcare, community pharmacies including independent pharmacies, chain stores and franchises need to enhance their ability to adapt and respond to increasing healthcare needs. Furthermore, competition among community pharmacies is increasing as a result of the expanding investment in chain stores and franchises (Kasikorn Research Center, 2015). The independent pharmacy is required to develop a business model and accumulate intellectual capital to maintain competitive advantage and also upgrade and develop professionals to meet these demands. Customers expect to receive excellent pharmacy services and the pharmacist is crucial to the successful delivery of health service. Pharmacists who are always available at the pharmacy must be able to identify a need, apply specialised health knowledge and provide excellent professional pharmacy services to stand out from other pharmacies in this intensely competitive market.

The current development of independent pharmacies focuses on a professional pharmacy service which has direct interaction between the pharmacist and the patient/customer. Therefore, the independent pharmacy must concentrate on professional advice in product and service areas to improve health outcomes rather than merely consider sales volumes and profit. Structural components which include the facility, staff, administrative processes and equipment are useful in the evolution of a service (Moullin, Sabater-Hernández, Fernandez-Llimos, & Benrimoj, 2013). Improved quality of the overall service system will contribute to increasing the value of healthcare.

Intellectual capital facilitates competitive advantage and success in business. Particular industries that are considered knowledge-intensive and sources of high intellectual capital are the healthcare and pharmaceutical industries (Carlucci & Schiuma, 2012). In this highly competitive and knowledge-intensive era, businesses with good financial statements or innovative products may no longer achieve success. Human capital plays a crucial role in business success and people are significant business capital assets regardless of industry type. Other intellectual capitals, for instance, structural, organizational and relational/customer/social capitals also have a significant influence on improving business performance.

The independent pharmacy must apply an intellectual capital perspective to manage the challenges outlined above. However, existing studies concerning applying intellectual capital to the healthcare business are limited (Evans, Brown, & Baker, 2015). Moreover, no research has applied and analysed intellectual capital in independent pharmacies. This paper determined how intellectual capital in independent pharmacies related to the three elements of human, structural and relational capital and how they affected performance. The following research question guided the study: How is intellectual capital defined in independent pharmacies?

Literature Review

Healthcare is a knowledge-intensive industry with unique characteristics that involve information

exchange between healthcare providers and patients, work processes and decisions related to the lives of patients. Intellectual capital in the broader literature context consists of human capital, structural capital and relational capital. Some intellectual capital literature regarding healthcare considers other types of intellectual capital including information capital and innovation capital. Although intellectual capital in healthcare is growing, the application of intellectual capital to the healthcare is under developed (Evans, Brown, & Baker, 2015). Intellectual capital literature in healthcare has identified and described different types that include human capital, structural capital, relational capital and innovation capital.

Human capital

In general, human capital refers to the individual knowledge, skills, attitudes, abilities such as creativity, know-how, experiences and loyalty. Human capital in healthcare refers to education, professional experience, personal (professional) training and the personal ability to incorporate knowledge into practice through professional competencies and judgment, expertise, context-specific knowledge, leadership and managerial skills and personal dispositions (Evans, Brown, & Baker, 2015). Sensitivity during interaction between staff and patients and employees' motivation are additional human capitals in the hospital (Habersam & Piber, 2003). Besides, the practice of human resource management in the healthcare industry emphasises on developing employees' unique competencies (Yang & Lin, 2009).

Structural capital

Structural capital defines institutional knowledge and experience codified in databases, routines, procedures and organisation structures. Examples of structural capital in healthcare are visions, missions, values, strategic plans, programmes, tools, information systems, ways of working together, best practices and routines. Structural capital refers to the dimensions of culture, access to information, technology, external environment and internal processes (Evans, Brown, & Baker, 2015). Numerous systems represent structural capital including certified quality management and software for evidence-based medicine (Habersam & Piber, 2003). Structural capital plays a crucial role in driving intellectual capital in the healthcare industry in Taiwan. Study results indicated that recruitment and selection of employees and a healthy and safe working environment were highly relevant to job performance. A healthy and safe environment was also positively related to organisational strategy, structure and systems in the healthcare industry (Yang & Lin, 2009). Furthermore, results from knowledge management regarding the performance of hospital professionals indicated that critical process capabilities determined success. Critical process capabilities refer to medical services, administration services, patient services, medical innovation and logistical services with pharmaceutical and equipment suppliers (Wu & Hu, 2012).

Relational capital

Relational capital is a broad and extensive part of consumer capital. Relational capital concerns the external relations with patients/customers and different stakeholders, including their perceptions of the organisation. It also refers to establishing, maintaining and developing external relationships by an organisation. Ensuring the satisfaction of patients and general reputation is the primary responsibilities of relational capital (Habersam & Piber, 2003). Furthermore, the dimensions of intellectual capital in healthcare include patient-centered, patient loyalty, partnerships and internal relations. The intellectual capital literature in physicians' perspective define the relational capital as the center prides itself on being patient-oriented, patients are highly loyal to the center, and employees have close interactions with partners (Lin, Yang, & Chiou, 2013). The intellectual capital literature in a healthcare industry in Taiwan defines internal relations dimension as employees trust each other with open communication (Yang & Lin, 2009). Therefore, relational management with both internal partners and stakeholders is crucial. Employees with good qualifications who are also highly professional will understand both customers' and stakeholders' needs and develop relational capital to retain their satisfaction and loyalty.

Innovation capital

Chang, Wu and Sheu (2014) studied intellectual capital in a hospital's nursing division and proposed an additional capital dimension as innovation capital. Organisational structures and culture can support innovation. An encouraging innovative employee to develop a system for the nursing practices and performances can decrease the incidence of a particular disease. Innovation capital is another intellectual capital criterion to measure the performance of a nursing division; therefore, the division requires a system for the evaluation of practices and performances.

Research Methodology

Qualitative methods were used to explore intellectual capital in independent pharmacies.

Study participants

An independent pharmacy may be a single store or a small group of stores owned by an individual, but generally, single owners operate fewer than four stores (Sharma, 2017). Inclusion criteria for an independent pharmacy in this study were a pharmacist-owned business with single-store operation and the pharmacy owner worked as a pharmacist in the independent pharmacy. Purposive sampling techniques were used to select thirty independent pharmacies based on the Consumer Protection and Pharmaceutical Department, Chiang Mai Provincial Public Health Office database (Barbour, 2001). All the independent pharmacies were located in Chiang Mai, Thailand.

Instrument

An information sheet was produced with a consent form and a semi-structured questionnaire with fifty questions was developed. The questionnaire asked about the respondent's background, goals of business, initial and current performances, tools, equipment, systems and technologies, inventory management, customers, customer services, stakeholders, competition, differentiation from other pharmacies, problems and issues, new ideas to manage a pharmacy and factors that affected the performance of a pharmacy with a closing section for additional information. A preliminary test of the questionnaire was conducted on five pharmacies to improve the clarity and order of the questions. All five pharmacy owners involved in the pretest understood the questions and they had no comments to make on the questionnaire. The final version of the questionnaire is presented in the Appendix.

Data collection

Thirty pharmacies selected by purposive sampling techniques, where meet inclusion criteria were contacted by phone to describe the survey and request an interview with the owner; fifteen pharmacies agreed to participate with fifteen refusing (Mason, 2010). Interviews were conducted at the premises of the fifteen participating pharmacies during April 2017.

The pharmacy owner, as the operating pharmacist, signed a consent form to allow the interviews to be recorded. Interviews were semi-structured and asked open questions about the pharmacy. Each interview lasted from 45 minutes to an hour. The point of saturation occurred after the eighth interview and no new information was gained from the following seven interviews.

Triangulation and respondent validation

Triangulation techniques were used to confirm internal validity by combining the observational fieldwork and interview data to answer the research question. Respondent validation confirmed the interpretation of findings by cross-checking the interim research findings with respondents (Barbour, 2001). All fifteen independent pharmacies were cross-checked during the period of data collection to provide feedback on accuracy and interpretation. Also, we performed backtalk after the interpretation of all the data findings that all independent pharmacies could obtain feedback on interpreted data findings.

Interview findings

Respondents' background

Table 1 presents respondents' background of fifteen independent pharmacy owners, including gender, highest education level, previous work, and years of work experience as an independent pharmacy owner. Nine pharmacists are women, and six pharmacists are men. All fifteen pharmacists have a bachelor's degree in pharmacy, and two of them have a master's degree in pharmacy and computer science respectively. Most pharmacists have work experience in a hospital (eleven pharmacists) and a chain pharmacy (eight pharmacists). Three pharmacists and one pharmacist worked at a pharmaceutical company and manufacturer respectively. Most pharmacists have work experience as an independent pharmacy owner as 6 to 10 years (seven pharmacists) and 1 to 5 years (six pharmacists). Few pharmacists have own independent pharmacy less than one year (one pharmacist) and more than ten years (one pharmacist).

Table 1 Respondent's background

Respondents' background	Number of independent pharmacies
Gender	
- Male	6
- Female	9
Highest education level	
- Bachelor's degree	13
- Master's degree	2
- Doctorate degree	0
Previous work	
- Pharmacist worked at a hospital	11
- Pharmacist worked at a chain pharmacy	8
- Pharmacist worked at a pharmaceutical company	3
- Pharmacist worked at a pharmaceutical manufacturer	1
Years of work experience as an independent pharmacy owner	
- Less than one year	1
- 1 to 5 years	6
- 6 to 10 years	7
- More than ten years	1

Performance indicators in independent pharmacies

Interview data demonstrated performance indicators in independent pharmacies consisting of finance perspective and non-finance perspective which are profit and sales, the number of customers/patients and their positive feedback.

All fifteen pharmacies measured their performance by finance perspective; four pharmacies used profit, three used sales and eight used both profit and sales.

Twelve pharmacies measured their performance by non-finance perspective; six used numbers of customers/patients, one used positive customer/patient feedback and five used both numbers of customers/patients and positive customer/patient feedback. Twelve pharmacies measured their performance by combining finance and non-finance perspectives as indicators (Table 2).

Table 2 Performance indicators in independent pharmacies

Performance indicator	Number of independent pharmacies
Finance perspective	15
- Profit	4
- Sales	3
- Profit and sales	8
Non-finance perspective	12
- Numbers of customers/patients	6
- Positive customer/patient feedback	1
- Numbers of customer/patient and positive customer/patient feedback	5
Finance perspective and Non-finance perspective	12

Intellectual capital in independent pharmacies

Intellectual capital in independent pharmacies consists of human capital, structural capital and relational capital. Table 3 indicates the types and dimensions of intellectual capital to answer the research question: How is intellectual capital defined in independent pharmacies?

The first type of intellectual capital is human capital. Significant human capital in an independent pharmacy refers to the work experience of employees in hospitals and pharmacies, knowledge of pharmaceuticals, healthcare, business administration and regulations, counselling, communication skills, good memory and a positive attitude.

The second intellectual capital is structural capital. This refers to goals and strategic plans (location, product and brand), professional pharmacy service, inventory management systems, financial management systems, and customer/patient information management systems.

The third type of intellectual capital is relational capital. This refers to customer/patient satisfaction, customer/patient loyalty, good relationships with customers/patients, suppliers and the community.

Table 3 Types and dimensions of intellectual capital in independent pharmacies

Type of intellectual capital	Dimensions of intellectual capital	
Human capital	Experience	Work experience in hospitals and pharmacies
	Knowledge	Knowledge of pharmaceuticals, healthcare, business administration and regulations
	Skill	Counselling, communication skills and good memory
	Attitude	Positive attitude
Structural capital	Goals and strategies	Goal and strategic plan (location, product and brand)
	Services	Professional pharmacy service
	Information systems	Inventory management system, financial management system and customer/patient information management system
Relational capital	Satisfaction	Customer/patient satisfaction
	Loyalty	Customer/patient loyalty
	Relationship	Good relationships with customers/patients, suppliers and the community

Human capital

All fifteen pharmacists (pharmacy owners) had worked for hospitals and chain store pharmacies before opening their business. They applied work experiences from their previous job to manage the pharmacy, for example, pharmaceutical knowledge, patient counselling/education, general management, inventory management and information system. One pharmacist at a traditional pharmacy suggested: "If graduated pharmacists want to open their own pharmacy, they should first work at a hospital or a chain pharmacy. They have to pay attention and learn how to prescribe medication in the hospital and understand the operational systems in the chain pharmacy. Once they leave those jobs and open their own pharmacy, then they can apply the knowledge and experiences from working at a hospital and a chain pharmacy to manage their own store."

Pharmacists at an independent pharmacy have to implement pharmaceutical and healthcare knowledge to identify health problems, dispense medication and also counsel and educate customers/patients. Additional knowledge is required in business administration including general management, finance, marketing and accounting. Knowledge of business administration supports the pharmacy to set goals and strategies to enhance performance. Moreover, all pharmacies have to comply with regulations such as Good Pharmacy Practice (GPP) Guidelines and taxes. Therefore, they need to locate and consult with experts to meet these requirements. All pharmacists agreed that it was important to keep up-to-date with the latest guidelines. Pharmaceutical and healthcare knowledge is essential for pharmacists in an independent pharmacy. One pharmacist explained: "Knowledge is necessary, especially knowledge of pharmaceuticals and healthcare. We (pharmacists) need to apply such knowledge to dispense effective medicines and provide health services which are suitable for customers. If customers' health problems diminish after taking medication and following our (pharmacist's) advice, then they (customers) will trust us (pharmacists) and come back to our pharmacy." Consequently, all the pharmacists read articles and attended pharmacy conferences to learn the most recent treatment guidelines, diseases, tools and regulations to benefit their professional knowledge.

The work of pharmacists at independent pharmacies involves interaction with their customers/patients. Pharmacists require good communication skills for customer counselling and education. The pharmacist must be knowledgeable about health and medicine and able to explain in layman's terms to customers/patients. Furthermore, pharmacists have to counsel and educate customers/patients regarding medication. In general practices, pharmacists always greet their customers/patients when they enter the pharmacy. Pharmacists require memory skills to recall customers'/patients' names. Most pharmacists explained their practices as: "First, I call the customer's name and follow up their previous health condition. My customers are happy and satisfied with pharmacist-customer communication and relationship building. They feel a sense of familiarity with the pharmacist."

Pharmacists in independent pharmacies perform multiple routine responsibilities and tasks. Consequently, it is essential that they have a positive attitude. One pharmacist explained her situation: "When I open my own pharmacy I must be available there the whole day with no holidays. I need to manage every task without an assistant, but it's fun and a challenge. I take pride in knowing that we (pharmacists) can help people." Furthermore, another pharmacist at a traditional pharmacy with 25 years' experience running the business suggested ways to deal with problems through management change: "Many issues and modifications affect a pharmacy such as the economy, season, customer's behaviour and other factors. If we (pharmacists) think that it is a problem, it's still an issue. If we believe that it's just a task, we (pharmacists) can manage it. Also, the capability for management change is necessary for long-term success in business."

Structural capital

Goals of opening an independent pharmacy are to run a business and implement pharmaceutical knowledge to promote the safe use of medication and enhance patient care. Pharmacists set strategic plans to achieve their goals which are profit, sales, number of customers/patients and positive customer/patient feedback. Most pharmacists also develop a marketing strategy for customer/patient

awareness and competitive advantage. A great location, good store layout and quality products are all parts of the marketing strategy for an independent pharmacy.

Eleven pharmacists believed that location accessibility and attractiveness were potential strategies for a successful business. They considered visibility, traffic flow and access as important in a place where customers can see their pharmacies, where customers regularly travel in this area and where there was plenty of parking. Furthermore, interior and exterior appearances of the store can be attractive to clients. Four pharmacy owners raised customer awareness by a large well-lit sign in front of the pharmacy and good lighting in the store.

All fifteen pharmacists used effective, high-quality products. They worked with reputable, well-known and quality suppliers to purchase products. Four pharmacists retailed unique products. Two pharmacists noted that they requested relevant documents of goods, manufacturers and ingredients: "I ask suppliers to provide the certificate of analysis and good manufacturing practice to ensure a quality product." Four pharmacists explained this as: "We give space for front-end presentations with best sellers and recommended products to attract customers." Two pharmacists also used social networks to promote their supplementary products.

Although a great location is one of the factors to enhance customer awareness, two pharmacy owners described this capital: "An accessible location is an efficient way of raising customer awareness but it is not sufficient. Long-term success of a pharmacy depends on professional service." One pharmacist managed business growth without a great location. He expressed strong opposition to a location's accessibility as: "I do not totally agree that a great location is necessary for a pharmacy. I am aware that my store location is not good, so I need to think about a business strategy to improve customer awareness." Therefore, a professional pharmacy service which includes the processes of care and equipment are key strategies. These processes involve customer need identification, health related problems, management, medication dispensing, patient counselling and patient follow-up. The pharmacist applies specialised pharmaceutical and health knowledge and specialised skill to conduct these processes. Two pharmacists reported this as: "Sometimes customers do not only need medicine, they also require appropriate counselling and education by the pharmacist. Professional pharmacy service can make a significant difference to a pharmacy which has a resident pharmacist."

Nine pharmacists used information systems for tracking sales, costs, inventory, expiry date and customer information. Two of them planned to develop membership to enhance customer loyalty. Three pharmacists did not use information systems. They used a paper-based system to record sales, costs, inventory and expiry date but had no customer information record. However, they were aware of the benefits of using an information system.

Relational capital

Customers/patients were satisfied with the counselling and education that they received from pharmacists. Most pharmacies offered additional services as health screening and disease monitoring to screen and monitor blood pressure and blood glucose. Two pharmacists explained: "Most customers are satisfied with the time that we (pharmacists) spend on counselling and education. We monitor their disease and treat them (customers) like family. They (customers) perceive that the pharmacist has expertise and feel more comfortable to ask questions. This practice empathises with the number of customers/patients and positive customer/patient feedback.

Pharmacists foster a great relationship with suppliers. Two pharmacists described this as: "We work with suppliers as a win-win relationship. When suppliers offer a cost reduction for large order quantities or the best possible deal, the pharmacy promotes their products and drives sales." All pharmacies ordered products frequently and released payments on time to build and maintain a good relationship with suppliers.

Also, two pharmacists established collaborations with the community to educate and serve customers in the community. A good relationship with the community drives customer awareness

and maintains customer loyalty.

Discussion

This study explored three elements of intellectual capital in independent pharmacies. Analysis of the interview data resulted in three types of intellectual capital as follows: (1) human capital, (2) structural capital and (3) relational capital. All pharmacists agreed that intellectual capital was a success factor for an independent pharmacy. However, particular elements of intellectual capital as effective management, competitive advantage, trust, individual service and perception image combined two types of intellectual capital. First, effective management and competitive advantage integrated human capital with structural capital. Second, trust integrated human capital and relational capital and last, individual service and perception image integrated structural capital with relational capital. Table 4 illustrates the integration of intellectual capital in independent pharmacies in five dimensions and Figure 1 presents intellectual capital and the performances of independent pharmacies.

Table 4 Integration capital in independent pharmacies

Integration capital	Dimensions of integration capital
Human capital and structural capital	Effective management Competitive advantage
Human capital and relational capital	Trust
Structural capital and relational capital	Individual service Perception image

Effective management and competitive advantage

Effective management and competitive advantage integrated human capital with structural capital. Business administration is one of the challenges in an independent pharmacy. Pharmacists have to set goals and strategies; they must possess pharmaceutical experience including knowledge, skills and positive attitudes to run a pharmacy business following Good Pharmacy Practice (GPP) Guidelines. The Guidelines provide a standard to set up a store, detailing standard equipment for a pharmacy service as a professional practice which meets requirements. Moreover, an information system enables pharmacists to manage the business, monitor inventory, track customer/patient information and support decision-making. Pharmacies that invest in software information systems can run their businesses efficiently. The system can help to manage inventory and monitor costs, sales and profit. Combining both the abilities of a pharmacist, goals and strategic plans, professional pharmacy service and an information system lead to efficient management. Interview data illustrated the required marketing strategies as location, product and brand. Knowledge of business administration applications for strategy planning also enhanced competitive advantage.

Trust

Trust integrates human capital with relational capital. Pharmacists establish good relationships with customers/patients, suppliers and the community. Customers/patients can benefit from pharmacists who are knowledgeable regarding personal health concerns and can provide tailored medicines. Pharmacists that demonstrate knowledge of health, medication therapy and therapeutic lifestyle change can improve customers' health problems and resolve medication-related problems. Pharmacists also collaborate with the community to better educate and serve customers/patients. Moreover, they work with a supplier as a win-win relationship. Customers/patients, the community and suppliers trust the knowledge, skills and work experiences of pharmacists.

Individual service and perception image

Individual service and perception image integrate structural capital with relational capital. Pharmacists implement pharmaceutical practice to deliver quality personalised customer/patient

care and focus on understanding customers' unique characteristics and finding ways to support them. Pharmacists greet their customers in a friendly way by name, follow up their previous health conditions and ask details about their lives. Furthermore, the independent pharmacy engages their customers/patients in managing and monitoring their health problems by therapeutic lifestyle change rather than medicine dispensation. This practice creates a differentiated independent pharmacy compared to competitors and solidifies customer satisfaction, loyalty and relationship. The strategy to set a great location with store exterior and interior makeover provides the pharmacy with the opportunity to establish customer/patient awareness and satisfaction. Customer/patient awareness and appreciation of the independent pharmacy leads to perceptions of a good quality image.

