

Research Article

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Review Article

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Janapriya Research and Consultancy Center (jrcc)
Janapriya Multiple Campus, Pokhara

Contact No. : 977-61-527723
E-mail: office@janapriya.edu.np, ugc4jmc@yahoo.com
website: www.janapriya.edu.np



Janapriya Research and Consultancy Center (jrcc)
Tribhuvan University
Janapriya Multiple Campus
(QAA Certified by UGC)
Pokhara, Nepal

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Campus Chief
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Editors

Bir Bahadur Karki
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Bir Bahadur Karki
Devilal Sharma
Rajendra Prasad Paudel
Shreekanta Sharma Khatiwada
Vikash Kumar K.C.
Vishnu Prasad Paudel

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Editorial Note

Janapriya Journal of Interdisciplinary studies is an annual, reviewed journal **concerned** with all aspects of social and natural sciences, educational research and other branches of research; and it is published by Janapriya Research and Consultancy Center (JRCC). The journal offers in-depth analysis of interdisciplinary aspects of research findings in various fields at local and global context as well, It aims to motivate each of the faculties of Janapriya Multiple Campus to write research articles.

The present volume has attempted to include original research articles from multidisciplinary areas of studies. The authenticity of the thoughts and views expressed in these articles solely lies to the authors. We are very much grateful for the contributors for research articles. We are also indebted to all the critics who have helped us to review the articles published herein. Finally, we are also thankful to the campus chief of JMC for his continuous support in publishing the journal.

Editorial team

Janapriya Journal of Interdisciplinary Studies

JRCC/JMC, Pokhara, Nepal

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Research Article

Determinants of Willingness to Pay for Improved Solid Waste Management System in Lekhnath, Kaski, Nepal

Ananta Raj Dhungana

Faculty of Humanities and Social Sciences, Pokhara University

Email: anantastat@gmail.com

Abstract

Solid waste management is one of the developmental challenges facing city authorities worldwide, especially in most developing countries. Rapid urbanization has made solid waste management a serious problem in poor and developing countries. This study aims to analyze the determinants of willingness to pay for improved solid waste management system. For this purpose, two hundred and seventeen Households were selected in Lekhnath, Kaski, Nepal. Pre-structured questionnaire was used to collect the data. Data was collected by using systematic random sampling techniques. Multiple Linear Regression analysis was used to find the determinants of willingness to pay for improved solid waste management system. The tentative average wastes produced per day from their house is one kilogram with minimum one hundred gram and maximum ten kilogram per day. Main disposal method/site for solid waste management of majority of the respondents is Burn followed by cannal, near open places, send in waste management vehicle, road side and rivulets. Almost all of the respondents are not satisfied with the community responsible for solid waste management in the study area. The average amount that the respondents have willingness to pay for solid waste management system is Rs 56.84 per month. Further, it is found that Having any member abroad, Remittance received in last one year and House ownership are the major determining factors for willingness to pay for improved solid waste management system in the study area. However, other factors like Sex of the respondents, age of the respondents, family size, Family type,

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Caste/ethnicity, education of the respondents, Total number of employed person at home, Total number of literate person at home, Major occupation of the respondents, tentative weight of accumulated solid waste per day, Monthly Income of household, Visit at any hotel/restaurant during last 12 months, and Having any livestock at household do not have any significant impact on willingness to pay for improved solid waste management system.

Keywords: Determinants, education, remittance, solid waste, willingness

Introduction

Solid waste management is one of the developmental challenges facing city authorities worldwide, especially in most developing countries (UNEP, 2013). Poor solid waste management, coupled with inadequate financial resources, has led to indiscriminate dumping of solid waste into open spaces and drainages, choking drains and causing flooding, environment pollution and public health issues (UNEP, 2013; Perera, 2003).

Rapid urbanization has made solid waste management a serious problem in poor and developing countries (Bahauddin and Uddin, 2012). Waste management is becoming a very serious problem in Nepal also. For this, we need to examine households' willingness to pay for this service. The information can be used to increase people's welfare by introducing cost recovery by tapping into households' willingness to pay.

Hagos (2003) also used CVM in his study to elicit individual willingness to pay for improved solid waste collection and disposal services for Mekele town. He employed an open-ended with the iterative bidding game format and selected a total of 164 households using stratified sampling based on the smallest administrative unit 'Kebele' thereby applying systematic random sampling for selecting households from each stratum. He employed Ordinary Least Squares (OLS) in estimating the bid function where the Willingness to Pay (WTP), is function of sex, age, education, household size, household income, house ownership, household awareness about SW problem, household satisfaction with the existing level of SW service. Of these variables, household's income, awareness about SW problem, age,

size of the household, were found to significantly influence the dependent variable (WTP). The remaining explanatory variables were found insignificant.

Household size is another factor that influences WTP for waste management. Chuen-Khee & Othman (2002) pointed out that the more the number of people in the household, the more willing the household will appreciate a clean environment. Tamura (2005) in analysing the individual attributes of the demand for solid waste collection in Accra, Ghana found that the more income people have, the more willing they are to pay for solid waste collection.

Afroz et al. (2009) pointed out that holding all other factors constant, older people are willing to pay more than younger people. The quantity of waste generated by a household also influences WTP for waste management. Aggrey and Douglasson (2010) pointed out that, the higher the generation of waste, the more the household faces the challenges of waste disposal and the greater the willingness to pay. Satisfaction on waste collection services also influences WTP for improved waste management. People who are more satisfied with waste collection services are willing to pay more than dissatisfied people (Afroz et al., 2009 and Kassim & Ali, 2006).

Aggrey and Douglasson (2010) hypothesized that the higher the level of education the more people would appreciate the consequences of mishandling of solid waste and the more value the individual would give in order to avoid the risk of being a victim of unclean environment.

Banga et al. (2011) found in Kampala that