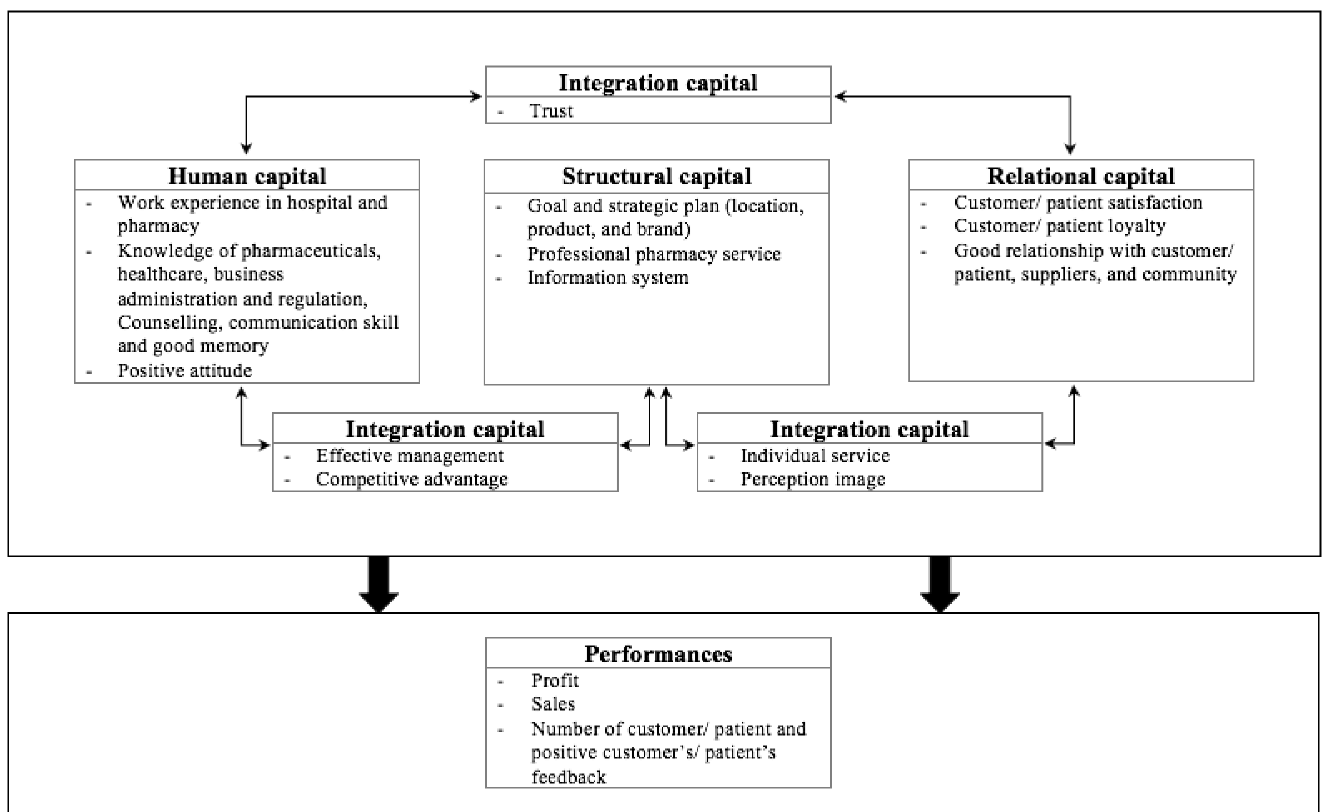

Figure 1 Intellectual capital and the performances of independent pharmacies

The findings regarding integration capital were similar to exploring intellectual capital in two qualitative case studies in hospitals in Italy and Austria. The fourth type of intellectual capital defined in these studies was connectivity capital. However, identifying each type of intellectual capital is insufficient to understand healthcare processes. Connectivity capital extends the Meritum taxonomy which consists of human, structural and relational capital and links each intellectual capital as the connectivity of structural and relational capital, human and relational capital, human and structural capital and human and structural capital together with relational capital. The two hospitals in Italy and Austria practiced intellectual capital by group work focusing on patients' needs through social interaction with the patients as a pinch of magic. Both hospitals also met with colleagues and critical friends for professional discourse which included intense communication and a democratic exchange of ideas. Moreover, they approached general process management and specific cultural backgrounds to react adequately in case of emergency. Other examples of practices of intellectual capital are: number of consultancy mandates, reputation, knowing the myths and stories of the organisation and living a good example (Habersam & Piber, 2003).

One study limitation was that the sample of participants did not represent the total population of the independent pharmacy and therefore the results may be inaccurate.

Conclusions

This study identified three types of intellectual capital as human, structural and relational capital and determined their relative importance as integration capital. Identifying intellectual capital supports both internal and external management in independent pharmacies by deriving concepts to improve the capabilities of pharmacists, operation or management systems and relationships with customers/patients, suppliers and the community. The benefits of intellectual capital include customer/patient confidence and trust in independent pharmacies as they receive quality services without the risk of a non-standard performance. Furthermore, independent pharmacies are recognized as offering the lowest risks with efficient operations. Finally, the Thai Food and Drug Administration (FDA) and the Pharmacy Council of Thailand can support and motivate independent pharmacies to develop and become accredited community pharmacies with established collaboration between each other. Future studies may consider the integration of knowledge management and intellectual capital as a basis for improving performances.

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Appendix

The semi-structured questionnaire

1. Respondent's background (gender, age, education level and previous work experience at hospitals and independent pharmacies)
2. Describe planning and preparations before opening an independent pharmacy. What are the goals and strategies of the business?
3. Describe initial and current performances
4. What are performance indicators?
5. What tools, equipment, systems and technologies are used in an independent pharmacy?
6. Describe how to examine products
7. Describe how to manage inventory
8. Describe types of customers
9. Describe practices and customer/patient services
10. Who are the stakeholders? How do you establish a good relationship with stakeholders?
11. Describe competition among pharmacies in this area
12. What are your independent pharmacy's differentiations from other pharmacies?
13. Describe problems or issues and how to manage them
14. Did you have new ideas to manage an independent pharmacy? How did you implement these ideas?
15. Describe the factors that affect the performance of an independent pharmacy

**IMPACT OF RELIGIOUS MISBELIEFS ON DISABLED:
A LEGAL PERSPECTIVE**

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The Republic of India harbors a reported count of 26.8 million persons with disabilities (PwDs) with an approximate three fold being unreported, which amounts to one tenth of world's PwD population. Though theoretically, the Indian law for PwDs has been transitioning from a charity based to "right based governance", however it hasn't risen up to the parameters laid down under *UNCRPD* to which India is a signatory. Indeed, the Indian parliament has recently passed pro-disabled bills like *Rights of Persons with Disabilities Bill 2014* and *Mental Health Care Bill 2013,* kept on ice for long. However they have not yet taken an enforceable form. My research argues that the Indian social concepts and religious beliefs influence the mindset of the majority populace to believe that PwDs were disciplined by God for their wrongs of earlier lives, colloquialized as the "sins and sufferings concept". As a result, the Indian PwDs face major challenges in attainment of basic prerogatives of habilitation, rehabilitation and social inclusion, laying aside their long sought dream of access to comprehensive health-care. This research aims to expand knowledge on the legal perspective of the influence of religious misbeliefs on PwDs and to advice future suggestions for a pro-disabled legislation.

Molecular analysis of malaria species in Sistan and Baluchestan province, Iran

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Background: Malaria as a parasitic disease is one of the most important public health problems in Iran(1, 2). Most of malaria cases in Iran are reported from Sistan-Baluchestan, Kerman, and Hormozgan provinces (3). Malaria is mainly diagnosed by peripheral blood smear, stained by Giemsa, in Iran although correct diagnosis of malaria by blood smear is highly dependent on technician's skills and laboratory conditions(4).

Objectives: Correct diagnosis of malaria and identification of all human Malaria species and also considering measures taken to eliminate malaria in the country, complete understanding of malaria epidemiology is critical. Therefore, in this study, sensitivity and specificity of nested-PCR in detection of four human Plasmodium species was tested in Sistan and Baluchestan Province, South-East of Iran.

Methods: The present descriptive study was conducted on 100 patients suspected to malaria infection who visited health centers of Chabahar, Iranshahr, Nikshahr and Sarbaz districts. DNA was extracted from blood samples using the kit, and nested-PCR reaction was done for identification of the Plasmodium species according to NP-2013 protocol (5-8).

Results: Molecular analysis was performed on 100 samples of suspected malaria; 84 negative and 16 positive samples were detected, and eight samples of *Plasmodium vivax*, two *Plasmodium falciparum*, and six mixed cases (*Plasmodium vivax* and *Plasmodium falciparum*) were detected. No *Plasmodium ovale* or *malariae* was observed FIG(1-3).

Conclusions: The results showed that malaria have decreasing downward trend in Sistan and Baluchestan Province. Therefore, the malaria elimination program is applicable and attainable in this province as a goal (9-13).

Keywords: Malaria*, Plasmodium Vivax, Plasmodium falciparum,* Nested-PCR, Plasmodium Species, Sistan and Baluchestan, Iran

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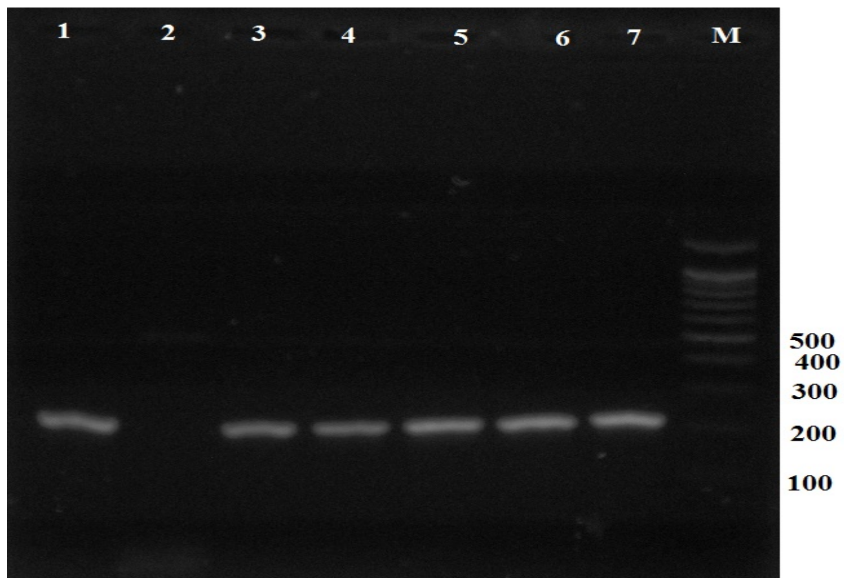

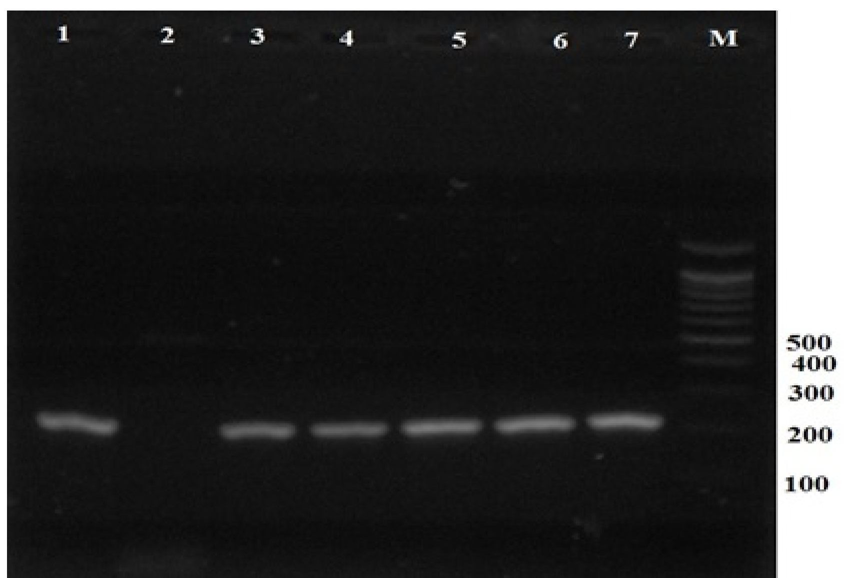

Fig 1. Electrophoresis of PCR product on agarose gel using strain-specific oligonucleotide ssrRNA for detection of plasmodium falciparum in the sample. Marker is 100bp.

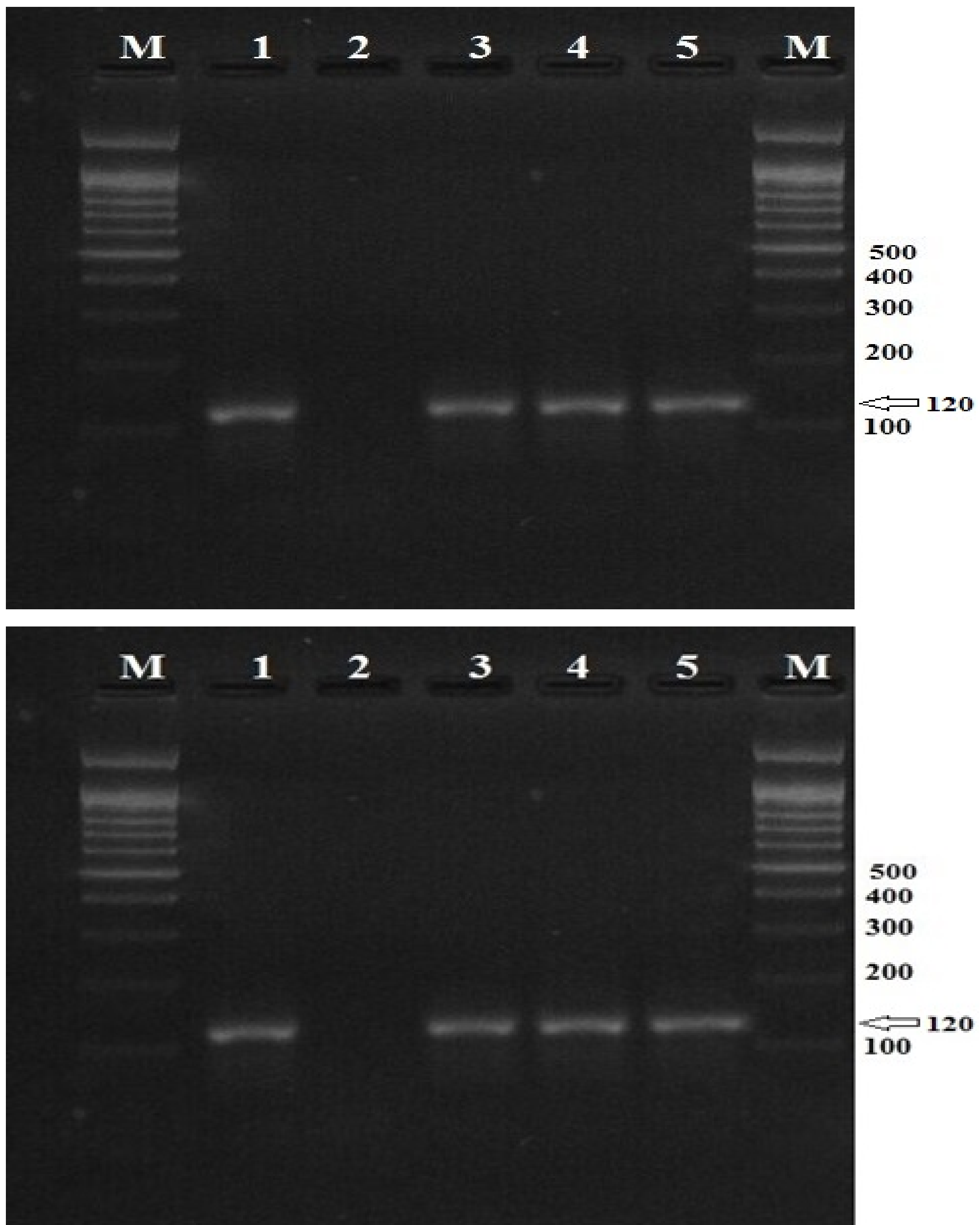

Fig 2. Electrophoresis of PCR product on agarose gel using strain-specific oligonucleotide ssrRNA for detection of plasmodium vivax in the sample. Marker is 100bp.

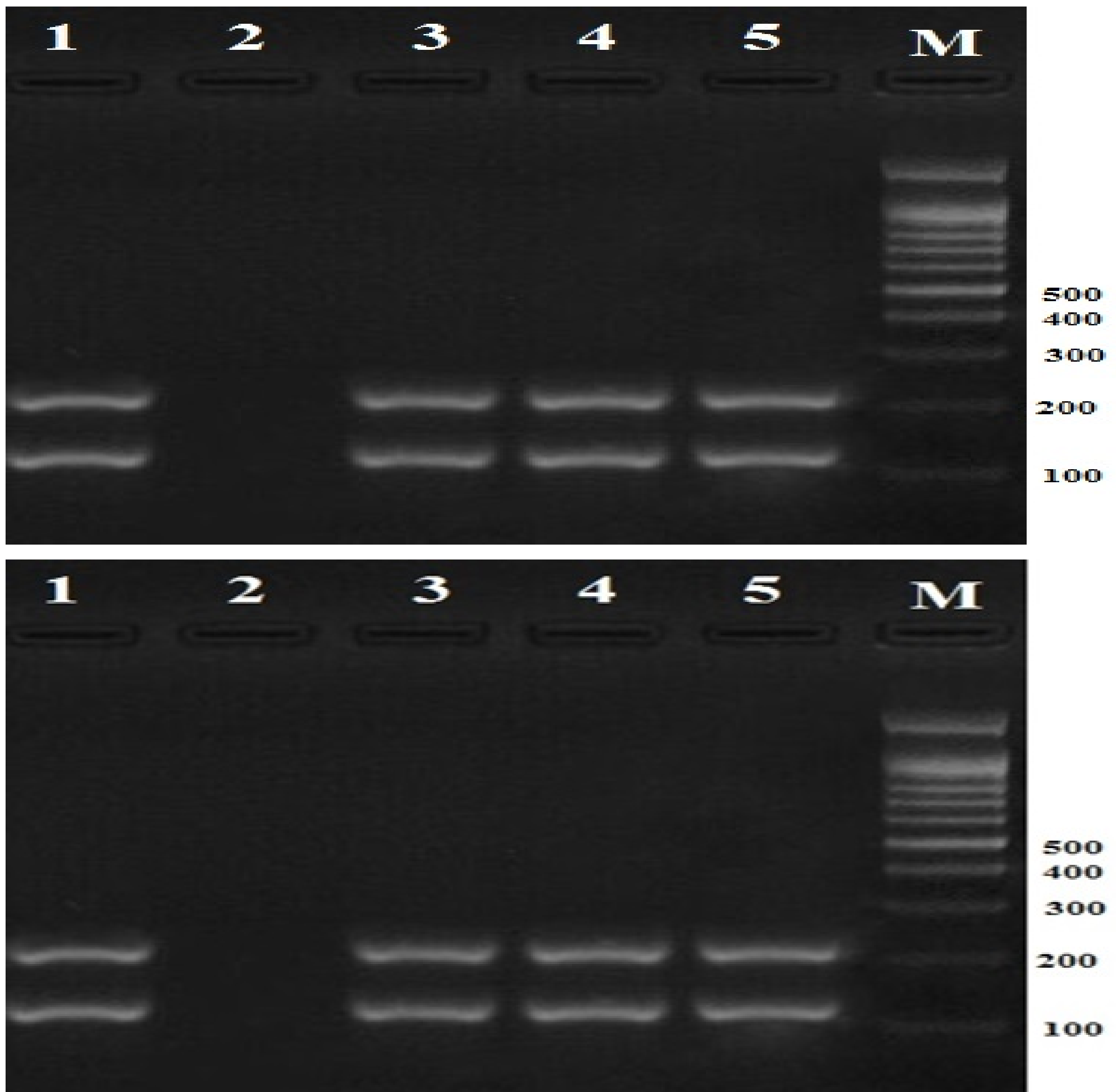

Fig 3. Electrophoresis of PCR product on agarose gel using strain-specific oligonucleotide ssrRNA for detection of Mix infection (plasmodium vivax and plasmodium falciparum)in the sample. Marker is 100bp.

Molecular epidemiology and genetic diversity of Rotavirus strains causing diarrhea among Children: A pediatric outpatient-based screening study in Odisha, India

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Background: Rotavirus is the most common cause of diarrhea among the infants and young children all over the world, resulting almost half a million deaths and approximately 2.4 million hospitalizations each year in developing countries. This study aimed to estimate the burden of Rotavirus gastroenteritis and determine the genotypes of Rotavirus among children less than 5 years.

Methods: A total of 215 stool samples were collected from children <5 years of age admitted at the Pediatrics department of Kalinga Institute of Medical Sciences in Bhubaneswar, Odisha between February, 2016 to December, 2016. The samples initially screened for rotavirus VP6 antigen by enzyme immunoassay (EIA). EIA positive samples subjected to RNA extraction and reverse-transcription PCR for genotyping of VP7 and VP4.

Results: Rotavirus was detected in 37.67% (81/215) cases. The highest rate of rotavirus positivity (41.97%) was observed among children in the 0 to 12 month age group, followed by 12 to 24 months (32%) age group. The common G types identified were G3 (41.97%), G1 (30.80%), G2 (3.70%), and G9 (3.44%). The common P types were P[8] (79.01%), P[4] (6.17%), and P[6] (6.17%). The mixed infections were observed in 11.11% case. G3P[8] (38.27%) was the most common genotype followed by G1P[8] (30.86%).

Conclusions: Rotavirus diarrhea is, mostly affecting children from 9 to 24 months. The majority of the strains analyzed belonged to the G1, G3 and P[8] genotypes, suggesting high coverage of current rotavirus vaccines. Large-scale studies are needed to document the significance of the increase in genotypes of uncommon and mixed combinations.

Keywords: Diarrhea, Rotavirus, genotyping, G-type, P-type.

Prioritizing Reproductive, Maternal, New-born, Child and Adolescent Health (RMNCH+A) and nutrition in Uttar Pradesh (UP)

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Abstract

Global Health Strategies (GHS) is implementing a first-of-its-kind advocacy project, working with elected leaders, champions and rural communities for improved Reproductive, Maternal, New-born, Child and Adolescent Health (RMNCH+A) interventions across the state of Uttar Pradesh (UP).

With a high Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR) of 46 deaths per 1,000 live births and 285 deaths per 100,000 live births respectively UP has some of the poorest health indicators in the country. The key objective of this project is to create a conducive political and policy environment for prioritization of reproductive, maternal and child health issues aimed at improved health and nutrition services for women and children in UP.

The multi-pronged strategy employed by GHS includes the following:

- Sensitizing the elected representatives, on the state of health facilities in UP, through field visits. This has led to the leaders seeking accountability from health officials, committing to improve health infrastructure and bringing their assembly colleagues onboard the initiative.
- GHS also created the Friends of UP Coalition, a group of non-partisan champion advocates drawn from UP's distinguished academics, doctors, senior journalists, ex-bureaucrats, corporate leaders, filmmakers, authors and social activists. Through field visits, community-level interventions, traditional and social media, the Friends of UP became active advocates bringing health and nutrition issues into the mainstream.
- GHS has also implemented a community leadership development project covering 400 rural self-governance units (*panchayats*) across 5 districts in UP. This involves working with the elected leaders and members of the community at the village level to become vocal proponents of improved healthcare delivery and health seeking behaviours among the rural population.

Through targeted advocacy strategy, GHS has built an informed, sensitized and committed group of diverse stakeholders to raise the overall profile of reproductive, maternal, and child health issues, support improvements in service utilization of relevant government programs, and encourage political and public prioritization of these issues.

GHS has begun to see visible results at the community level. An increasing number of Village Health Sanitation and Nutrition Committees (VHSNCs) have been activated, have opened bank accounts and are using untied funds to address health, sanitation and nutrition needs in the community. 312 out of 329 Gram Pradhans have been sensitized and a number of them have already taken steps to improve access to basic health services in their panchayats.

Key words: RMNCH+A, Nutrition, Health, Advocacy, Uttar Pradesh

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Reliability of Fullerton Advance Balance (FAB) Scale in Individuals with Stroke

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Abstract

Background: Balance impairment is one of the problems that limit daily activity and increases prone to fall in a person with stroke. Thus, balance assessments in this population are necessary. The Fullerton Advanced Balance (FAB) scale is the new functional balance assessment which covers all components of postural control. This test has been used in several populations. However, no study investigated the reliability of the FAB in an individual with stroke.

Objective: The aim of this study was to explore the inter- and test-retest reliability of FAB in individuals with stroke.

Method: Ten individuals with stroke were recruited (n = 10; age range 50–72 years) and tested for their balance ability using the FAB. Interrater (2 raters) and test-retest (7 days) reliability were calculated using intraclass correlation coefficients (ICCs).

Results: The FAB showed good interrater reliability (ICC = 0.91) and test-retest reliability (ICC = 0.83). The standard error of measurement (SEM) was 2.41, and the minimum detectable change at the 95% confidence level (MDC_{95}) was 6.70 points.

Conclusion: The FAB is reliable in assessing balance in individuals with stroke.

Keywords: Fullerton Advance Balance scale; Cerebrovascular accident; Reliability

INTRODUCTIONS

Postural control is an ability to control center of mass in the base of support that involved controlling body's position in space for stability and orientation[1]. Postural control is the complex interaction between many systems. In 2012, Shumway-Cook and Woollacott defined components of postural control compose of the musculoskeletal component, neuromuscular synergies, individual sensory system, sensory strategies, internal representation, anticipatory mechanism and adaptive mechanism[2]. After a stroke, individuals with stroke are suffering from many abnormal conditions which affect all components of postural control. This problem limits daily activity and increases prone to fall[3].

At present, many assessment tools could be used to measure balance ability in individuals with stroke such as Berg Balance Scale (BBS), Timed Up & Go test (TUG) and mini-BESTest[4-6]. BBS is the gold standard measurement which widely used in both clinical and research circumstances. However, BBS has the floor and ceiling effects [7]. The Fullerton Advanced Balance (FAB) scale is the new balance assessment. It was developed from BBS which for decrease the ceiling effect[8]. The FAB scale consists of ten items which assess higher functional level[9] include static balance, dynamic balance, sensory reception and integration and feedforward/feedback postural control which cover all components of postural control[10]. It is used to measure balance ability in many conditions such as diabetes patients, traumatic brain injury patients, and individuals with stroke[11, 12]. Recent research has shown that the FAB have a good interrater and test-retest reliability in older adult population (ICC= 0.95-0.99)[13]. However, no study investigated the reliability of the FAB in an individual with stroke. Thus, the aim of this study was to explore the interrater and test-retest reliability of FAB in persons with stroke.

METHOD

Participants

Ten individuals with stroke were recruited by the first investigator. The inclusion criteria were as following: persons with hemiparesis who was diagnosed with their first stroke (ischemic or hemorrhagic); aged between 30-75 years old; did not have other neurological condition such as Parkinson's disease, cerebellar disorder; did not have pusher syndrome and neglect syndrome; Did not have cognitive impairment, and Did not have musculoskeletal problems that effect to the ability to stand or walk such as fracture or arthritis of lower extremity. They were excluded from the study if they could not follow the command and could not finish the test. All participants signed a consent form approved by the Ethic Review Committee for Research Involving Human Projects (Chulalongkorn University and Police General Hospital, Thailand).

Assessment

The FAB scale is a 10-items balance scale that takes about 10-15 minutes to administer. FAB consists of ten activities as follow: 1) stand with feet together and eyes closed; 2) reach forward to retrieve an object (pencil) held at shoulder height with outstretched arm; 3) turn 360 degrees in right and left directions; 4) step up onto and over a 6-inch bench; 5) tandem walk; 6) stand on one leg; 7) stand on foam with eyes closed; 8) two-footed jump; 9) walk with head turns; and 10) reactive postural control. A five-point scale ranging from 0-4 points is used (zero indicates the lowest level of function and four indicates the highest level of function). A maximum score of FAB is 40.

Procedure

Two raters were scoring FAB scale in this study. The first (KP) and second (NK) raters were the physical therapist who has nine-year and five-year clinical experiences, respectively. The evaluation was performed in a laboratory setting at Chulalongkorn University, and the video was recorded for all participants. All participants tested the FAB by the first rater (KP). For all of the tests, one physical therapist (TO) guarded participant while testing to prevent falls. After seven days, test-retest reliability was determined by the first rater (KP) scored all videos again. For interrater reliability was performed by scored all videos by the first (KP) and the second (NK) raters.

Data analysis

All data were analyzed using SPSS software, version 17.0. Descriptive statistic was presented as a mean and standard deviation. The test-retest reliability was calculated using $ICC_{(2, 1)}$ and interrater reliability was calculated using $ICC_{(3, 1)}$. An ICC value of 0.80 or higher indicates good reliability, a value of 0.60-0.80 indicates moderate reliability, and values of 0.40-0.60 indicate poor reliability[14].

The standard error of measurement (SEM) was calculated from $SD \sqrt{(1-ICC)}$: where SD was the variance of the difference score. The minimal detectable change at the 95% confidence interval (MDC_{95}), a minimum amount change in participant' score that ensures the change was not the result of measurement error, was calculated as $1.96 \times SEM \times \sqrt{2}$ [14].

RESULT

Ten individuals with stroke (6 male, 4 female; average age= 64.63 years) participated in this study. Demographic data including age, gender, hemiplegic side, hemiplegic etiology, and hemiplegic duration and the FAB score are shown in Table 1. The result indicated that the FAB provided good reliability of both test-retest and interrater reliability ($ICC_{(2,1)}$= 0.83) and ($ICC_{(3,1)}$= 0.91), respectively (Table 2). The SEM and the MDC_{95} were also shown in Table 2.

Table 1. Demographic of participants and the Fullerton Advance Balance Scale (FAB) score. All values are presented as mean±SD

Characteristic	Participants (*n*=10)
Age (years)	60±8.15
Gender (male/female)	6/4
Hemiplegic side (left/right)	4/6
Hemiplegic etiology (thromboembolic/ hemorrhage)	7/3
Hemiplegic duration (years)	2.18±2.63
The FAB score (/40)	21.7±6.00

Table 2. Reliability of the Fullerton Advance Balance Scale (FAB) scores.

	Mean±SD (point)	ICC (95%CI)	p-value	SEM (point)	MDC_{95} (point)
Test-retest reliability					
1st score (1st rater)	21.7±6.00	0.83	0.001	2.41	6.70
2nd score (1st rater)	20.60±4.09	(0.476-0.957)			
Interrater reliability					
1st rater	21.7±6.00	0.91	< 0.001	1.66	4.60
2nd rater	22.60±5.56	(0.698-0.978)			

* SD= standard deviation, ICC= intraclass correlation coefficients, 95% CI = 95% confidence interval, SEM= standard error of measurement, MDC_{95} = minimal detectable change at 95% CI.

DISCUSSION

The objective of this study was to investigate the reliability of the FAB. The FAB is a balance measure that comprehensively addressed the multiple dimensions of balance[13]. The test-retest reliability was used to define the reliable of the rater to repeat the test. At the results of this study, the FAB has good test-retest reliability (ICC=0.83), which was accordance with previous studies of Rose et al. (2006) and Wampler et al. (2007) whose reported the test-retest reliability is good (ICC range, 0.96-0.98) [15, 16].

The interrater reliability was used to identify the reliable of two raters. Interrater reliability of the FAB in this study was good reliability (ICC=0.91) which was accordance with previous studies of Rose et al. (2006) and Klein (2010)[13, 15].

Our study found that the test-retest reliability (ICC = 0.83) was lower than interrater reliability (ICC = 0.91). One explanation for lower reliability may be due to the difference of procedure. The scoring with the video was shown the performance of participant. Thus, the results of the 1st score and 2nd score may be different in the 1st rater.

The FAB has a little error of measurement (SEM=2.41) which is a reliability measure that evaluates the response of stability. Moreover, MDC_{95} in this study are 6.70 points, which MDC was an estimate of the smallest amount of change that can be detected by the measurement. It suggested that the FAB may be sensitive to detecting a real change in balance performance in individuals with stroke.

Further study needs to be done since this study was explored only the reliability of the FAB. Thus, other psychometric properties of the FAB in individuals with stroke are therefore suggestion.

CONCLUSION

The FAB is reliable balance test for individuals with stroke. A physical therapist can utilize the established MDC for assessing of the intervention outcomes. The assessment results of the FAB can direct the treatment to target specific balance impairment in individuals with stroke.

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Sexual Health Education and Gender inequalities in Morocco

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Abstract :

In addition to its mission of conveying knowledge, the education system is an area of gender relations produces, through the existing norms and values.

After the analysis of Moroccan manuals, it is mandatory that sexual health education is not immune to a differentiated strategy naturalization equality, which obviously helps to make the sexual identity according to the classification systems and domination already inculcated in attitudes and tattooed via other social spaces.

Indeed, sexual health education confirms the hypothesis of sexuality as a privileged space of categorization, it also confirms that it generates emancipation.

Key-words: sexual health education, Gender inequalities, Moroccan education system, Manuals.

Context:

The educational system constitute of the highest place of production and reproduction of social reports in general understanding social reports of genders. It is tool that convey samples of social behaviour.

On the one hand, the educational system is in charge of human personality mainly sexuality. On the other hand, sociology has the tendency to understand sexuality at least as a reflection of a type – BOZON and BUTLER – confirm the obligation of social framing of sexuality; The activity of members are a social learning (BOZON, 19991), and the sexed and sexual identities are socially considered as possible hopeful and understanding (BUTLER, 2006).

Sexuality has to make the topic of learning because it contributes of making the type or the kind since it has the origin of people's identification to a gender (MIEGA & ROUYER, 2012), is alone in antagonistic and complementary with another gender and another one. Clear 2012 His biological dimension does not obliged us to improve naturally outside the framework of education and knowledge.

Morocco integrates various activities which one are related to sexual education in its schooling programme. Their analysis is indispensable in the sense that the school is unequal to works its schooling contents which privileged implicitly a form of pure culture for dominant classes, according to the thesis of Pierre BOURDIEU et Jean-Claude PASSERON.

The interest of this analysis is doubled on the one hand; it reveals the inequality of genders inside the activities of sexual health education which is circulated in textbooks.

On the other hand, which is more important, it aims at opening another horizon for searching about the sexual health education in the Arabic Muslim systems who are all focused on one discipline which is the Science of Life and Earth, ignoring and forgetting the contribution and the impact of others disciplines as the religious education discussing the problematic of inequalities at school, asking some students about the system. But in this research, we have fixed only an objective that is the analysis of textbooks.

Textbook used to be the object of multiple scientific demonstrations at the International level until the end of the second war[1]. It reflects the important place of this tool in company's diary. "Create a textbook means choose values, norms, representations which assure the social cohesion, the harmony of reports between Men and institution. Littérature constitued by textbooks which are based on intention and engagement" (Mollo-Bouvier et Pozo-Medina, 1991) too, the textbooks permit to learn, to play roles, share significations with others, respond and anticipate their expectations, interiorise norms, values, thinking system. A textbook goes beyond its educational and didactics mission to have characterised vision by ideological orientation and social minority (Cherkaoui, 1992).

Textbook exceeds its educational and didactic mission so as to have specific vision by ideological orientation and social control.

The analysis of this educational discourse that is related to sexuality in textbooks entitled education at the sexual health (ess) that will lead us to say if "sexuality don't constitute a game of social reports of sex and if there is any powerful domination of men against women"[2].

Before describing the diversity of activities, we will start by the identification of corpus, method and active methodology (1) to avoid the obstacles which bloc the establishment of equal sexual education (3).

1- Methodology and corpus:

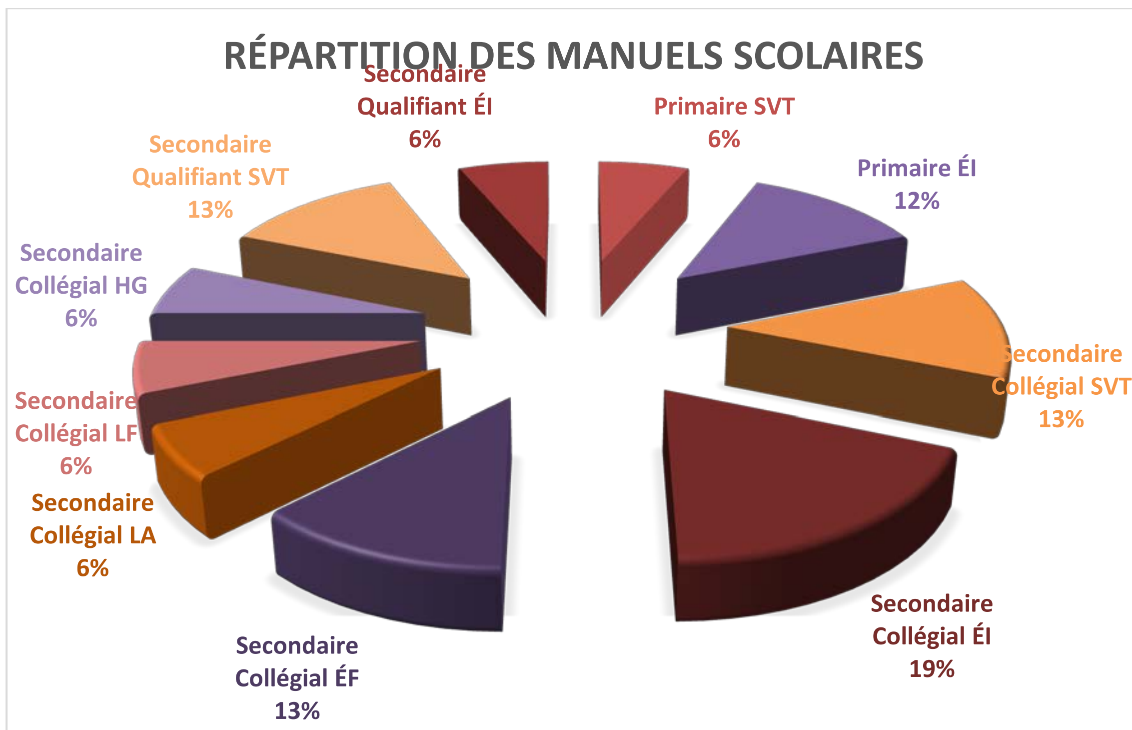
Our goal is to detect to what extent the activities which are related to sexual health education in Moroccan textbook contribute to the construction/deconstruction of unequal organization of the body. This research is focused on disciplines considered as holders of norms, values linked to sexual health, being in mind Science of Life and Earth (SVT), Islamic education (EI), family education (EF), French (LF) and Arabic languages (LA) then History and Geography (HG).

[1] The league of nations suggested an analysis comparing school books to fight Xenophobia and racism. The first General UNESCO conference and action plan to romote school books and teaching materials, tools of international understanding, Paris 1946. The convention against the discrimination in education UNESCO, 1960. The General conference of UNESCO, Paris 1983. The General conference of UNESCO Paris, 1995. Experts assembly about: "school books and pedagogical materials: elements of a good quality of education favouring peace, human rights, mutual understanding and dialogue" Paris 2 December 12th, 13th 2002.

[2] Patricia LEGOUGE, Démocratie sexuelle, sexualité et rapports sociaux : les représentations de la sexualité dans la presse, PhD Thesis, University of Strasbourg , 2013.p 67

Our corpus is composed of 16 textbooks of different levels distributed as the following: primary, secondary collegial, secondary qualifiant.

Primary		Collegial Secondary						Qualified Secondary	
SVT	ÉI	SVT	I	F	A	F	G	SVT	ÉI
	2	2						2	1



After analysing the weights and roles respecting different elements of textbooks content of studying (occurrence of transcripted discourse as a picture of text form), we had have end up with a list of indicators concerning differents dimensions of sexual health **(Annexe 1)**. We have measured each time the presence or the absence of each indicator and also it's occurrence inside images and texts. Certain indicators are chosen because of their implicit values that circulate their absence in textbooks is significant refusal by textbooks makers and creators because they refuse to discuss certain notions (for instance, the diagram of anatomy of a woman genital system).

2- Analysis and discussion of results:

&1. Almost absence of women authors:

Through the first information about textbooks, we noticed almost an absence of women among authors of textbooks. Only one woman among 87 authors, either 1,1 %.

If the existence of woman authers has no significance in comparison with content will be egalitarian this will lead us to ask what are the criteria of selecting the comity who are responsible of the creation of textbooks and why women are ignored in this mission; otherwise, we are going to make another research to include women in the creation process.

&2. The domination of biomedical and preventive dimensions:

After ranking the various activities of sexual health education in diversive disciplines, we make an active mobilization and concrete analysis (annexe 1) we fill the outcomes in the following chart.

Chart 4: types of knowledge transcribed in textbooks

	Biomedical	Preventive/instructive	Psycho-affective	Social
Total (%)	53	31	4	12

So we downloaded the dimension of biomedical of sexuality major in its activities with 53 % followed by preventive dimension with 31% and between social and psycho-affective with 12% and 4% respect.

We guess that this focus on the biomedical and preventive dimensions can't confirm the biologism considering sexuality like an act which purely biological which is among our common points with animals and plants, it s a natural need which is role to keep the race of humanity (reproduction).

We estimate that naturalization of sexuality can exclude all possibility influence of the will and human consciousness's because behaviors and sexual conducts are considered as a product of drive biological and unconscious (as for animals and plants); That is to say that teachers who are linked to sexual health are able to convey knowledge to sexual health are able to convey knowledge which purpose is to discipline its behavior and conduct considered as biological/natural to cope with social-culturel norms.

It is said that education of sexual health must be sent to learners as the biological/ natural bodies which fonction in the "normal" sexuality (there is similar to animals, plants) and health. It s a process that disciplines and sexual body according to preestablished model considered as natural/

normal. So all the conduct outside this framework is considered as "abnormal" and/or "derived" and/or "pathologic".

&3. From biological difference to social inequality:

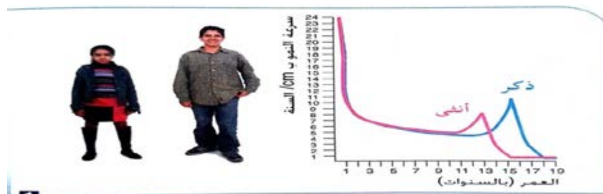
Putting aside the themes discussed earlier, we move to gender inequality and the axes where the latter is formed. we also implicitly express our agreement with system of social relationships taking shape in and by the biomedical dimension.

we can reduce sexual health education activities to differences between the sexes in the anatomical, physiological and socio-cultural levels. These differences, and in the absence of an egalitarian reference, will be quickly stored in the learner's representations according to other models in different spaces of socialization for example.

By way of exemple:

A man's body grows more than a woman's:

The picture below shows how boy's bodies are bigger especially during puberty.



On an other level, this picture might explain nutrition needs in the following table:

Needs	Man	Woman	Pregnant woman	Teen (male)	Teen (female)
Energy (Kj)	11290	8360	9800	12540	9610
Sugar (g)	360	265	312	400	300
Fat (g)	105	73	74	110	84
Proteid (g)	80	60	64	90	70

This difference also accounts for sexuel division of labour. Men are stronger than women and thus can do hard work.

Male seeds are pluralistic and active, but feminine seeds are singular and inactive:

- تُنْتَج الأمشاج الذكرية على مستوى الأنابيب المنوية للخصيتين، ابتداء من البلوغ و بدون توقف. تنتج الأمشاج الذكرية بكمية كبيرة وتتميز بقد صغير (60 µm) وبحركية كبيرة.
- تُنْتَج البويضات داخل المبيض وتخزن في الجريبات المبيضية. تحرر بويضة واحدة كل 28 يوما تقريبا من طرف أحد المبيضين ابتداء من البلوغ حتى سن الظهى (45-50 سنة) تتميز البويضة بقدها الكبير (0,2 mm) و باحتوائها على كمية كبيرة من المدخرات المقيتة.

According to this text, considered as a recapitulation of the teachings related to the functioning of the male and female genitalia:

- The male gamete are many (par des millions), wich socially refer to power whereas the femele produces only one gamete in 28 days.
- Male gamete are active, which refers to freedom and space, are they freely move inside a woman's word.

- The production of sperms never stops whereas a woman's ovules stop at a certain age:

- تُنْتَج الأمشاج الذكرية على مستوى الأنابيب المنوية للخصيتين، ابتداء من البلوغ و بدون توقف. تنتج الأمشاج الذكرية بكمية كبيرة وتتميز بقد صغير (60 µm) وبحركية كبيرة.
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In the last picture, the comparison in the production of gametes being established by explaining the difference between the duration of production of gametes in a man's and a woman's lives. At the same picture, the comparison explain that the men genital machine doesn't stop.

Thus, the biological differences may be the source of the essentialist vision of gender difference[3]: Men are by nature charnels and impulsive. Women are moral and spiritual creatures.

- Men are treatened by reaching a sickness whereas women by losing their virginity and bad reputation:

3 Anne-Marie Käppeli, Sublime croisade. Ethique et politique du féminisme protestant 1875– 1928 (Genève: Zoé, 1990).

يَحفظ الواقي الذَكَري المني، ويحول دون انتشار الأمراض المنِقولة جنسيا.
يُوفر الِواقي الذكري فعاليِة تُقدَّر بحوالي 95%.

المشكلة

تحولت مواقع التعارف إلى معضلة أخلاقية، استبيحت فيها حرمات البيوت، فصارت الخطبة الشرعية شيئا من الماضي عند فئة عريضة من روادها، فصار النظر إلى المخطوبة مطلبا بسيطا، أمام واقع اللقاءات الافتراضية المنفلتة من كل ضابط أخلاقي، لا تجني الفتاة بعدها إلا خيبات أمل متكررة، وإحباطا نفسيا من عالم يحكمه الغدر والمكر والمكيدة. فما سبيل الوقاية من ذلك؟

As man's power might be a liberating force for a woman from all the prejudices in which she lives in. If a woman is ignorant on such matters in the biggest obstacle to a young man's moralization. That's the true value of feminism[4].

- During a woman's periods, the body witnerses weaking and embarrassing hormonal and physiological perturbations.

Accordingly, the inequality found in sexual health education, transcribed in textbooks can but legitimize the inequalities already existing." What is sure, in all cases, is that nothing is less innocent than "let-go"" (BOURDIEU, 1993), because letting go norms without questioning them means reinforcing them.

3- Stakes:

4 Geneva Public and University Library, Manuscripts of Morsier, MS fr. 6939/20, Fragments of a lecture on the instruction of sexual morality [s.d.]. De Morsier is back in Geneva since 1902.

As sexuality is an important composant in a person's personality, the institunalization of an egalitarian sexual health education still oscilliates between what is political, religious, socio-cultural and economic.

A- political-religious ambivalence:

A. Ambivalence politico-religieuse:

The educational system is not a simple place where instruction of knowledge takes place it is a tool that transmits social behavior models: the key to social change.

On one side, the conservatives adopt an islamist approach to sexual health education. the vision of this movement redoubles social law by giving it a special power, that of obligation and constraints regulating the expressions of sexual behavior. Through rules, norms and inhibitions and taboos. Those conservatives justified the refutation of such "education by knowledge might incite teenagers to promiscuity"[5]. Malek CHEBEL described such resistance by saying "the niceties of dream and sexual activity seem to have ecountred a collective personality sensitive to voluptuousness of the flesh" (CHEBEL, 2002).

On the other side, the modernists, including feminists, call for the necessity to introduce sexual health education as a way to improve gender as on one part as a way to acquire personal immunity among the youth and enable them to acquire a certain social responsibility, especially as M. DIALMY sees it, that morocco is indergoing a "sexual transition".

This dichotomy (traditionalist/ modernist) still polemical has delayed any kind of institutionalization of sexual health education and has minimized its content to the preventive and biological.

3- Sexual education: a public or a private issue:

Morocco is aware of the public aspect of sexual health education as it presents a very important element in health protection and public sanity in general; However, we shouldn't deny that the "Hchouma" (taboo) still remains a dominant aspect located in the heart of interests conflict: that of the person (intimate) and that of the society (Health, public and morals).

On one part, since 1966, the moroccan state has tried to publicly manage the content of sexual health education by integrating it in family matters and in educational programmes.

[5] Population Reference office, Youth of the World 1996, Washington.

Later, it was introduced in health programmes, thus inserted in sanitary education. then it was formally presented under the name "feminine-family education from 1985 - 1996 and in other disciplines such as natural sciences and islamic studies.

So as to render this issue a public issue, one must notice that sexuality is still a taboo in Morocco where the social constract is largely visible (KADRI, BENJELLOUN, KENDILI, Khoubila & Moussaoui, 2012). "Hchouma" is a mixed feeling of modesty, shame, guiltiness, embarassment , inhibition. " the word doesn't have to be even said. Hchouma dictates, controls interdicts; it lures behind actions. (...) It's a code to which we conform without thinking and which legislates all the situations of existence" (NAAMANE-GUESSOUS 2001 : 5).

In the same order, "it's the mother who is responsible for sexually educating her children" say moroccan sociologists GUESSOUS and DIALMY. On the other hand, the father lets off such duty and this we throw the issue to the sphere of the domestic and private.

C- specificity and/or universality and/or multiculturalism

Being of the crossroads of many cultures, Morocco has confirmed its adherence to universality on many occasions. The reforms adopted regarding gender issues are generally within universal frame of human rights and the CEDFF and CDE more particulary we agree on the elimination of all the forms of a woman discrimination (CEDEF) the child rights (CDE). This inscription of Morocco in the university of human rights is confirmed by the offer of our king by Morocco booked about the CDDEF (10 décembre 2008)[6]. An another level, the new constitution of 2011 highlighted morocco's attachment to the universal conventions and laws that are universally recognized.

Rightly as well, Morocco has expressed its reservations (chapter 4/7) on the programme of the international convention for population development (ICPD) (Cairo 1994). This convention calls states to observe sexual rights and to protect women's rights and be "their own masters when it comes to sexuality, health and procreation , without constraints, discrimination or violence and freely and responsibly take decisions (ICPD 1994:6). These booking are justified by the non-confirmity of our specificity to know the normes of "Charia".

[6] Royal Letter to the Advisory Council on Human Rights on the occasion of the 60th Anniversary of the Universal Declaration of Human Rights.

Morocco is a multiculuralist country, one can fird amazigh, arab, jeuish and Mediterranean influences. According to Dialmy, the representations and conceptions of masculinity, feminity and sexual health education vary from one region to another (DIALMY, 2009).

D Priority to sexual education or socio-economic rights?

Seeing the slow development in the women's question on the socio-economic level, one can admit that sexual health education occupies an almost unimportant area within the circle of government priorities and feminist movements.

The last report of economical advice, social and environmental CESE affirmed the alarming situations of women in morocco[7].

Elizabeth Elgan explains that "the equality of the sexes if applied to all levels, will radically change social relationships in our private life and also in the world of labour, the social and the political sphere" (ELGAN, 2012). In the same line, BOURDIEU, HÈRITIER et DELPHY consider sexuality as source of masculine domination, which shows that inequalities in the public sphere are reflections or continuation of those already established in the private sphere.

Conclusion:

Sexual health education activities in textbooks are activities where:

- ✓ The transmitted discourse suggest that the female body and masculine body are totally distinct. The question then is: what social conception for the "difference"? is it horizontal or vertical? complementarity or antagonism? and if the instructor doesn't commit to promoting gender equality, his discourse will surely promote categorisation.
- ✓ The absence of psychoaffective and social dimensions excludes the physical body, as bodies don't meet only on paper. Such situations produce different emotions within learners about what they read in textbooks, what they receive from the instructor and what they feel.

[7] Aujourdhui.ma | 30-01-2015, 10:50:00, by Sara El Majhad.

Since this sessions don't respond to questioning, the learner will seek other ways of information.

- ✓ The ideology (strategy) of menace is often directed at women and their bodies. The latter is considered "Awra" and source of seduction. thus instructors amplify control and guardianship over the feminine body.

In fact, we can say that denying sexual inequities (considered like neutrality) within activities linked to sexual health, textbooks contributes to the organization of unequal bodies and thus the reproduction of unequalities founded on gender.

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Spatial Analysis about Population Density in Prisons in Indonesia as Risk Factor of Scabies

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Abstract

Scabies is a skin disease that is endemic in tropical and subtropical zone. Based on data in WHO, scabies as a disease has a high disease burden. In the world, this disease affects 130 million annually. Indonesia is a tropical country that is endemic of scabies. Scabies in Indonesia ranks three of the twelve most common skin disease. Scabies become an overlooked disease prevention, even though scabies is a skin disease which easily transmitted between humans. The disease is caused by mites Sarcapotes Scabies ar hominis. One place that becomes optimal dissemination area is a jail. The main factors this dissemination disease are population density and environmental sanitation in jail. The high population density makes the interaction or physical contact between individuals increased and make transmission of scabies mites easier. This paper made by the method of literature review of several sources consist of journal, website and various sources related to Scabies. In method, this paper use spatial analysis methods related risk factors of scabies that is population density in jail in period 2012-2016. Then, this paper also discusses other risk factors that cause scabies are environmental sanitation in jail. Trend of increasing population density in jail in Indonesia can increase the risk of scabies and also supported by other risk factors, that is poor environmental sanitation.

Keywords: Scabies, Prison, Density, Sanitation, Health

Introduction

Scabies is a skin disease caused by *Sarcoptes scabiesvarietas hominis*. Scabies is one of the most common skin diseases in developing countries. In the world, this disease has infected more than 130 million people every time (WHO, 2017). Scabies is ranked 3 of the 12 most common skin diseases in Indonesia (Al Audhah et al., 2012; Aminah et al., 2015). *Sarcoptes scabiesvarietas hominis* are mites in humans that classified into *Arthropoda*, sub class of *Acari* family of *Sarcoptidae*. The mite works to infecting humans is by making a hole into top layer of skin to store the eggs, but not until skin stratum corneum layer (CDC, 2017). Mite's life cycle lasts for a month from eggs to adulthood, with an incubation period lasting two weeks to six weeks in people who infected with mites (Al Audhah et al., 2012). Itchy rash which is characteristic of the scabies is an allergic response to this mites. Individuals who are infected of scabies for the first time usually develop symptoms after 4 to 6 weeks. Next, symptoms appear within a few days. Scabies spreads primarily through skin-to-skin contact. At a lower level through contact with clothing and bed sheets. A highly vulnerable environment for the spread of scabies is a facility with overcrowded living conditions. Mites are also easily distributed through sexual contact too. Scabies mites are found worldwide, affecting all socioeconomic classes and in all climates. The epidemic of scabies disease is often associated with poverty, poor water supply, sanitation and population density (WHO, 2017). Research conducted by Nazari and Azizi (2014) concluded that several factors that may affect the incidence of scabies include rural conditions of residence, family history of scabies disease, low education level, household density, low monthly income, low personal hygiene, seasonal conditions, and contaminated areas.

Definition of Prisoners according to Regulation of the Minister of Justice and Human Rights Republic Indonesia Number 6/2013 prisoners is a convicted person who underwent criminal case an paced in prison. Prison is a unit of correctional business that accommodates, cares for and guides the prisoners. It is noted that the number of prisoners in Indonesia in January 2017 that was 206,586 people (SDP, 2017). The data of prisoners is very large, thus describing the high prison density. In fact, high density increases the potential for scabies and transmission of scabies. Prisoners as human beings still have the same right to obtain the optimal health degree (Margayanti, 2007).

Based on a study conducted by Lathifa (2014) with 73 samples about causes of scabies in human of the pesantren in Indonesia, poor sanitation is also a contributing factor to scabies. Research conducted by Akmal et al (2013) on 138 respondents also concluded that there is a relationship between the incidence of scabies with personal hygiene status with p value 0,0000.

Seeing the condition of prisons that the majority have a poor sanitation system, then this can increase the potential incidence of scabies in prisons. From this literature, it appears that the risk of scabies in prisons is very high. This is due to the high population density in prisons, supported by poor sanitary in prisons conditions. Therefore, the team conducted *Spatial Analysis about Population Density in Prisons in Indonesia as Risk Factor of Scabies* to be discuss in this paper.

Method

In this paper, the team use spatial analysis method. This spatial analysis used to show prisoners density and the percentage of over capacity tragedy in prisons in Indonesia. Spatial analysis in this paper use density population data in prisons in Indonesia for 5 years ago. This paper is created through method of literture review form several related source, such as Journal, website and souce assotiation with scabies.

Result and Analysis

This research analyze over capacity in prisons in Indonesia. The information over capacity based on data since 2012 until 2016. By using spatial analysis, the distribution of over capacity resulting the new map. The new map data as prediction area at risk scabies in Indonesia's prisons. Some area were in dark-red colour that indicates of the high risk scabies, because over capacity in prisons highly such as in Sumatera island, Kalimantan island and Java island. Of the three islands, there are provinces that show increasing and fluctuating trend.

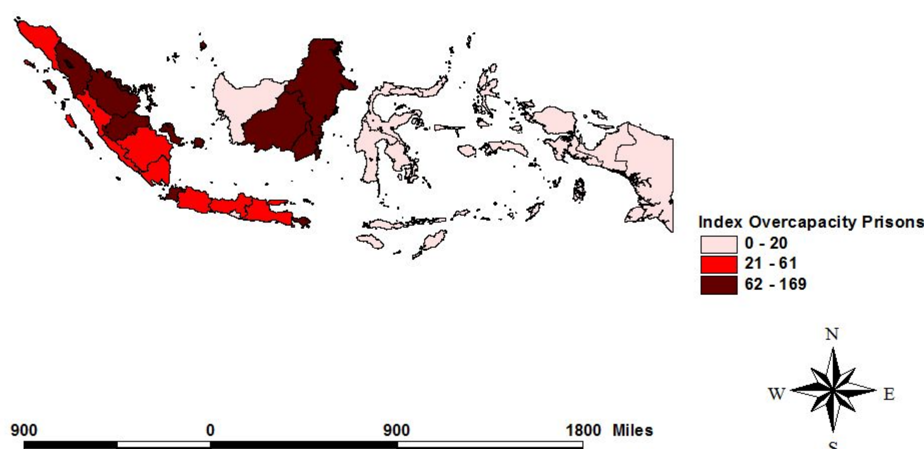

Fig 1. Density Prisons in Indonesia 2012

Density Prisons in Indonesia 2013

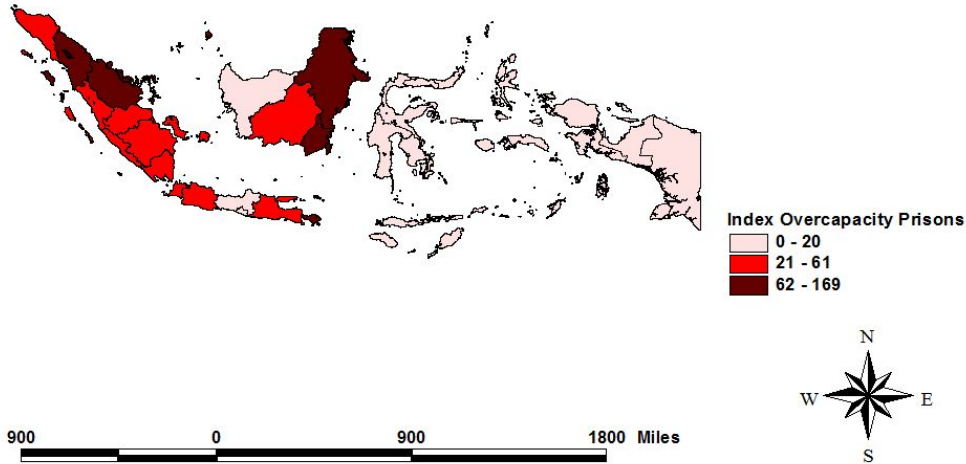

Fig 2. Density Prisons in Indonesia 2013

Density Prisons in Indonesia 2014

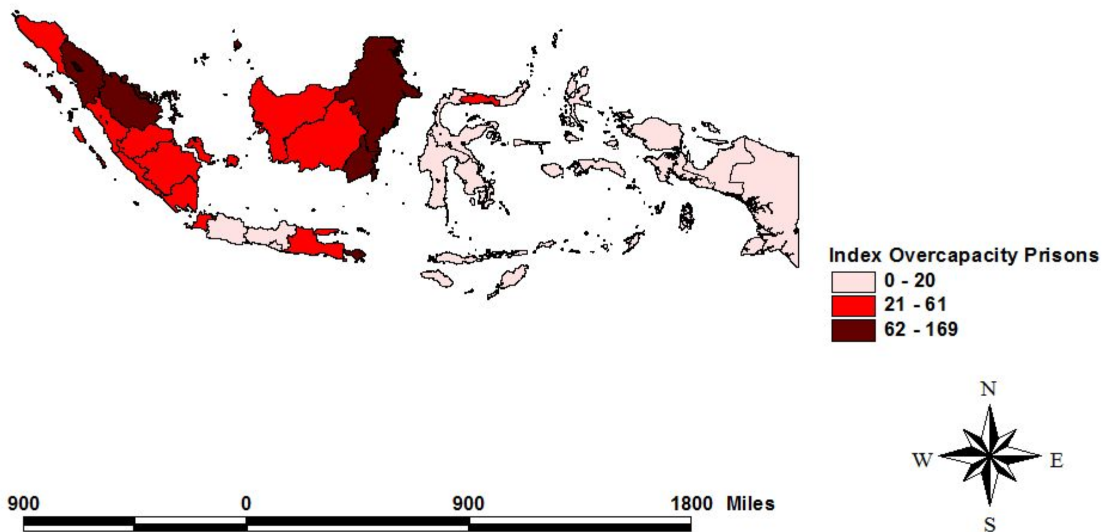

Fig 3. Density Prisons in Indonesia 2014

Density Prisons in Indonesia 2015

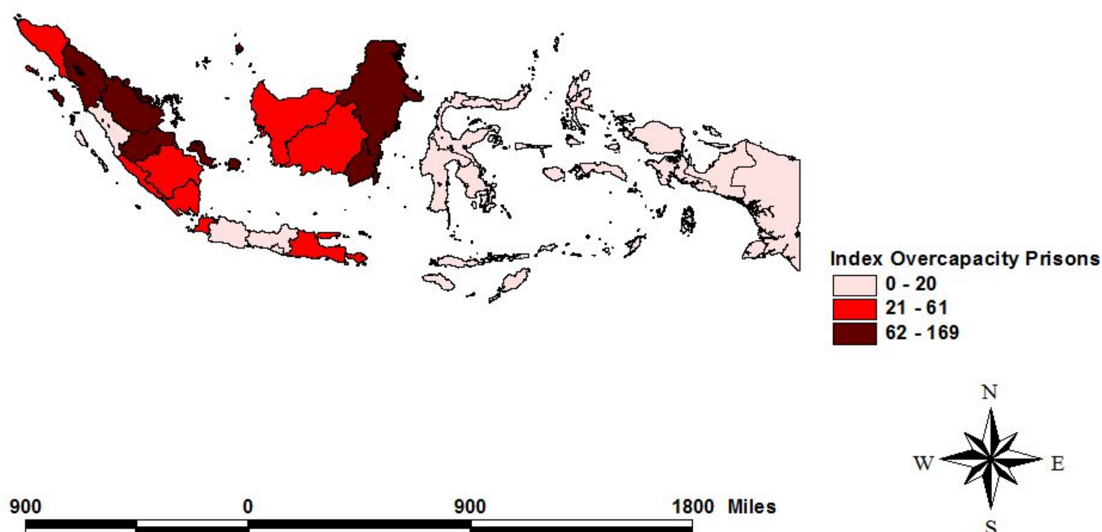

Fig 4. Density Prisons in Indonesia 2015

Density Prisons in Indonesia 2016

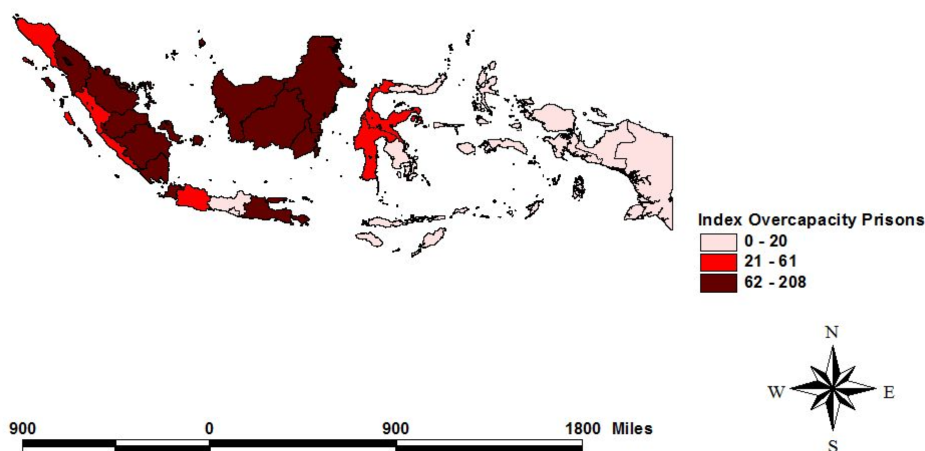

Fig 5. Density Prisons in Indonesia 2016

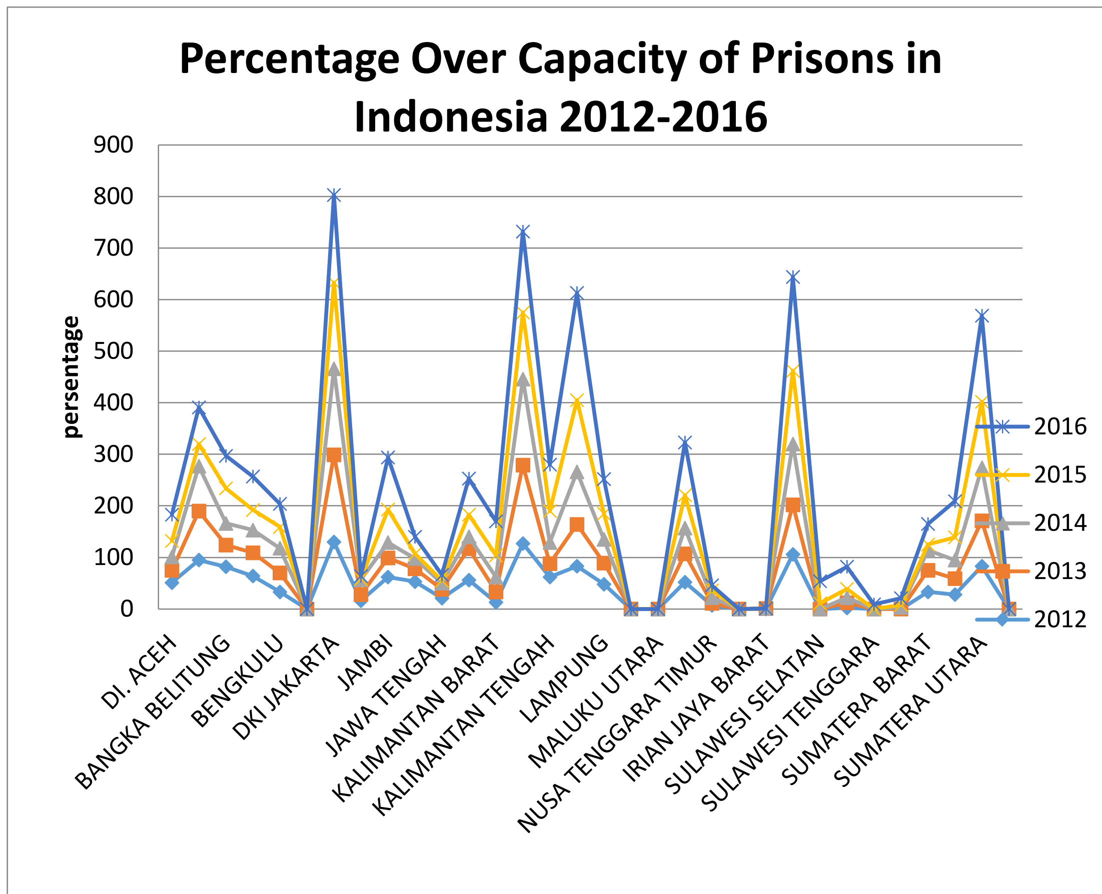

Fig 6. Percentage Over Capacity of Prisons in Indonesia 2012-2016

Discussion

Scabies is a disease that spreads easily in places with high population density, poor health environment, low socioeconomic status, and close contact between people such as boarding schools, mental hospitals and prisons, etc. (Andayani, 2005)

Environmental conditions in prisons have a densely populated population, a narrow space, and sometimes the prisoners prefer to wear clothing, towels, and soap alternately as well as inadequate prisoners' understanding of the scabies disease, in addition to the over capacity of occupancy rates which may be the cause of scabies disease in the prisons environment. And based on the spatial analysis that has been made, it shows that all prisons in Indonesia are experiencing population density in all provinces with Indonesia's three highest over capacity prisons in severe level there are in DKI Jakarta, South Kalimantan, and Riau.

The imperfection of the physical condition of the prison environment is due to the high cost and the number of prisoners who are far more numerous than the availability of prison land.

Barriers caused by these costs can be a more humane room cell reshuffle, the availability of space creativity such as workshops and equipment and facilities, space health and care, clean water facilities, bathrooms, latrines, kitchens and so forth. (Purnianti, 2004)

Conlusion

These spatial analysis show the overview of population density in the prisons in Indonesia. In the map, population density shown in 5 years ago so we can comparing each other, whether the population density tend to increase or decrease. Based on the map of spatial analysis, population density in prisons in Indonesia's province tend to increase. These data shown that criminals in Indonesia tend to increase too. In 2016, the over capacity prisons in severe level increased in many provinces which previously not experienced the over capacity prisons in severe level but in 2016 that provinces experienced the over capacity prisons in severe level. But overall, Indonesia's three highest over capacity prisons in severe level there are in DKI Jakarta, South Kalimantan, and Riau. So, prisons in these three province have the highest risk for scabies and this spread.

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THE BENEFIT OF THE WRISTBANDS: A SYSTEMATIC REVIEW

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ABSTRACT

The Joint Commission for Accreditation of Health are Organizations and the College of American Pathologists made accurate patient identification a cardinal patient safety goal. The Centers for Disease Control and Prevention issued a white paper that singled out patient misidentification as an important patient safety issue. **The aim** of this research is the most important part of the identification verification process is that clinicans consistently need to check the patient's identification wristband and verity that they are caring for and providing services and treatments to the correct patient. **Methods** Systematic Review with PRISMA Diagram retrieved from online database such as Proquest, Scopus and other sources, using keywords "wristbands" AND "patient safety" AND "identity". The period of the study that had been reviewed is fourteen years old backwards. **Results** Seven studies concluded that wristband reduced misidentification, identification wristband are necessary contributors to patient care and patient safety. Three studies about transfusion safety, suggested to audit relate to positive patient ID, documentation and monitoring of the transfused patient. Two studies about laboraratories, explained to compare the frequency of preverification identification errors with post verification errors. And one study about oncology care explained patient misidentification errors can be prevented when healthcare providers consistently verify patient identity using two unique patient identifiers. **Conclusion** The most important part of the identification verification process is that clinicians consistently need to check the patient's identification bracelet and verify that they are caring for and providing services and treatments to the correct patient.

Keywords : wristbands, patient safety, and identity

Themes : Occupational Safety and Health

Background

Accurate identification of patients for phlebotomy is one of the first steps in ensuring that laboratory results reach the correct patients medical records. In hospitals in United States, patients wear wristband to aid in their correct identification. Verification is usually done during the preparation for venipuncture, as phlebotomists ask patients their names and then confirm names by checking the patient's wristband. There were 6 types of wristband errors : wristband absent ; wristband from another patient (wrong wristband) ; patient wearing more than 1 wristband, 1 being the wrong wristband (conflicting wristband) ; partially missing identification information ; partially erroneous identification information ; and illegible identification information.(Peter, Stephen, & Molly, 2002)

The simplest of steps – checking the patient's identification bracelet – was violated 10 times. This error could have been avoided if one person had checked the bracelet or listened to the patient's objection's. Patient identity must be checked, rechecked, and then checked again. This checking process must be consistent and even more persistent when a patient questions why he or she is undergoing a particular.(Suzanne C Beyea, 2002)

On entry to hospital, patients are usually asked to answer question about their biographical attributes, such as their name, date of birth, etc. Once admitted to hospital, their "official" identity is reduced to the amount of information that can be displayed on some form of identification band usually attached to the patient's wrist. Indeed, putting an identification band on a patient's wrist is so commonplace that it is often referred to as a wristband. Most identification (ID) bands include a subset of physical, biographical,and assigned attributes. This following subset is considered to be basic information : the patient's name, sex, date of birth , and numerical identifier. Therefore, identification bands are necessary contributors to patient care and patient safety.(Davies & McRae, 2009)

Patient misidentification can occur at virtually any point in the patient encounter. Patient misidentification can result in administration of the wrong drug, an unneeded procedure, in appropriate treatment, and even the wrong diagnosis. Some of the errors can be fatal, particularly those involving transfusion of blood products to the wrong patient.

Lau and Cheng (2001) noted that safety systems have the potential to reduce, but not eliminate, transfusion errors because much of the transfusion process is vulnerable to human error. Patient misidentification errors can occur when nurses mispronounce patient's names or refer to patients by their first or last names only.(Schulmeister, 2008)

Patient safety is a fundamental aspect of care delivery that underpins the continual need for quality improvement initiatives. Patient safety is embedded in a system of processes that encompass a robust incident management infrastructure and an open culture of learning supported by a clinical governance framework.

The National Patient Safety Agency (NPSA) (2005, 2007) has published several safer practice notices concerning patient identity relating to use and standardisation of wristbands. A safer practice notice issued by the National Patient Safety Agency (NPSA) (2006), Right patient, Right Blood, supported the requirement of delivering a competency based training programme for staff involved in transfusion practice and staff contribution to patient safety throughout the transfusion process.(Cottrell & Davidson, 2013)

Lane, Stanton, and Harrison (2006) have provided a detailed hierarchical protocol outlining the ideal medication administration process. In their protocol, regardless of the type of medications that nurses administer, they must check patient ID wristband and check (patient) chart before giving medications to patients, thus fixating their eyes on these two artifacts. Visual scanning patterns are also a key component of how nurses identity patient ID errors – to ensure that the right medication is administered to the right patient.(Marquard et al., 2011)

Misidentification laboratory specimens may cause patient injury, but their frequency in general laboratory practice is unknown. Identification errors in clinical laboratory testing

have the potential to cause serious patient injury. Reports of wrong – patient cancer resections and fatal hemolytic transfusion reactions due to misidentification of laboratory specimens have appeared in the popular media and peer – reviewed literature.(Valenstein, SS, & Walsh, 2006)

Methods

This systematic review was based on protocol prisma. I searched through Proquest, Scopus and other sources, using the following keyword combinations : "wristbands AND "patient safety" AND "identity". I can get 207 literatures. I restricted the search to literatures written in English, published between 2002 – 2016, and then I can get 180 literatures. Until that I choose Scholarly Journals, and we can get 37 literatures. From 37 literatures, after I read the abstract, I got 12 literatures for using to make Systematic Review. All types of study design were included : Observational, Retrospective, Literature Review Examines, Systematic Review, Systematically Report, Experimental Study.

Results

From the key word that I used, I identified
206 articles from Proquest, Scopus and other Sources. After that, I removed duplicates and narrowed the year into 2002- 2016. From the final 12 articles that met criteria, most of the studies Systematic Review, 2 were Observational, 2 were Retrospective, 1 was Systematically Report, 1 was Experimental Study.
Twelve studies implemented new identification verification process that includes the patient's name, reason for the procedure, written order, identification bracelet check. And examined the extent to which the registration process contributed to patient misidentification found that misidentification errors, with the root causes being deficiencies in the information systems, inadequate personal training, and lack of a master patient index.

Discussion

Identification Procedure with Using Wristbands :

The following strategies should be considered when developing policies and procedures for correct patient identification : involve the patient and his or her family members in identifying the patient and correct procedure, use a designated method (identification bracelet) for identifying the patient.(Suzanne C Beyea, 2002)
By the patient ID process, we mean the series of steps that nurses conduct to ensure that a medication is given to the patient for whom it is intended.
Our analyses revealed several important findings about how nurses behaviors and visual scanning patterns may affect their abilities to identity patient ID errors.
The nurses who identified patient ID errors are more efficient in the process by which they administer medication than nurses who didn't identity patient ID errors. And it appears that nurses who identified patient ID errors may have more consistent eye fixation patterns than nurses who didn't identity patient ID errors.(Marquard et al., 2011)
Audit results identified increased use of an NHS (National Health Service) number (or equivalent) as the unique identifier throughout the UK, with 58,8% of wristbands containing the National Health Service number in 2011 compared with 20,7%of wristbands in 2008. This improvement in universal ID and standardization of wristbands as outlined by the NPSA (National Patient Safety Agency) (2006) will contribute to reducing risks for patients. There has been a significant improvement in practice with wristband ID, but audit results suggest day patients and neonates are continually being placed at significant risk of potential misidentification. In neonatal care, with the absence of verbal ID and the practice of wristbands being attached to incubators and not the baby, there is significant increased risk of

misidentification.(Cottrell & Davidson, 2013)

It might be argued that following certain protocols may not be as important to medication safety. But, the National Patient Safety Agency(2004,2005) highlights checking patients wristbands as a key component of patient safety and states that protocols relating to this are crucial to reducing medication errors. There are also a number of underlying system factors that make the busy ward environment conducive error : distraction was ranked as the second most importatnt cause of medication administration errors.(Cloete, 2015)

The Wristband Misidentification

The information on the bands may not be adequate for identification, as in the Welsh example where an extra line of data is required. One solution to this problem has been to put a rainbow of ID bands on patients to designate conditions such as allergies (red-coloured), increased risk of a fall (yellow-coloured), receiving blood products (green), and Do Not Resuscitate status (blue or purple).

A part from problems with the legibility and content of ID bands, problems also arise when patients are not wearing an ID band. This can occur from the start of care, as with the trauma patient, with patient refusal (for psychological or physical reasons), or with removal of the band by the patient or more commonly by a health care provider for whom the band impeded the provision of care.(Davies & McRae, 2009)

At present, most UK hospitals provide a patient with a standard wristband which contains the patients name , hospital number, date of birth, ward and maybe consultant. Wristbands are recognized to be unreliable. In one study of 712 hospitals , wristbands are checked on 2463727 occasions. Problems included no wristband at all, (49,5% of errors), more than one wristband with different information (8,3%), incomplete information (7,5%), erroneous data (8,6%) or illegible writing (5,7%). In 0,5% of errors, patients wore wristbands with someone else's data.(Thomas & Evans, 2004)

Misidentification of Patients for Laboratory

Linden, in New York, misidentification of patients for laboratory testing has been acknowledged as a major cause of medical errors for a number of years. Although misidentification of patients requiring chemistry or hematology test results can lead to serious consequences, misidentification of patients receiving blood and blood products may result in incompatible blood transfusions. Not only can these errors be fatal for the patient, but they must be reported to governmental and private regulatory agencies who then send on-site investigators to evaluate the error and reconsider the institutions accreditation status.(Peter et al., 2002)

Nurses have a crucial role in transfusion process beginning with blood sampling and ending with blood administration. Errors that result in inappropriate transfusion remain the largest risk and usually occur when details of patients identification are overlooked. Nearly all transfusion steps can be complicated by life – threaten mistakes starting with prescription and request form, sampling and labelling, laboratory testing, collection and administration of blood product.(Vasiliki, 2011)

Nurses have a responsibility to provide the highest standard of care and all patients have the right to expect this (Nursing and Mid Wifery Council 2004). Nurse are integral to the transfusion process ; they are often involved in pre-transfusion sampling, provision of patient information, requesting blood from the laboratory, collecting blood, administration of the transfusion and monitoring the patients's response, during and after the transfusion event.(Gray et al., 2007)

The Patient Misidentification

Researchers at the John Hopkins Hospital axamined the extent to which the registration process contributed to patient misidentification and found that misidentification errors occurred 7-15 times per month, with the root causes being deficiencies in the information systems, inadequate personal training. Systems should be in place to adequately train personnel involved in patient registration. Verifying patient identity, and not just entering data, should be the focus of the process. A system also is needed that ensures that correct information appears on the armband and that the armband is placed on the correct patient.(Schulmeister, 2008)

Under – reporting of clinical incidents is widely accepted to be endemic in all systems and in addition, clinical staff are not always aware that misidentification has occurred. Therefore, it is easy to underestimate the scale of the problem. The reason why patients are misidentified when they come into hospital are multi – factorial. Correct patient identification proses a significant challenge in hospitals because of an increasingly large volume of patients who undergo complex interventions.(Thomas & Evans, 2004)

Grim et al estimated a frequency of at least 1 per 2500 sample for misidentified specimens sent for blood typing, and incidence was positively correlated with phlebotomy by non – laboratory personal. Their estimate included errors unveiled through a mismatch of the sample blood type with the historical patient blood type. The Safety Standard of the Joint Commission is for 2 qualified people to verity blood samples sent to the blood bank. However, any mislabeled blood sample has the potential for adverse repercussions.(Miller, 2015)

Conclusion

The findings of this systematic review suggest that emphasize the importance of patient identity. A patient's identity is the starting point for his / her health care, and it is our responsibility as care providers to correctly identity our patients for their safety and wellbeing. Patient misidentification errors can be prevented when healthcare providers consistently verify patient identity using patient identifiers. Patients play an important role in the process and can be engaged as partners in safety. Correctly identifying patients in today's complex healthcare system is a fundamental step in helping to ensure safe patient care. The most important part of the identification verification process is that clinicians consistently need to check the patient's identification bracelet and verify that they are caring for and providing services and treatments to the correct patient. All clinical facilities should have specific policies and procedures for verification of patient identity and should monitor practice to ensure that staff members adhere to policies.

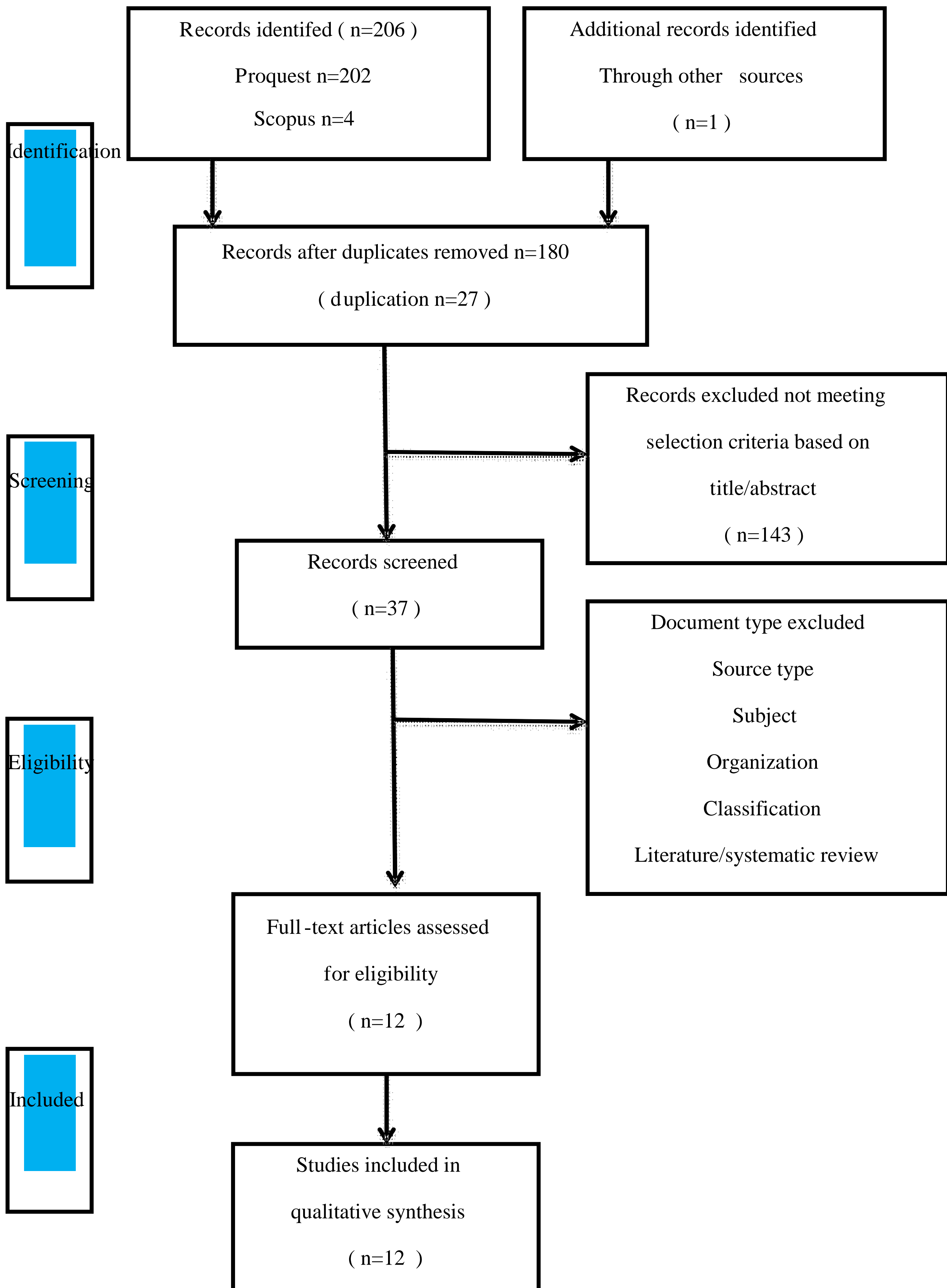
Figure 1 Flow Chart of Study Selection
Records identifed (n=206)
Proquest n=202
Scopus n=4
Additional records identified
Through other sources
(n=1)
Identification
Records after duplicates removed n=180
(duplication n=27)
Records excluded not meeting
selection criteria based on
title/abstract
(n=143)
Screening
Records screened
(n=37)
Document type excluded
Source type
Subject
Organization
Classification
Literature/systematic review
Eligibility
Full-text articles assessed
for eligibility
(n=12)
Included
Studies included in
qualitative synthesis
(n=12)

Tabel 1
Overview of Research On Systematic Review On The Benefit Of The Wristbands

No.	Title	Author	Method	Variable	Result	Aim of Study
1.	National audit of bedside transfusion practice	Cottrell S, Davidson V	Observasional	Patients receiving transfusion	The majority of patients received safe transfusion, with adequate identity checks and careful monitoring. Some patients were at risk misidentification or an unobserved transfusion reaction because of the absence of a patient identity wristband or lack of monitoring during transfusion.	• To measure clinical bedside practice and promote best practice for the administration of blood. • Audited related to positive patient ID, documentation and monitoring of the transfused patient.
2.	Your identity or your life	Jan M.Davies, MD Glenn McRae, MBA	Retrospective	Archetypal system hazards	Two patients who where obliged to accept incorrect data and potentially another's identity,we are all at risk of being incorrectly identified. A patient's identity is the starting point for his/her health care, providers to correctly identity our patients for their safety and wellbeing.	This study leads to the wider world of health care where identity and the identification process are vital factors in such simple everyday activities as taking a patient`s history.
3.	Reducing medication administration errors in nursing practice	Sara Wyn Jones	Literature Review Examines	Patients, nurses	In the US of 775 readers of a popular nursing journals (74%(n=574) of whom were hospital nurses), only 57%(n=442) of respondents said that they always confirm a patients identity by checking his or her wristband.	Importance of safe medication administration protocols, including checking wristbands, might therefore be useful.
4.	Enhancing Transfusion Safety : Nurse's	Kyriazi Vasiliki, Doxara,	Systematic Review	Patients, Nurses	• Errors at these stages constituted 40% of wrong blood	• Summarizes the available data

	Role	Athens, Greece			events reported to SHOT in 2003 and it is estimated that 1 in 14,000 transfusion involved ABO-incompatibility. • Blood checking away from the bedside, distraction of nursing staff, patient's wristband missing, defaced or hidden and transfusion performance in clinical urgent situations are some of the factors that facilitate the occurrence of these events.	concerning transfusion adverse events and provides theoretical and technical aspects for improving transfusion practice. • Concerning pre-transfusion blood labelling and barcode identification system has successfully assured the process.
5.	Systems that reduce the potential for patient identification errors	Beyea, Suzanne C	Systematic Review	Patients	Implemented a new identification verification process that includes the patient's name, reason for the procedure, written order, identification bracelet check, identification bracelet match.	The most important part of the identification verification process is that clinicians consistently need to check the patient's identification bracelet and verity that they are caring for and providing services and treatments to the correct patient.
6.	Patient Misidentification in Oncology	Lisa Schulmeister	Systematic Review	Patients	Examined the extent to which the registration process	Patient misidentification errors can be

	Care				contributed to patient misidentification, found that misidentification errors occurred 7-15 times per month, with the root causes being deficiencies in the information systems, inadequate personal training, and lack of a master patient index.	prevented when healthcare providers consistently verify patient identity using two unique patient identifiers.
7.	Identification Errors Involving Clinical Laboratories	Paul N. Valestein, MD Stephen S.Raab, MD Molly K. Walsh, PhD	Systematically report	Patients	85% of errors were detected before results were released, one quarter of laboratories identified more than 95% of errors before result verification.	• To compare the frequency of preverification identification errors(detected before test results were released) with postverification errors(detected after results were released). • Determine whether the conceptual framework evidenced in other industries was applicable to specimen identification errors in laboratory medicine.
8.	Nurses' Behaviors and Visual Scanning Pattern May Reduce Patient Identification Errors	Jenna L. Marquard, Philip L. Henneman	Experimental Study	Nurses	39% of the study nurses who administered a medication misidentified the patient and administered the medication to wrong patient.	To determine whether differences in nurse's behaviors and visual scanning patterns during the medication administration

						process influence their capacities to identity patient ID errors.
9.	Continuous Wristband Monitoring Over 2 Years Decreases Identification Errors	Peter J. Howanitz, MD Stephen W. Renner, MD Molly K. Walsh, PhD	Observasional	Patients	A total of 22930 and 22267 wristband errors were found in 1999 dan 2000, respectively, resulting in corresponding wristband errors rates of 2,79% dan 2,38%.	The percentage of wristband errors by quarter, types of wristband errors, and suggestions for improvement.
10.	An Identity Crisis ? Aspects of patient misidentification	Prince Philip Hospital, Llanelli and West Wales General Hospital, Glang wili, Carmarthensire, Wales	Systematic Review	Patients	Wristbands are recognized to be unreliable. In one sudy of 712 hospitals, wristbands were checked on 2463727 occasions, median total error rate of 2.2%, no wristband at all 49,5% errors, more than one wristband with different information 8,3%, in complete information 7,5%, erroneous data 8,6%.	The following lists of do and don't is a guide to safer patient identification practice.
11.	Development and Evaluation of a Logical Delta Check for Identity Erroneous Blood Count Results	Ira Miler, MD, PhD	Retrospectively assessed	Patients	The MCV delta check test recognized only 3 of 6 contessed mislabeled specimens in the initial review period, whereas all were identified using CCD.	The LDC is a useful tool for identity preanalytic and analytic specimen problems, including wrong name mislabeling on the sample tube.
12.	Safe Transfusion	Gray A et all	Systematic	Patients,	To confirm positive	The guidance is

	of Blood and Blood Components		Review	nurses	patient identification.	based or having a hospital-wide strategy for informing patients about blood transfusion, educating staff about the need to provide information.

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THE CHALLENGES AND EXPERIENCES OF COMMUNITY ENGAGEMENT FOR DENGUE, ZIKA AND CHIKUNGUNYA PREVENTION WITH WOLBACHIA AEDES AGYPTY IN MALAYSIA

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ABSTRACT

Introduction: Community engagement is the process of working collaboratively with community groups to address issues that impact the well-being of those groups.

Objective: To get consent from the community for the project wolbachia

Methods: Community engagement at two selected sites namely AU2 Taman Keramat and Section 7 Shah Alam. Started from October 2016 till April 2017. Respondent is from the residents of the project sites. Consent of the residents collected by using consent form and analysing descriptively.

Results: Successfully done by stages from the top to the bottom. As a result, 501(98.43%) in AU2 Taman Keramat accepted the project whereas 648(99.39%) accepted in Section 7, Shah Alam. Wolbachia *aedes aegypty* was successfully released on 28th Mac 2017 in AU2 Keramat and on 13th Mei 2017 in Section 7, Shah Alam

Discussion and conclusion: Community engagement is a very important to ensure community clearly understand. Many methods used and community consent is vital to ensure the project can be implemented. The challenges is how to make state goverment confident that the project is benefited the people as well as to get their commitment to support the project. Eventually is how to deliver the message to all residents comprehensively.

KEYWORDS: Malaysia, Community engagement, Wolbachia.

INTRODUCTION

Community engagement is the process of working collaboratively with community groups to address issues that impact the well-being of those groups. Activities that help engage the community includes credible and transparent reporting as well as meetings and collaborative decision-making. Its also very important part to make community clear and accept the project been introduced.

Whereas, *Wolbachia* are bacteria that only live inside insect cells and occurs naturally in up to 60 percent of all insect species. Wolbachia will reduce the ability of insects to become infected with viruses, including the dengue virus. If mosquitoes cannot become infected with dengue, they cannot transmit the virus between people. Wolbachia can only be transmitted from parent to offspring inside the female's egg and is safe to human, animal and environment. Many countries have implemented this method and Malaysia also will do this project under funding of Wellcome Trust.

Wolbachia project in Malaysia is a collaborative effort between Institute for Medical Research of Malaysia, University of Glasgow, Scotland and University of Melbourne, Australia. For the pilot project, 2 sites were selected which are AU2 Keramat and Section 7, Shah Alam, both in the State of Selangor. These sites were selected due to several criteria which are suitable for population replacement, dengue hotspot areas, presence high population of both *Ae.aegypti* and *Ae. Albopictus* and also logistically convenient from the mosquito breeding facility in Institute for Medical Research of Malaysia.

Overview of Dengue in Malaysia

Dengue fever is the main communicable disease in Malaysia. Statistic shows that there is 108698 cases with 215 death in 2014, 120836 with 336 death in 2015 and 101357 cases with 237 death in 2016. For the 2017, until 3 of June 2017 there is 42832 cases with 97 death. Standard control activities implemented are such forging, search and destroy *Aedes* breeding places for source reduction and health education.

Objectives of the Public Engagement

The main objective is to explain community about *Wolbachia* project and to get their consent to implement the project.

Steps of public engagements

The steps are:

i. Briefing and get consent and support from the state government
ii. Briefing and get consent and support from Local Government Authority
iii. Briefing and get support from State Health and Districts Health Office.
iv. Briefing and get consent and support from local political leaders
v. Briefing, meeting and get consent and support from local community leaders
vi. Briefing, dialog session, Q & A and get consent from residents/community.
vii. Publicity

i. Briefing and get consent and support from state government

Two sites for the pilot project situated in State of Selangor which is governed by the different political party than Federal Government. Whereas this project is doing by Institut For Medical Research of Malaysia which is under the federal government. Then, to avoid any conflicts, CE team did approach to get their consent initially. After briefing and they know and realized the benefit and advantages of the project, they support and give cooperation but IMR was asked to write a formal information letter to the State of Selangor about the project and will be responsible with any circumstances happened.

ii. Briefing and get consent and support from Local Government Authority

After getting the blessing from the state government, Public Engagement becomes easier. The second level is to brief and explain local government authority. Normally, they will obey with the instruction by the state government. In this matter, we also need support from them to face community. This is because the structure of management in a community is under of this local government authority. Then, the community will be easier to get instruction or suggestion from them.

iii. **Briefing and get support from State Health Department and Districts Health Department**.

This is a pilot and research project by Institute for Medical Research, Malaysia (IMR). Even state and district health department under the federal government, they also are not well known about the project. So CE team has to initiate to approach them and manage briefing and Q & A session between IMR and them. For this project, two Health Districts involved which are Petaling Health District Department and Gombak Health District Department. Support from them is very important because they are the official body who are responsible for dengue control and prevention. IMR also need them to assist in doing fogging before Wolbachia release.

iv. Briefing and get consent and support from local political leaders

Getting consent and support from political leaders is very important in this community engagement. This is because a political leader is chosen by the people and they are closed with the people. So, if they support this project, then become easier for the community to accept the project.

v. Briefing, meeting and get consent and support from local community leaders.

Two sites of this project have a quite different background. In Section 7, Shah Alam, most houses is an apartment or flat types whereas, in AU2 Keramat, all houses is a terrace type. In Section 7, mostly are younger generation and also consists a lot of students and foreigner workers. In AU2 Keramat, most of them are retired person. So, the management and social relationship between two places are quite different. These local community leaders include either formal or informal leaders and also Non-Government Organization leaders (NGOs). From this leaders, it is easier for CE team to approach community and Community Engagement activities are easier.

vi. **Briefing, dialog session, Q & A and get consent from residents/community.**

Many activities planned in order to approach and give a briefing to the communities. In this matter, all communities have to get clear explanation and understanding of the project. Community Engagement activities carried out were public talks and forum, dialog session, Q & A session and face to face briefing by visiting their houses. They also have given pamphlets and FAQ flyers. Lastly, we get their consent by fill up and sign the consent form.

vii. Publicity

Publicity in its simplest form is the means of conveying information to the general public through the media. It is the process of creating awareness of new products and services. Because this is a new dengue control and prevention in Malaysia, publicity means to promote to all residents in the project area about the wolbachia, the meaning, benefits and the methods. Publicity also means to make residents alert with the project and also be able to inform and promote their neighbours about the project. The most importants is residents can deny any negative statements for the wolbachia project by others ie from the outside people. Publicity activities include banner, bunting, poster, flyers and moving announcement by the transport.

Conclusion

The success of community engagement depends on practice that focuses on: clarity of objectives, understanding community perception of the engagement process, establishing trusting relationships, and respecting diversity of communities including differences in cultural backgrounds, language, age,literacy and interests. For this wolbachia project, community engagement is very important to ensure that all community involved understand and finally accept the project as one of dengue control and prevention method.

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The cultural elements in the dementia caregiver interventions for improving psychosocial wellbeing

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Abstract

As prevalence of dementia is increasing, family caregiving for dementia person become significant. Caregivers always have psychosocial stress when they care dementia person. Appropriate interventions to help dementia caregivers to improve psychosocial wellbeing are necessary. Cultural adaptive interventions are important and these interventions are to be fit to cultural background of the clients. These interventions can provide better care to the patients and motivate the use of service for the clients. This paper reviews the cultural elements reported in the interventions to the dementia caregivers to help them improve psychosocial wellbeing. The publications in peer-reviewed journals between 2006 and 2016 were reviewed. Cultural element is defined by two dimensions: surface and deep structures. Surface structure is matching intervention materials and messages to observable, "superficial" features of a target population. Examples of surface structure are the use of language, music, food and clothing, familiar to the target group. Deep structure is to use and incorporate the historical, philosophical and cultural forces of the target population to influence them to improve health. Existing studies mainly reported the use of surface structure in the intervention programs to the caregivers. However, such studies did not mention explicitly on the use of deep structure in the intervention. Moreover, the studies assessing the benefits of cultural tailoring to specific ethnic groups were insufficient and further research is necessary.

Keywords: dementia, culture, caregiving, psychosocial, intervention

THE DETERMINATION ON THE NURSES' KNOWLEDGE, ATTITUDE AND BEHAVIOURS ON THE BREAST CANCER AND THE SELF-BREAST EXAMINATION

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Abstract

Objective: This study was done in order to determine the knowledge, attitude, behaviours of nurses on the breast cancer and the self-examination (SE), and to determine its risks.

Methodology: The study which was done as a descriptive one was done on the female nurses (n=83) who work in all of intensive cares of a state hospital in Bursa/Turkey in March-May 2016. The selection on sampling wasn't done in the research, all of intensive cares' nurses were included into the research. A socio-demographic data collection form in order to collect the necessary data for conducting the research, 'The Scale of Health Belief Model" related to the breast cancer and Champion's reviews and the survey form with 35 questions which was prepared with the literature review by the researchers in order to measure the females' knowledge on the breast cancer. Mann Whitney U test and Kruskal Wallis test were used to evaluate the data. The significance level was accepted as $p < 0.05$ for the statistical analyses.

Outcomes: The study group's age mean is 30.73± 7.09 (min.20: maç. 48), 43.3% of them (n=36) are married, and 74.6 % of them (n=62) are the bachelors. 93.9% of the nurses (n=78) make SE regularly. The nurses whose age range is 30-39 (n=27) and who make SE regularly have the higher knowledge level related to SE and the breast cancer ($p < 0.05$). The nurses who make SE have the lower point from the dimension of health belief model's obstacle perception belonging to Champion ($p < 0.05$). The nurses whose breast examination was done by a health personnel have the lower point from the dimension of health belief model's obstacle perception belonging to Champion ($p<0.05$), they have the higher point from the dimension of confidence-self efficiency ($p < 0.05$).

Discussion: This study's results show that the health faith affects on the knowledge of SE-Breast cancer and its practice. From the point of these results in the study, it should be provided to develop the faith related to the subject for the nurses by giving the trainings on the breast cancer and SE in the curriculum of the nursing schools and in the in-service trainings after the graduation. Moreover, It can be recommended that the studies to review the attempts (the training etc.) , faith and attitudes which are done in order to increase the frequency of SE practices for the nurses.

Key Words: Breast Cancer, Health, Nurse

The effect of prenatal stress on hearing system of one-month rat

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Abstract

Background: recent epidemiological evidence indicating that the fetal environment can influence susceptibility to later disease during lifespan (1). Prenatal stress exposure alters the programming of metabolic and endocrine balance of various organs including the auditory system (2,3).
Objectives: The current study aimed to evaluate the prenatal stress effects on hearing system and body weight.
Materials and Methods: 18 pregnant Wistar rats were stressed during gestation by Chronic Mild Stress (CMS, a variable schedule of different stressors). After birth the offspring's body weight and hearing threshold and latencies were evaluated. The hearing thresholds were assessed by recording auditory evoked brainstem responses to 4, 8,12 and 16 kHz tone burst (4,5).
Results: The resultant audiograms showed that there was not any difference between hearing sensitivity of prenatally stressed offspring and control group but ABRs showed a marked prolongation in wave II and IV latencies in prenatally stressed rat ($p < 0.05$). In addition, the offspring with CMS experience, had significantly lower body weight than control animals. ($p < 0.00$).
Conclusion: Our data do not support previous reports that prenatal exposure to mild stress is detrimental to the hearing sensitivity per se (6). However, these data suggest that poor representation of temporal components of sounds could contribute to difficulties with higher-level stimulus processes.

Key word: prenatal stress, hearing system, auditory brainstem response

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The influence of Chinese cultural values on Chinese dementia caregivers' caregiving perception and progress

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Abstract

With the increasing prevalence of dementia, family caregiving for dementia person become important. Culture has influences on caregiving experience among different ethnic groups. The influences include behaviors of seeking help, caring practices, beliefs about normal and abnormal aging process. Hence, it is essential to know how culture influences dementia caregiving. Also, understanding the influences of cultural values on caregivers' perception and process among different racial groups can help healthcare providers to develop cultural sensitive interventions to caregivers to improve their psychosocial wellbeing and quality of life. This paper reviews evidence about the influence of some Chinese cultural values on the perception and progress of the dementia caregiving. The publications on Chinese family caregivers in various countries published in peer-reviewed journals between 2006 and 2016 were reviewed. After the systematic review process, we found that some important Chinese cultural beliefs influenced the Chinese dementia caregivers' caregiving process, including seeking help behavior, concept and acceptance on the illness. These cultural beliefs contain filial piety, familism, wife's duty, respecting elders, fatalism. These cultural values are the Confucianism and Taoism thoughts that are the main traditional Chinese philosophies. In this study, the details on these cultural values and how the values influenced Chinese dementia caregivers in the selected publications will be provided. Overall, existing researches discussing the influences of Chinese cultural values are inadequate and further research is required.

Keywords: dementia, culture, caregiving, Chinese

The Occupational Safety Climate on Batik SME by using *Nordic Occupational Safety Climate Questionnaire (NOSACQ-50)* Method In Pekalongan Regency, Central Java- Indonesia

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Abstract. Small and Medium Enterprise (SME) is one of the most influencing sectors for Indonesia's economy as it plays the vital role in supporting the economic growth and providing the job opportunity for the societies. However, Indonesia in the area of the ASEAN Economic Community (AEC), must be able to sustain and compete in selling its competitive products. Compliance towards the implementation of regulation, control and protection to the manpower is highly required in applying an optimal Occupational Health and Safety (OHS) for respond to challenges and opportunities in the area of the AEC. The occupational safety climate significantly affects the compliance to such regulation of occupational safety itself. In this research, the measurement against the occupational safety climate was done by using Nordic Occupational Safety Climate Questionnaire (NOSACQ-50) method aiming to predict the motivation safety, perception on the safety rate, and self-rated safety behavior. This research used descriptive and period took place in December 2016 engaging 88 research subjects on the Batik SME, Pekalongan. From the research result can be concluded that on the dimension of workers safety priority and risk non – acceptance has a score of 2.97 shows a fairly low level with need of improvement.

Keywords**:** SME, Safety Climate, NOSACQ-50 , Batik Industry

1. Introduction

Small and Medium Enterprises is the business activity that capable of giving more job opportunities and give fast economic service for community, and has the role in equity ad improvement on community revenue, supporting economic growth and has the role in creating national stability. Further, Small and Medium Enterprises is one of main pillars of national economy that must be given chance, support, protection and development as much as possible as a manifestation of partiality towards group of people economy, without ignoring the roles of big enterprises and State-owned enterprises (1).

In Indonesia, the role of SME in facing MEA according to Kuncoro (2009: 326-327) is absorbing vast amount of labors. Also strengthened by Sriyana (2010) that quoted the statement from ILO (International Labour Organization), in which 60% of labors in developing countries are absorbed by activities in SME sector (2). SME has important role in economy because it has 99.99% proportion from grand total of business actors in Indonesia, and contribute for 60% of Gross Domestic Product (3).

Based on Bureau Statistik Center of Indonesia in reseach by Susilowati, et el (2017) there are more than 7 million workers in the SME in Indonesia and more than 90 % of them are in Java, Bali and Nusa Tenggara Island as shown in table 1.

Table 1 : Number of SME worker in Indonesian in 2015

Province	Workers
Sumatra	89,549
Java , Bali and Nusa Tenggara	6,989,305
Kalimantan	272,467
Sulawesi, Maluku and Gorontalo	562,087
Papua and West Papua	22,373
Total	7,935,981

Source : www.bps.go.id

The various occupational risk and environmental hazards threaten the health and well-being of these SME workers. It is important to promote occupational health and safety programs in order to improve quality of life . The education level among SME worker was low as most of them only graduated from junior high school (4).

However, SMEs in ASEAN countries include Indonesian, face a number of difficulties in complying with occupational safety and health (OSH) regulations due to fewer resources and less awareness. The working environment and ergonomic condition in SMEs may not be well-controlled and maintained and have high possibility to affect the workers' health. Impaired health condition would lead to the decreased work ability. Maintaining a healthy working environment and a good ergonomic condition seem important to keep high work ability(5)

Indonesia in Globalization Era and Asean Economic Community (AEC), SMEs must be able to withstand and compete in selling competitive products. There need to be an implementation of workplace safety and health to answer the challenge and chances in MEA era. The contribution is to increase the production and productivity, business sustainability as well as increasing competitiveness for local, regional as well as global scope (6). But, the implementation of workplace safety and health in Indonesia is not prevail such as in SME which is still far from what is expected according to regulation (7). Workplace safety and health in this sector is extremely needed because almost 70 percent of actors do not understand the importance of Workplace safety and health, and it influence the productivity competitiveness. (8). However, so far, little attention has been paid to the problems of OSH in SMEs. Even if current OSH laws cover SME workers, an

implementation is still lacking. In study by Kaewboonchoo, et al (2016), poor work environment and ergonomic conditions were reported by many workers in all countries and were related to lower WAI (Work Ability Index) (5)

With good workplace safety and health level, it will decrease the absent of work due to sick, and labor will be able to work with higher productivity, the profit will be increased, and n the end, the welfare of the empoyees and employer will be increased (9). An observance on regulation, monitoring and protection on employee is needed in implementing optimal workplace safety and health. One of the things that influence the observance on safety regulation is safety climate (10).

2. Safety Climate

Safety climate is perception on policy, procedure, and practices elated to employee's safety, that influence the intention of employee's observance on this policy. Safety cilmate shows the perception of employee towards the safety value n an organization in which these employees work (11). Safety climate is a part of organization climate that shows a safe condition in an organization and can be used to measure safety performance (12). Safety climate is multimensional factor ad can be considered as an important part for safety at workplace (13). From this study, Neal A (2002) concluded that organizational climate cn influence perception on safety climate, and this safety climate influence the safety performance through the effect of knowledge and motivation. There are only three factors that determine the difference of individual in performance, which are knowledge, skill and motivation. If one does not have enough motivation to observe the safety regulation or involved in safety activities, that person will choose not to do those actions. If someone does not have the sufficient knowledge and skill to observe the safety regulation, and involved in safety activities, that person will not be able to act or intend to observe the safety procedures (14).

Related to the importance of MSME's role in facng MEA as well as to improve the implementation of workplace safety and health in MSME sector, a measurement of workplace safety climate is needed using NOSACQ-50 method. It is expected to be able to know the perception of employees and management about workplace safety and health, therefore it will be easier to do intervention and improvement in the future.

3. NOSACQ-50

NOCASQ-50 is diagnostic and intervention tool to evaluate the status and progress of safety climate in an organization. NOSACQ-50 was developed and validated in five Nordic countries (Swedia,Finland, Denmark, Norway dan Iceland). The researchers including Pete Kines, Jorma Lappalainen, Kim Lyngby Mikkelsen, Espen Olsen, Anders Pousette, Jorunn Tharaldsen, Kristinn Tómasson and Marianne Törner. It is also available in Chinese, Czech, Denmark, Dutch, Belgian, English, Estonian, finland, French, German, hungarian, Icelandic, Indonesian, Italian, Lithuanian, Malay, Norwegian, Perssian, Poland, Portuguese, Russian, Slovenian, Spain, Sweden and Turk (15). The Indonesian language version of NOSACQ-50 is established as valid and reliable tool as in line with the result of research conducted by Sukma Nandini (16)

NOCASQ-50 based on organization, safety climate theory, psychological theory and previous empirical research. The questionnaire consists of 50 questions to know the level of work climate in a given place. NOCASQ-50 consists of 7 dimensions in which each part represent the lement from workplace clime, such as (1) Management safety priority and ability, (2) management safety empowerment, (3) management safety justice, (4) workers' safety commitment, (5) workers safety priority and risk non-acceptance, (6) peer safety communication, learning and trust in safety ability, (7) workers trust in efficacy of safety

system. From those dimensions, the first three dimensions are related to the management perception on safety in organization and the other four are dimensions related to employees. The answers for those questions are given in the form of four points answers (Likert 4 – points) which are “strongly disagree”, “disagree”, “agree” and “strongly agree”. The respondents therefore forced to take certain position with each question. (17)

4. Method

4.1 Questionnaire

This descriptive research applied NOSACQ-50 and chose 88 workers SME Batik of Pekalongan Regency, Central Java as the sample. In addition, the researcher used the Indonesian language version of NOSACQ-50. To this date, the Indonesian language version of NOSACQ-50 is established as valid and reliable tool as in line with the result of research conducted by Sukma Nandini (16)

4.2 Procedure

The researcher shared the questionnaire to all entrepreneurs in SME Batik of Pekalongan Regency, Central Java on december, 2016 to obtain the data. Specifically, there were 88 entrepreneurs consisting worker and management who are willing to fill informed consent before filling out a detailed questionnare as the sample. After obtaining the data, the researcher then typed it in Microsoft Excel and analyzed it.

4.3 Data Analysis

Prior to the analysis (performed in Microsoft Office Excel), the data was collected through questions of each dimension provided in NOSACQ-50 questionnaire. The researcher used the raw data of item in order to calculate the average score of each dimension. Clearly, the researcher only used the answered item in the calculation. Subsequently, the average score of each question in each dimension were used to calculate the average score. According to The National Research Centre for the Working Environment, the score result obtained from NOSACQ-50 questionnaire may be interpreted from the respective dimension shown in the table below (18)

Table 2 : Interpreting the results of each dimension

Mean Score	Interpretation
>3.30	good level allowing for maintaining and continuing developments
Between 3.00 – 3.30	fairly good level with slight need of improvement
Between 2.70 -2.99	fairly low level with need of improvement
< 2.70	low level with great need of improvement

5. Result

The researcher obtained the calculation result of workplace safety climate by applying NOSACQ-50 as follow:

Table 3 : Results of each dimension

Dim1 - Management safety priority and ability	Dim2 - Management safety empowerment	Dim3 - Management safety justice	Dim4 - Worker safety commitment	Dim5 - Workers' safety priority and risk non-acceptance	Dim6 - Peer safety communic ation, learning, and trust in safety ability	Dim7 - Workers' trust in the efficacy of safety systems
3.09	**3.24**	**3.37**	**3.15**	**2.97**	**3.36**	**3.20**

Table 4 : Results the mean score and interpretation of each dimension

No	Dimension	Mean Score	Interpretation
1	Management safety priority and ability	3.09	fairly good level with slight need of improvement
2	Management safety empowerment	3.24	fairly good level with slight need of improvement
3	Management safety justice	3.37	good level allowing for maintaining and continuing developments
4	Workers' safety commitment	3.15	fairly good level with slight need of improvement
5	Workers safety priority and risk non-acceptance	2.97	fairly low level with need of improvement
6	Peer safety communication, learning and trust in safety ability	3.36	good level allowing for maintaining and continuing developments
7	Workers trust in efficacy of safety system	3.20	fairly good level with slight need of improvement

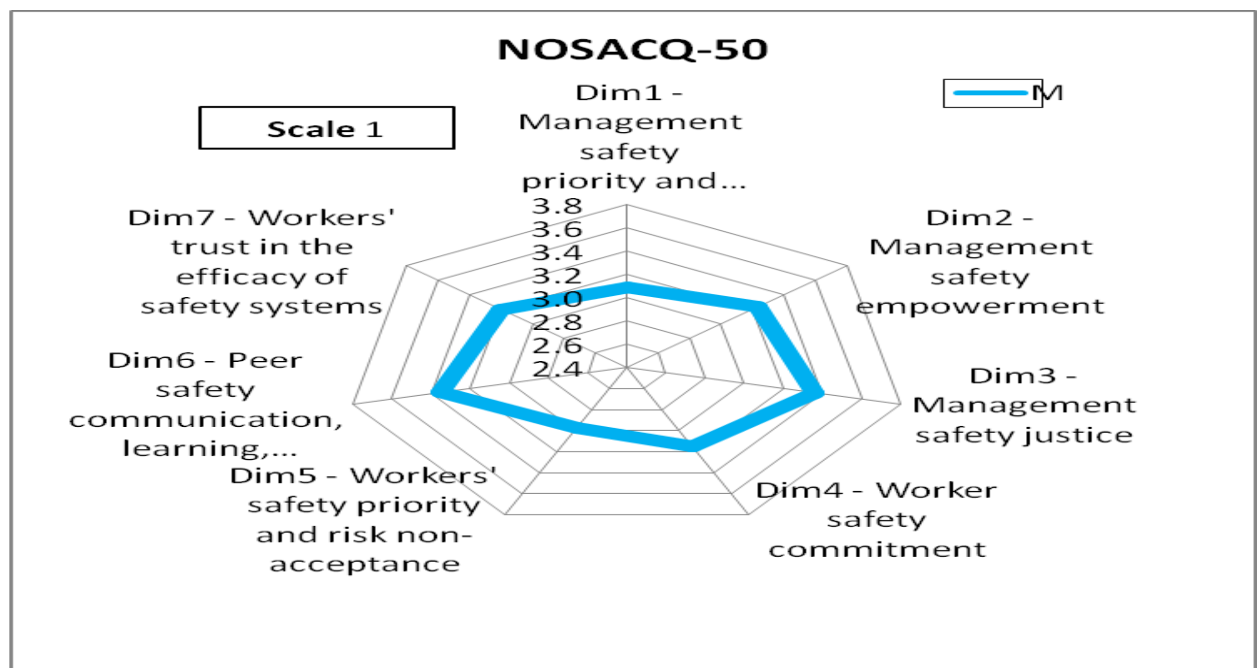

Fig. 1 : NOSACQ-50 Diagram

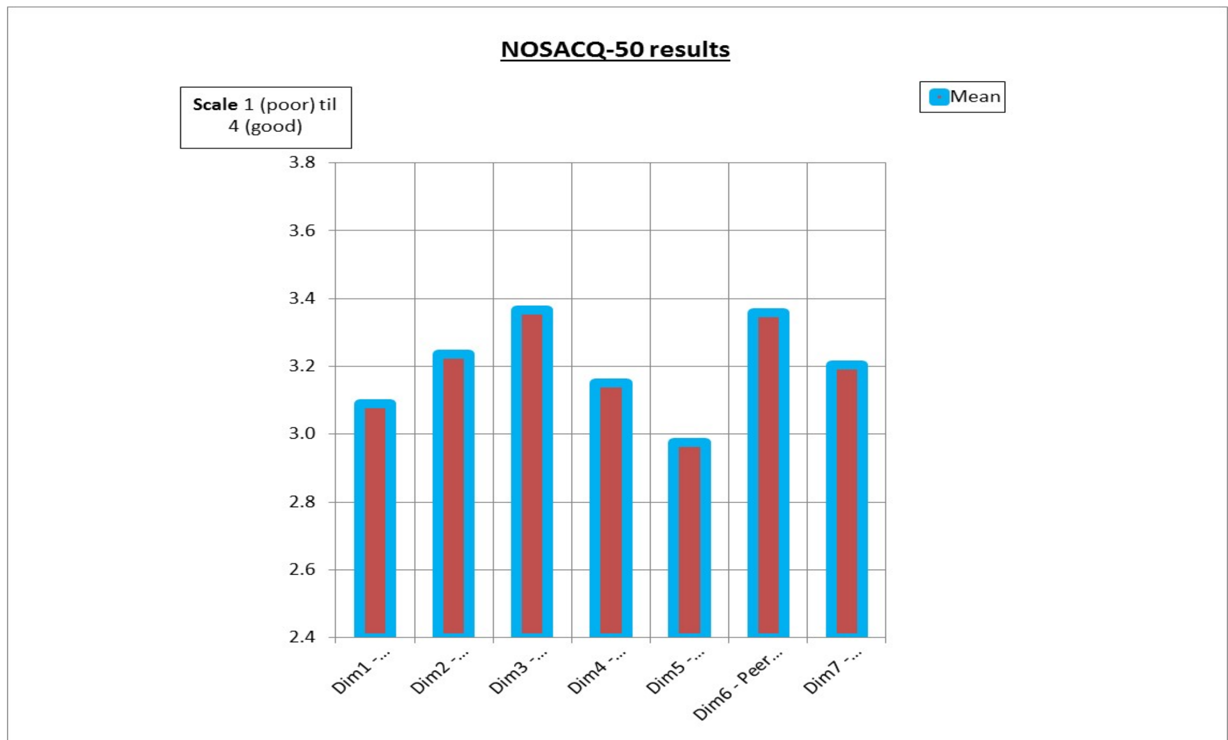

Fig. 2 : NOSACQ-50 Diagram

6. Conclusion

After analyzing the data above, the researcher figures out that the result in the dimension of safety priority and risk non-acceptance shows a low enough grade with a need of improvement. Therefore, it becomes an illustration on how workers consider minor accident as the normal part of their daily jobs. They are willing to experience harmful action as long as it does not result in accident. Also, they break the safety rule so that they can finish their works on time, take any risk despite of their strict work schedule, and consider that their jobs do not fit themselves. The last, they accept any risk in their workplaces. Moreover, the researcher suggests relevant body to conduct socialization and trainings to workers relating to their behaviour and safety. More importantly, the researcher also suggests the government to play its active role as well as exclusive concern in promoting the importance of Workplace Safety and Health (WSH) within SME sector

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THE PERCEPTION OF FEMALE LATE-TEENAGERS TOWARDS THE PLAN OF EXCLUSIVE BREASTFEEDING IN THE AREA OF PEGANDAN HEALTH CENTER SEMARANG

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ABSTRACT

Exclusive Breastfeeding means that infants aged 0-6 months receives only breast milk without other liquids or solids given - including water, honey, citrus, and formula milks. There are 164 respondents (98,8%) who planned to provide exclusive breastfeeding, among them there are respondents who most willing to plan to provide exclusive breastfeeding (55,4%). The focus of this study is to understand the factors affecting the perceptions of the plan to provide exclusive breastfeeding on female late-teenagers.
Subject in this research are female late-teenagers aged between 18-21 years old who live under the coverage area of Pegandan Health Center in Municipality of Semarang, with total of 166 persons. Data collecting method conducted by using questionnaires and by personal interviews.
Data analysis technique conducted by chi square test. Based on the result of chi square analysis, researcher obtained the value of perceived threat (p=0,000), perceived benefit (p=0,000), and perceived barrier(p=0,002). The most affecting variable is perceived benefit with OR value of 6,711. The conclusion of this study are: there are positive correlation between perceived threat, perceived benefit, and perceived barrier; with perceived benefit as most affecting variable towards the perception of exclusive breast feeding plan among female late-teenagers who live under the coverage area of Pegandan Health Center in Municipality of Semarang

Keywords : Exclusive Breastfeeding, Female Late-Teenagers, Perception.

PREFACE

Exclusive Breastfeeding means that infants aged 0-6 months receives only breast milk without other liquids or solids given - including water, honey, citrus, and formula milks. UNICEF estimates that exclusive breastfeeding until the age of 6 months could prevent 1,3 million infant mortalities aged under 5 years old.

Besides beneficial for the infants, exclusive breastfeeding also beneficial for the mothers because it could decrease the risk of postpartum hemorrhage, excessive blood loss during mensturation, increases ideal weight gain, and decreases the risk of breast and cervix cancer.

The 2013's Basic Health Research Data shows that 15,3% of infants provided with exclusive breastfeeding nationwide. While in Central Java, the number of exclusively breastfeeded infants aged 0-6 months were 60,7% in 2014.

Exclusive breastfeeding for infants aged 0-6 months in Municipality of Semarang has achieved the goal of the city's Strategic Plan (55%). Compared to the past achievements, there is an increase in numbers from 61,20% in 2013 to 64,68% in 2014.

The Pegandan Health Center's area is the lowest achieving in the exclusive breastfeeding program (26,83%), covers 8 *kelurahan* (administrative villages) of Gajahmungkur District. The population covered under the Health Center were 63.706 in 2016, with the population of female late-teenagers aged 18-21 years old were 1.560 (2,44%).

Marriage rate is high in Gajahmungkur District. Data from January to September 2016 shows the number of women marriage were 362, and among 61 of them included in 16-21 years old age category (16,8%). There's also an underage marriage reported in the age of 15 years old.

Informations regarding exclusive breastfeeding should be provided to female late-teenagers aged 18-21 years old, so that they would be more prepared with their pregnancy.

Perception is an ability that involves interpretation through the process of thinking about what is seen, heard, experienced, or read, that often affects the person's behavior, conversation, and feelings. In correlation with exclusive breastfeeding, the teenager's perspective is how the level of understanding of the information (cognitive ability) about exclusive breastfeeding affects the reaction or response (affective ability) towards exclusive breastfeeding in the future. When teenagers already have a strong perception towards exclusive breastfeeding, their behavior becomes more consistent (psychomotoric ability).

In the preliminary studies conducted by researchers, the researchers observed that there's a program already conducted by Pegandan Health Center about exclusive breastfeeding. However, there has been no program for young women regarding the importance of exclusive breastfeeding as one of the preventive measures to increase the coverage of exclusive breastfeeding in the area.

METHODS

This quantitative study is conducted in Explanatory Research design and Cross-Sectional model. Data collection conducted by interviews with questionnaire. Sampling method using Proportional Random Sampling on 166 female late-teenagers under the coverage of Pegandan Health Center. This study also conducts Health Belief Model theory and involves 11 variables including respondent's age, education level, employment status, knowledge, perceived threat, perceived susceptibility, support from family, support from surroundings, perceived benefits, perceived barrier, and self-confidence. Data analysis conducted using univariate, bivariate, and multivariate statistical test with chi-square ($\alpha = 1\%$), and logistic regression test ($\alpha = 1\%$).

RESULTS

Table 1. Respondent's Characteristics Distribution

Character-istics	Category	N	%
Age	Younger (18-19 years old)	63	38,4
	Older (20-21 years old)	101	61,6
Education Level	Elementary-Junior High	18	11
	Junior High-Senior High	146	89
Employment Status	Unemployed	7	4,3
	Employed	157	95,7

Among the respondents, 98,8% of them are willing to provide exclusive breastfeeding. While the other 1,2% of them are not willing to provide exclusive breastfeeding. The reasons may varies from internal and external factors, so that this study only

conducts further research with the respondents who willed to provide exclusive breastfeeding as much as 164 persons, grouped into most-willing to provide exclusive breastfeeding (56,7%) and least-willing to provide exclusive breastfeeding (43,3%). Most of the respondents are categorized in 20-21 years old age group (61,6%), at least attended senior high school (89%), and employed (95,7%).

Table 2. Results of bivariate test with chi-square

Variable	Category	n	%	Plan to Provide Exclusive Breastfeeding				P Value
				Least-Willing		Most-Willing		
				N	%	N	%	
Age	Younger (18-19 years old)	63	38,4	26	41,3	37	58,7	0,680
	Older (20-21 years old)	101	61,6	45	44,6	56	55,4	
Education Level	Elementary-Junior High	18	11	7	38,9	11	61,1	0,689
	Junior High-Senior High	146	89	64	43,8	82	56,2	
Employment Status	Unemployed	7	4,3	4	57,1	3	42,9	0,450
	Employed	157	95,7	67	42,7	90	57,3	
Knowledge	Elementary-Junior High	67	40,9	37	55,2	30	44,8	0,010
	Junior High-Senior High	97	59,1	34	35,1	63	64,9	
Preceived Threat	Poor	52	31,7	33	63,5	19	36,5	0,000
	Good	112	68,3	38	33,9	74	66,1	
Perceived Susceptibility	Poor	74	45,1	32	43,2	42	56,8	0,991
	Good	90	54,9	39	43,3	51	56,7	
Perceived Benefit	Poor	81	49,4	49	60,5	32	39,5	0,000
	Good	83	50,6	22	26,5	61	73,5	
Perceived Barrier	Poor	69	42,1	20	29	49	71	0,002
	Good	95	57,9	51	53,7	44	46,3	
Support from Family	Poor	54	32,9	29	53,7	25	46,3	0,059
	Good	110	67,1	42	38,2	68	61,8	
Support from Surroundings	Poor	52	31,7	18	34,6	34	65,4	0,126
	Good	112	68,3	53	47,3	59	52,7	
Self Confidence	Poor	5	3	4	80	1	20	0,092
	Good	159	97	67	42,1	92	57,9	

The result of exclusive breastfeeding plan distribution frequency (table 2) shows that most of the respondents already have a good knowledge of exclusive breastfeeding (59,1%), respondent with perceived threat and ability to cope with (68,3%). Respondent with perceived susceptibility and ability to cope with (54,9%). Respondent wth perceived benefits of providing exclusive breastfeeding (50,6%), respondent with perceived barrier in providing exclusive breastfeeding and ability to cope with (57,9%), have good support from family (67,1%), have good support from surroundings (68,3%), and good self confidence (97%).

The result of chi-square test (table 2) shows that there are 3 variables that correlates with the plan of providing exclusive breastfeeding ($p<0,01$), which is preceived threat ($p=0,000$), perceived benefit ($p=0,000$), and perceived barrier ($p=0,002$).

Table 3. Results of multivariate test with multiple logistic regression

Variables	B	S.E	Wald	Df	Sig.	Exp (B)	99% C.I. for EXP (B)	
							Lower	Upper
Age	-,209	,412	,258	1	,611	,811	,281	2,344
Education Level	-,270	.158	2,933	1	,087	,763	,311	3,565
Employment Status	-,675	,932	,525	1	,469	,509	,046	5,618
Knowledge	,699	,485	2,077	1	,150	2,013	,577	7,025
Perceived Threat	1,724	,564	9,330	1	,002	5,605	1,310	23,977
Perceived Susceptibility	-,887	,506	3,073	1	,080	,412	,112	1,516
Perceived Benefit	1,904	,485	15,436	1	,000	6,711	1,926	23,383
Perceived Barrier	-1,059	,459	5,326	1	,021	,347	,106	1,131
Support from Family	1,577	,524	9,059	1	,003	4,842	1,255	18,679
Support from Surroundings	-1,647	,621	7,024	1	,008	,193	,039	,955
Self Confidence	1,758	1,288	1,862	1	,172	5,799	,210	160,042

The result of multivariate test (table 3) using multiple logistic regression shows that perceived benefit is the most influential towards the plan to provide exclusive breastfeeding. Those who understands the benefits, both for infants or the mothers themselves, of providing exclusive breastfeeding have 6,711 of greater chance of planning to provide exclusive breastfeeding.

DISCUSSION

a. Perception of exclusive breastfeeding plan

The perception of exclusive breastfeeding plan referred in this study are a process of a person's observation about exclusive breastfeeding, both from herself or her surroundings, so that she could decide wether she would plan to provide exclusive breastfeeding in the right way or not.

The Indonesian Ministry of Health issued a regulation on implementation of WHO's code of ethic. The regulation includes about exclusive breastfeeding (*Peraturan Menteri Kesehatan Nomor 450/ Menkes/ SK/ IV/ 2004*. Respondents who have planned to provide exclusive breastfeeding are (56,7%).

b. Subject's characteristics

The result showed that most of the respondents categorized as older-aged (61,6%). According to *Undang-undang Republik Indonesia No. 4 Tahun 1979* (Republic of Indonesia's Act No. 4 year 1979), the term "child" refers to a person aged below 21 years old and never been on a marriage. The result also shown the p-value of 0,680>0,01; which means that there's no correlation between subject's age towards exclusive breastfeeding plan. This result does not match with an earlier study by Dwi Kurniawati (2014) that shows a correlation between age factors towards maternity towards the practice of exclusive breastfeding, because every age group will have their own perspectives and manners in providing exclusive breastfeeding to infants.

Most of the respondents have attended senior high school and college (89%). Education level is one of the determining factors of a person's mindset. The result shows the p value of 0,689>0,01; which means that there is no correlation between education level towards exclusive breastfeeding plan. This result does match with earlier study by Zai (2003) that shows no correlation between education level with the right practice of breastfeeding and its implementation.

Most of the respondent willing to provide exclusive breastfeeding are employed (95,7%) with the majority categorized as students. The definition of "employed" refers to effort of finishing or working on something. This result does not match with earlier study by Nuryanti (2002) that shows correlation between employment status towards exclusive breastfeeding, and shows that an employed mother have risk of 1,16 times greater to stop providing exclusive breastfeeding, compared to unemployed mothers.

c. Knowledge

The result shows p-value 0,010>0,01; which means that there is no correlation between respondent's knowledge towards exclusive breastfeeding plan. This result contradict with the Kavanagh et. al (2012) theory which states that

positive attitudes and knowledge about breastfeeding associated with the increase of willingness to breastfeed. This study only shows an acknowledgement and does not ensure behavior towards exclusive breastfeeding, even though the other variables shown are supporting, but the support from health workers in form of counseling are needed, so that the benefits of exclusive breastfeeding could be perceived in the future and could suppress infant morbidity.

d. Perceived threat

The result shows p-value 0,000<0,01; which means there is a correlation between perceived threat towards exclusive breastfeeding plan. This result does not match with earlier study by Yuli Amran (2012) which shows that mothers would still provide exclusive breastfeeding even after knowing the discomfort or soreness they may face, because the mothers have already know how to care for their breasts and the right way to breastfeed from the infromation provided by health workers.

e. Perceived Susceptibility

The result shows p-value 0.991>0.01; which means that there is no correlation between perceived susceptibility towards exclusive breastfeeding plan. This result does not match with earlier study on 220 mothers in Porto Alegre, Brazil; which identifies the predisposing factors that affects the fear of the change in physical appearance and beauty (such as breast shape, etc.). Although the perceived susceptibility is the one of inhibiting factors of exclusive breastfeeding, it is considered as not a main factor. Lack of knowledge in the benefits of exclusive breastfeeding and perceived threat are the main inhibiting factors of exclusive breastfeeding plan.

f. Perceived benefits

The result shows p-value 0,000<0,01; which means that there is a correlation between perceived benefits towards exclusive breastfeeding plan. This result does not match with earlier study by Sri Rejeki (2008), on employed mothers; no matter they know about the benefits of exclusive breastfeeding, they faced two dillematic options, whether they should provide exclusive breastfeeding or working to improve family's economy. Therefore, the perceived benefits are ignored.

g. Perceived barrier

The result shows p-value 0,002<0,01; which means that there is a correlation between perceived barrier towards exclusive breastfeeding plan. This result does not match with earlier study by Soedia Oetomo (1996) in Zai (2003); that no matter how much the barrier faced by the mothers, they still would provide exclusive breastfeeding because they still able to entrust their infants in the nearest childcare or if the workplace located close to their homes, they can come home for awhile if needed. The respondent's perception as female late-teenagers may change along with information received or experience obtained.

h. Support from family

The result shows p-value 0,059>0,01; which means that there is no correlation between support from family towards exclusive breastfeeding plan. This result is contradict with the earlier study by Catur Prehatmi (2009), which shows a significant correlation between support from family towards exclusive breastfeeding. Some of the respondent who received supports from their families, have family customs of providing breastfeeding to their infants; aged 0-6 months old, but in the same time they also include the infant's meal with formula milk, and water to make the baby healthier. The respondents are easily affected by television and mass media advertiesements.

i. Support from surroundings

The result shows p-value 0,126>0,01; which means that there is no correaltion between support from surroundings towards exclusive breastfeeding plan. This result does not match with earlier study by Putri Pertiwi of the University of Indonesia; that shows correlation between the surroundings and support from local health worker towards mothers' confidence in exclusive breastfeeding plan, besides the health worker could be a reliable source of information needed. Pegandan Health Center's coverage area is located in a suburban area of Semarang Municipality, so the subject's characteristics are suburbans with a slightly individualistic tendency, a society capable of taking care of themselves with low or no other people's involvement. An individualistic society mind their own time very much and resulted in not much social interaction happens in this area.

j. Self confidence

The results shows p-value 0,092>0,01; which means that there is no correlation between self confidence towards exclusive breastfeeding plan. This result does not match with Worthington (2000) theory and WHO (2004) that states the lack of breastmilk is a mother's persception towards quality and quantity of their breastmilk that may not fulfill their infant's needs, are caused by some factors such as self-confidence, husband's support,

maternal health, parents-in-law's support, birth weight, infant's behavior, solid foods, and formula milk.

k. The most affecting variable towards exclusive breastfeeding plan on female late-teenagers

Perceived benefit are the most significantly affecting variable towards exclusive breastfeeding plan, with the value of p<0,01 and OR value 6,711. It means that perceived benefit which female late-teenagers would face when they provide exclusive breastfeeding is 6,711 times more likely to affect their plan to provide exclusive breastfeeding.

This result match with Hannon's (2002) study in the United States that there are 3 main factors that are likely to affect the practice of exclusive breastfeeding, which is: 1) mother's perceived benefit; 2) mother's perceived barrier; and 3) public exposure.

CONCLUSION

1. Most of the respondents are most-willing to plan to provide exclusive breastfeeding (56,7%).
2. Most of the respondents are grouped in following categories: older age group of 20-21 years olds (61,6%), at least attended high school and college (89%), and are employed (95,7%)
3. Correlating variables are: perceived threat (p=0,000), perceived benefit (p=0,000), and perceived barrier (p=0,002).
4. Non-correlating variables are: subject's age (p=0,680), education level (p=0,689), emloyment status (p=0,450), knowledge (p=0,010), perceived susceptibility (p=0,991), support from surroundings (p=0,126), and self confidence (p=0,092).
5. The most affecting factor toward the plan to provide exclusive breastfeeding is perceived benefit, with highest OR value of 6,711.

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THE POTENTIAL FOR RECYCLING HOUSEHOLD WASTES GENERATED FROM THE RESIDENTIAL AREAS OF OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE.

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Abstract:

The study estimated the daily per capita quantity of solid waste generated in the residential areas of the Obafemi Awolowo University (OAU) Ile-Ife campus and determined the composition of waste generated in the study community. This was with a view to determining the recycling potentials of solid waste generated in the community.

Characterization of wastes from the households selected for the study was done over a 7-day period. Solid wastes from these households were collected daily in a refuse disposal bag, separated into different waste fractions with the aid of a tong and the weight of each component measured with a calibrated spring balance.

The results indicated that 85.4% of the characterized waste was recyclable and the estimated average waste generated per capita was 1.82 kg/day. The various solid waste fractions were organic (64.6%), plastics (15.6%), metals (9.2%), glass materials (1.6%) and unclassified (8.9%).

The study concluded that a large proportion of the waste generated from the residential areas of the OAU campus was recyclable and that there is a need to enact policy on waste recycling within the university campus.

KEYWORDS: Recycling, Household wastes, Solid Waste Management, Environmental Pollution, Waste Sorting, Characterization

1.0.Introduction

Waste according to Basel Convention of 1997 is defined as "substance or objects which are disposed off or are intended to be disposed off or are required to be disposed off by the provision of the national law" (UNEP, 1997). Solid waste management refers to the collection, transfer, treatment, recycling, resources recovery and disposal of solid waste with the ultimate goal of promoting the quality of the environment (UNDP, 1996). The type of decision making that leads to adequate solid waste management requires a sound understanding of the composition and the processes that determine the generation of waste (Acurio et al, 1997). Waste characterization thus refers to the quantification of various waste components. The output is the weight and the composition of the various waste fractions (Dahlen, 2005). It is necessary to know the intrinsic qualitative and quantitative characteristics of solid waste as its increase demands alternatives of handling and treatment (Papachristou et al., 2009).

Solid waste management is one of the greatest challenges facing state and local governments in Nigeria (Ogwueleka, 2009). Cities in Nigeria, being among the fast growing cities in the world (Onibokun and Kumuyi, 1996) are faced with the problem of solid waste generation. Improper solid waste management contributes to environmental pollution and degradation and poses a serious threat to public health through contamination of ground water, spread of infectious diseases, and release of toxic smoke from continuously smouldering fires, and even foul odours from decomposing refuse. (Kimani, 2007) Even for private communities like the Obafemi Awolowo University community, solid waste management poses significant

challenge because as the population increases, the volume of solid waste generated increases at a faster rate than the ability of the authorities to mobilize adequate financial and technical resources to contain the blight. As at today, there are several open dump sites in several parts of the residential quarters with potential health consequences.

2.0. Literature/Theoretical underpinning

Most developing countries, Nigeria, inclusive have solid waste management problems different from those found in industrialized countries in areas of composition, density, political, and economic framework, waste amount, access to waste for collection, awareness and attitude. The wastes are heavier, wetter and more corrosive in developing cities than developed cities (Ogwueleka, 2009).

In an attempt to improve sanitation in the country, the Federal Government of Nigeria has promulgated various laws and regulations to safeguard the environment, including solid waste management laws which are administered and enforced by the Federal Ministry of Environment. The Federal Government has instituted National Integrated Municipal Solid Waste Management Intervention Programme in seven cities of Nigeria. The seven cities are Maiduguri, Kano, Kaduna, Onitsha, Uyo, Ota, and Lagos. Lagos state government established municipal solid waste management policy to encompass private sector participation in waste collection and transfer to designated landfill sites (Ogwueleka, 2009). The goals of solid waste management are to promote the quality of the environment, generate employment and income, and protect environmental health and support the efficiency and productivity of the economy (UNDP, 1996).

The characterization of solid waste is the first step in the planning of integrated waste management. Knowing the composition of the waste allows for defining the strategies for separation, collection and frequency of collection for recycling (Armijo et al, 2008). This study aimed to estimate the quantity of waste generated per capita per day, determine the composition and identify the potentials for recycling of waste generated. This study will provide information on the characteristics and recycling potential of solid waste generated within the residential quarters of the Obafemi Awolowo University. The findings of this study will be useful to the residents and the university authorities in developing efficient waste management system. In addition, the information will be valuable in creating opportunities for additional employment and income generation for the residents within the university's host communities.

3.0. Methodology

The study on solid waste in OAU Campus consisted of two main stages: (1) Solid waste sampling and characterization of samples, and (2) data capture and analysis of the amounts and types of wastes generated at the Campus.

3.1. Sampling and characterization of the sample

The samples were taken from two different points of generation:

(1) Student hostels and (2) the University staff quarters. These two points are representative because they cover all the activities carried out in the residential areas of OAU campus. The characterization of the solid waste was carried out using the modified methodology for the

characterization of household waste proposed by Buenrostro-Delgado (2001) as presented in Table 1.

Table 1:- Waste Components Considered in the Study

Cotton	Non-ferrous material
Aluminium	Paper
Batteries	Disposable diaper
Cardboard	PET plastic
Leather	Rigid film plastics
Waxed cardboard packaging	Cellophane
Hard vegetable fibre (sclerenchyma)	Fine residue
Synthetic fibres	Feaces/ Animal waste
Rubber	Food residuals
Tin can	Electronic waste
Crockery and ceramics	Scrap metals
wood	Cloth rags/ Textiles
Construction material	Colored glass
Ferrous material	Transparent glass

Source: Adaptation from Buenrostro-Delgado (2001).

Each sampling unit was assigned a number and given refuse disposal bags to be tucked into the dust bins. The purpose of the survey was explained during the distribution of the refuse disposal bags, with the number of persons in the sampling unit noted. The waste generated was collected from the selected sampling units every day at a fixed time for seven consecutive days to allow for variation in waste generation over the week.
The refuse disposal bags were collected, weighed and recorded against their allocated household numbers. Then, one after the other the contents of the bag was spread over a plastic sheet for manual sorting into the different waste categories, and each component was weighed and recorded on data sheet (waste sampling sheet 001). A second characterization was done into recyclable and non-recyclable wastes using the waste sampling sheet 002.
For solid waste sorting and characterization, the solid waste was weighed using a spring balance, following which the wastes was separated by tong into waste categories and placed into plastic sacks; and each sack was weighed and recorded in an adapted waste sampling form into the different compositions and also into recyclable and non-recyclable components using a modified recycling classification method adapted from work by Armijo de Vega et al. (2008).

3.2. Data recording and analysis

The weight of each category of waste was calculated and recorded in a database using the following equation:

$$PS = (PL \div PT) \times 100$$

Where PS is the sub-category percentage, PL is the amount of sub-category in kg, and PT is the total weight of sample in kg.
The database was structured with the categories and sub-categories shown in Table 2.
After obtaining the weight and, in order to find out the recycling potential of the waste, each sub-category was classified according to the categories presented in Table 3.

4.0. Results/Findings

Per Capita Generation and Specific Weight

The daily per capita waste generated for the wastes sampled in OAU residential was 1.82kg/cap/day.

Waste Components Quantification

The weights and fractions of every solid waste category are presented in Table 2, of which the major components were found to be organic matter (64.6%), plastics (15.6%) and metals (9.2%).

Organic matter fraction was found to contain 52% food wastes, 4.4% office paper, 4.0% packing materials and 3.1% other substances like tissue paper. The plastic component contains 10.3% cellophane and 4.6% of various other plastics such as viju bottle, plastic gallon, phone charger.

The glass fraction which is 1.6% of total amount of waste generated contains 0.4% glass bottles and 1.2% of other glasses like cream containers. The metal materials found were tins (cans) 7.9%% and padlock (1.4%). Some wastes were classified under miscellaneous and they form 8.9% of the total waste. Slippers (8.9%), Disposable diapers (2.2%) and batteries (0.8%) together forms the miscellaneous fraction.

Approximately 85.4% were found to be potentially recyclable as presented in Table 3. The recyclable proportion of the total amount of waste characterised is made up of 61.0% Organic (excluding soiled paper, wax or plastic coated paper), 15.3% plastics (excluding foil laminated plastics), 7.9% tins/cans, 0.8% batteries, 0.5 % transparent and coloured glass.

Table 2: Composition of waste in the Residential areas of OAU Ile-Ife campus.

Classification	Total
ORGANIC	
Office paper	102.9 (4.4)
Packing materials	94.8 (4.0)
Others(Tissue paper, recharge cards etc)	72.0 (3.1)
Food wastes	1217.6 (52.0)
Leaves	16.6 (0.7)
Textiles	6.3 (0.3)
Others(weave on)	2.7 (0.1)
Sub-Total	**1512.9 (64.6)**
PLASTICS	
Cellophane paper	240 (10.3)
Plastic bags	12.9 (0.6)
Plastic container	5.6 (0.2)
Various plastics (viju bottle, plastic gallon, phone charger)	106.8 (4.6)
Sub-Total	**365.2 (15.6)**

GLASS Bottles Others (cream containers)	 9.3 (0.4) 29.2 (1.2)
Sub-Total	**38.5 (1.6)**
METALS Tins/Cans Padlock	 184.2 (7.9) 32.2 (1.4)
Sub-Total	**216.4 (9.2)**
MISCELLANEOUS Disposable diapers Batteries Slippers	 51.3 (2.2) 18.9 (0.8) 137.0 (5.9)
Sub-Total	**207.2 (8.9)**
Grand Total	**2340.3 (100)**

Source: Author's research, 2014

The various solid waste fractions are organic (64.6%), plastics (15.6%), metals (9.2%), glass materials (1.6%) and miscellaneous (8.9%)

Table 3:- Weight and Percent of recyclable materials in the residential areas of OAU

CLASSIFICATION	Wt in Kg (%)
Organic (excluding soiled paper, wax or plastic coated paper and weave on)	1427.5 (61.0)
Plastics (excluding foil laminated plastics)	357.7 (15.3)
Tins/cans	184.0 (7.9)
Batteries	18.7 (0.8)
Transparent and coloured glass	11.6 (0.5)
Total recyclable waste	**1999.5 (85.4)**

Source: Author's research, 2014

A very high proportion (85.4%) of total waste characterized in the residential areas is recyclable. The average recyclable waste composition is 61.0% organic, 15.3% plastics, 7.9% Tins/cans, 0.8% Batteries and 0.5% glass.

5.0. Discussion

5.1 Per Capita Waste Generation Rate

The daily per capita solid waste generation estimated in this study was 1.82kg. This 1.82kg/cap/day falls within the established range of 0.09-3.0 kg/cap/day for Sub-Saharan Africa (Hoornweg et al 2005). The 1.82kg/capita/day obtained for the residential areas of OAU campus in this study was markedly higher than the established generation rate of 0.46kg/capita/day for Ile-Ife town (Adewumi et al., 2005). This largely may be due to the fact that residents in OAU has a higher economic power than the average city people and as a result consumes more resources thereby producing a plenty of wastes. As it is a well known

fact that the amount and type of waste generated is largely dependent on level of sophistication, the residents of OAU student's hostel and staff quarters may be exhibiting lifestyles more western than the traditional societies in Nigeria. Hoornweg report of 1999 ascertained the fact that urban residents generate two to three times more solid waste than their fellow rural citizens. Thus, majority of the studies carried out in different cities and states of Nigeria found in the literature have lesser per capita waste generation rate than the one found in this study.

5.2 Waste Composition

Three main categories of wastes in this study are perishable organic, plastics and paper wastes and they account for about 80.2% of the total waste sampled. The percentage of the perishable organics of the waste has 53.1%, while plastic and paper were 15.6% and 11.5% respectively. The other wastes accounted for 19.8% of the total waste, and these include 9.2% metals, 8.9% miscellaneous and 1.6% glass materials. The result showed that members of OAU residential areas utilized more perishable organic, plastics and paper products. This is in agreement with the observation of USEPA (2003) that majority of substances that are municipal solid waste include: paper, vegetable matter, plastics, metals, textiles, rubber and glass.

Organic wastes being the highest of the various wastes composition reflects the type of food that is being purchased virtually on daily basis. The result of this study when compared to a MSW analysis study done in the Kano metropolis in 2010 slightly differs, as organic and biodegradable wastes was found to be 43% of the total waste sampled. However, organic wastes still constituted the largest part of the waste fractions in both studies.

The largest amount of these organic wastes came from leftovers of prepared food or from the waste generated during food preparation. This waste is generated throughout the day and is deposited mixed with all different types of waste inside the same bin. There is no company within the locality which takes this type of waste, so, at present, it is practically impossible to give this type of waste a destination other than the dumpsites. One common practice among some universities in the developed countries is to use food wastes to make compost, either within the university campus or outside.

For example, Ithaca College, in the USA, uses 5 tons of food waste every week to produce compost. This represents approximately 13–15% of its total waste generated (REMP, 2003). Appalachian State University, also in the USA, puts food waste in a composting system which uses close to 2 tons of waste per year (N.C. Project Green, 2004). Following these examples and considering that OAU has adequate space and trained staff, a composting system could be implemented to use both the organic waste from student hostels and the staff quarters.

Other studies on university waste have proven that waste is put to profitable use to a high degree in educational institutions. In the study by Mbuligwe (2002) on waste management within three academic institutions in Tanzania, the results reported were similar to the ones reported in this study; a recovery potential and reutilization of waste from 71.6% to 86.8% was achieved. The author did not mention the situation of the local recyclables market in Tanzania; yet, he did mention that there were reuse practices carried out in an informal way, mainly of food waste delivered to pig farmers who used this type of waste as animal feed, thus reducing significantly the feeding costs. In the case of organic waste within the OAU, reuse practices such as that mentioned by Mbuligwe (2002) in Tanzania, could be used. Considering the fact that in the interior villages in Ile-Ife sharing boundaries with the university, there are numerous farms where goats, pigs, and cows are raised, it is clear that

those places can be potential consumers of the food waste generated in the residential areas of OAU Campus. It must be mentioned that this kind of practice is also carried out in universities of industrialized countries (Armijo-De Vega *et al*, 2008).

Paper waste which is part of the Organic waste component has a significant proportion of 11.5%. Comparing the findings from this survey to another conducted in this same study area, the results strongly agreed with 14.5% obtained in the previous study by Okoya et al., 2011. Akpen (2009) also reported a similar proportion of 12.7% for paper fractions from a study conducted in Gboko town. Due to the nature of the household paper waste such as soiled papers, wax coated papers for packaging fish, paper laminated with foil, magazines, napkins, tissues e.t.c.; they cannot be recycled or reused as against office paper type of wastes. Nevertheless, strategies such as the use of the electronic and print media can be devised to create awareness to reduce household waste.

Plastic is the second highest fraction with 15.6% from this characterization study. This result agrees with the findings of Aondoakaa in 2005 when he conducted an household solid waste composition in Gboko town of Nigeria where he reported the proportion of plastics to be 19% of the entire waste sampled. The proportion of plastic from this study fell short of the result of a similar survey conducted between November 2009 and February 2010, where plastic accounted for 26.3% of the entire OAU university campus waste (Okoya. et al 2011). This difference could be due to a difference in the sampling population where the earlier study analyzed waste samples of all the sectors of the university, whereas this study focuses on wastes from residential areas of the OAU campus. Azeigbe (2007) also recorded a high generation of all sorts of polyethylene packaging materials in Benin. This percentage could be higher if, from the moment it is generated, plastic did not get mixed with other waste such as leftover food, which contaminate plastics making it unfit to recyclers. It is important to point out that, besides its recycling potential, waste such as plastic has a high reduction potential. For example, plastic bottles found in the OAU waste had been used in most cases only to be disposed off indiscrimately by residents, which showed that the reuse of plastics in the OAU was practically non-existent. When alternatives for the management of waste were sought, before recycling is considered as an option, ways to reduce waste should be considered. Reuse is one of these strategies and, in this case, if plastics were to be reused, in the best of cases, the generation of plastic waste could be reduced in half.

The proportion of glass materials in the waste generated is 1.6%. These findings differ in trends to that found by a previous researcher in this study area, which found that the amount of glass materials was 9.5% of the total waste generated on OAU campus and it also differed from the findings of Akpen et al., 2009 which put glass materials at 8.7% in Gboko town. On the contrary, this result agreed with the estimate for glass materials (2.1%) for Africa by the Inter-Governmental Panel on Climate Change in 2006.

Metal fractions was estimated to be about 9.2% which differed from the 2006 estimated 2.5% for metal in a typical Africa community by the Inter-Governmental panel on climate change and higher than estimate of 5.3% and 4.6% given for European and North American continents respectively. On the other hand, this result was almost same with the reported metal estimate of 9.1% for Maiduguri by Dauda and Osita in 2003, and slightly higher than the earlier findings of 7.4% from this same institution by Okoya et al., 2011. The differences in the metal compositions between this study's estimate and the estimates given for European and North American countries could be a good explanation for the communities poor reuse culture. Plenty of the tins and cans that form the bulk of the metals being disposed of had the

potential to be reused, therefore there is need for waste reuse awareness campaign for residents of OAU campus.
Taking the information on the waste generation and composition discussed in the previous paragraph into account, it is evident that, the recovery and recycling potential of waste in the OAU residential areas is very high, it is easy to turn the potential into profit.

5.3 Waste Recycling Potential

The waste from the residential areas of OAU presents a high recovery potential both in the case of the waste generated in the student hostel and waste from the staff quarters. It was observed that a large proportion (85.4%) of the waste collected for weighing and sorting were potentially recyclable. Nwakor in 1994 also reported that 76% of municipal solid waste generated in Nigeria is recyclable. The difference between the findings in this study and that of Nwakor (1994) is probably due to the fact that this characterization was done in only residential area. However, both findings still present a high recyclable waste proportion.

The findings from this study is much higher than the result of a study conducted in Autonomous University of Baja California (UABC) of Mexico, where more than 65% of the wastes are found to be recyclable or potentially recyclable (Armijo de Vega et al., 2008). The difference may be due to waste disposal practices in the two environments. However, our findings of 85.4% recycling potential is contrary to what obtains in developed countries like United States of America, where only about 32% of the waste generated is recyclable according to a report from the Environmental Protection Agency in the United States (USEPA, 2005). Perhaps, the disparity in the recycling potential between this area and the developing country could be that most components of waste may have been segregated at source and reused. It has now become evident that the recovery and recycling potential of waste in the OAU residential area is very high and it is possible to turn the potential into profit.

6.0. Implication to Research and Practice

There have been many studies on amount of waste generated in different parts of the country but only few studies have characterized solid wastes for the purpose of determining the recycling potentials as accomplished by this study.

7.0. Conclusion

The average waste generated per capita is high in this environment. There is a very high quantity of household solid waste with about two-third of it being organic, which could be composted and greatly reduce the volume of waste that would have to be disposed of. A high proportion of the waste generated is reusable and have high potential for recycling.

We therefore, recommend that the university authority provide composting facility for the utilization of the high organic waste generated and possible collaboration with private sector on the establishment of recycling plants.

8.0. Future Research

Study on the possibility of collaborating with private sectors, the workability of a private sector driven recycling plant and cost benefit analysis of such investment should be considered.

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THE RELATİONSHİP BETWEEN THE VİOLENCE EXPERİENCE OF WOMEN WHO LİVE İN THE SHELTERS AND THEİR DEALİNG WAYS

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Abstract

Objective: This study conducted for determine the dealing ways of women who Live in the shelters.

Methodology: This study was done with 42 women who live in the women's shelter in Bursa as an illustrator one in 2013. All of women who stay in the shelters attended voluntarily in the research. The survey form which consists of the questions related to determine the application process to the women's shelter, the violence experience, the dealing ways with the violence with the socio-demographic information which is developed with the literature review by the researchers as a tool of data collection. The Scale of Dealing Ways with The Stress (SDWS) which was developed by Folkman and Lazarus (1989) and its adaptation to Turkish was done by Siva (1991) was used. The data was evaluated in the program of SPSS, the frequency, arithmetic mean and chi square were used in the statistical analyses.

Outcomes: The arithmetic mean of women's age in the shelters in Bursa was determined as 30.35. They were informed that the women who attended in the research have got a nuclear family type (83.3%), they haven't got any occupations very-highly (71.4%), 78.6%of them don't work in anywhere and they haven't got any income. It was found that 61.9% of women were graduated from an elementary school, 71.4% of them were married under 18 ages, 45.2% of them were exposed to the violence, 81% of them were exposed to the physical violence, 52.4% of them were exposed to the sexual violence, 61.9% of them were exposed to the affective violence, 71.4% of them were exposed to the verbal violence. It was found that there was a significant difference at $p < 0.05$ between the women's educational status and their physical, sexual, affective, economic exposure, there was a significant difference at $p < 0.05$ between the partner's unemployment case and his physical violence. It was seen that the women who were exposed to the violence didn't use an effective dealing method.

Discussion: It was found in our study that the women who were exposed to the violence were affected by the factors such as education, .economic status, unemployment, the women didn't use an effective dealing method. There is a need for the studies related to apply the support programs related to deal with the violence, about what a strategy is developed while the women are supported, which therapy programs are the more beneficial in whichever cases to those who commit the violence on the women. The solution of violence which is a clear human rights violation will be enabled with a structure which will provide the equity between the men and women, and with the policies in the responsibility of state.

Key Words: Violence, Women, Dealing Ways

THE VIEW ON THE SOCIAL CULTURE AND SEXUALITY

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Abstract

Sexuality is formed by the people's values, faiths, feelings, personalities, attitudes, behaviours and their societies. Sexuality which is a physical,affective and social-thematic concept interacts with the culture which includes the material and moral savings such as the tradition, language, faith is a tool that is used to take them in the social and historical development to the next generations , with the policy, and with the law and historical factors. The family, social structure, culture and value judgment that the individuals live determine their views on sexuality. Thus, the societies' views on sexuality differ in each other by their cultural properties, and the differences may be seen in the same culture. The developments in the fields of technology and industry have caused the change in the social properties,and that the properties belonging to the different cultures are learnt with the mass media and social media has caused that the cultural change over world has accelerated; moreover, it has caused the intergenerational differences. With these developments, the views on sexuality has changed in the historical process.

When the societies are considered in terms of the behaviours which include the sexuality; it is seen that there is the existence of cultures which suppress, restrict, allow and support the sexuality. The views on virginity, wedlock, monogamy, polygamy, having children, the number of children, abortion, adolescent pregnancy which include the sexuality differ in the culture. They vary in the life like a monastery which the sexual intercourse is exactly banned, in the attitudes of the modern west's societies which see the intercourse before the wedlock or out of wedlock as a usual one. The sexuality is restricted at the level of wedlock in some societies, and the virginity gets the importance here. This case is commonly seen in Middle East and many islamic countries. It was seen in some of the studies which have been done in Turkey for the view on sexuality that the idea on being married with someone who isn't a virgin is nearly at 50-65%. While there are the regional and domestic differences in the views of society in Turkey, the attitudes which suppress, restrict or allow the sexuality are seen.

Consequently, the sexuality includes the intellectual, social and common factors with the physical, affective and mental factors. The view of the individuals' culture about sexuality is one of the most important factors on the individuals' sexual life, values and behaviours in the life-long development and change processes, and it determines the sexual attitude and behaviours. The sexuality can not be evaluated as independent from the cultural factors and value judgments, and it is inevitable that there are differences.

Key Words: Sexuality, Culture, Society

TRANSFORMING INDIA AND IT'S HIV PROGRAM

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Indian governance has largely transformed from a colonially-disposed collection of states model to the current single quasi-federal political entity. The Indian health system too has transformed, from an enclavist one which ministered the needs of colonial troops only, to people-centric one, with a shared role played by private and public health care services. Since 2012, when Mckinsey's reported significant lag in Indian health care and diminished public health funding compared to BRICS, the country has shown greater interests in reforming the existing health care system. Recently, India has undergone rapid industrial transformation and radical economic growth with increased in-house manufacturing and reduced imports. In addition to that, strengthened legislations, consolidated banking and taxation, and anti-corruption regulations has earned the country $30 billion. Thus, the existing funding-deprived Indian health system may expect an increase in government's contribution to health sector especially to public health in near future. Nonetheless, Amartya Sen, an Indian economist contemplated the existing ineffective public health care services and lack of medical insurance, have increased the gap between the rich and the poor. Based on the above context, presenting some highlights from the Indian health system taking examples from its HIV program.

ASSESSING CONSTRAINTS TO PHYSICAL ACTIVITIES IN LEISURE TIME AMONG ADULT WOMEN

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Abstract

Scientific studies in recent years show that one of the most important element of healthy life is physical activity, but with the evolving technology, people are beginning to spend more time sitting at home and at work than in the past. This also led to the adoption and development of a sedentary lifestyle. It is known that people have the risk of being overweight and obese since sedentary lifestyle will accelerate the increase in body fat mass in the long term. Consequently these people can have the risk of diseases such as diabetes, high blood pressure, high cholesterol and asthma. Studies in recent years indicate that physical activity in fighting against these and similar diseases is an important factor. The women have housework responsibilities such as being mother, being a partner, cooking, cleaning and there should be period of time for these responsibilities. This shows that the concept of time and leisure time is important for female participants. Constraints to physical activities in leisure time among women who are more actively involved in business life day-to-day are worth investigating. In this context, the aim of this research is to investigate constraints of physical activities in leisure time among working and non-working adult women. The "Leisure Time Physical Activity Constraints (LTPA-C)" scale was used to determine constraints of physical activities in leisure time among working and non-working women. The population is composed of adult women aged 25-45 years living in Afyonkarahisar, Turkey. The sample size is composed of a total of 244 adult women, including 125 non-working women and 119 working women. As a result of the analyses; body perception, facilities, income, family, skill perception, willpower, society sub-dimensions and totally constraints perceptions of physical activities in leisure time among working adult women are lower than non-working adult women. Consequently, working women are more intense and stressed than non-working women due to business life. It can be said that one of the ways blowing off steam in daily business life for working women is to do physical activities and they know the value of leisure time better than non-working adult women.

Keywords: Physical Activity, Leisure Time, Leisure Time Physical Activity Constraints Scale

EFFECT OF BILATERAL AND UNILATERAL LOWER BODY RESISTANCE EXERCISES ON ACUTE SKELETAL MUSCLE DAMAGE

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Abstract
The purpose of this study is to compare of the effects of bilateral (BL) and unilateral (UL) lower body resistance exercises on acute skeletal muscle damage. Ten healthy volunteers participated to this study who had experience of resistance exercise, but they did not active in professional sports for the last two years. Participants were performed familiarization exercises (Olympic Leg Press, Leg Extension, Leg Curl, Calf Raise) for both UL and BL resistance exercises before the study. After full rest (one week), according to the Brzycki Formula was used to calculate their 1 repetition maximal (RM) strength for each movement and limb separately. UL exercises were performed by providing full rest after the familiarization exercise. BL exercises were performed by providing full rest after UL exercise. 5 cc of blood were taken from the participants with the help of specialist into heparinized tubes before pre-exercise, immediately after exercise, and 30 minutes after exercise for both two exercise types. Total creatine kinase (CK), lactate dehydrogenase (LDH) aminotransferase (ALT) and aspartate aminotransferase (AST) levels were studied in plasma samples after centrifugation. The difference between measurement times was calculated as the percentage difference for both two exercise types separately and data analyzed with using 2X2 Repeated Measures ANOVA (condition X times). Significance was set at $p<0.05$. When CK and LDH values of UL and BL exercises were compared according to the percentage difference of measurement times, statistical difference was found. In addition; it was determined that the percentage difference of LDH values was statistically significant according to UL and BL exercise types. As a result, athletes will recover more quickly for the next exercise due to unilateral exercises show lower LDH percent differences than bilateral exercises. This result suggests that unilateral exercises should be preferred more than bilateral exercises.

Keywords: Resistance Exercise, Unilateral, Bilateral, Skeletal muscle damage, Creatine kinase

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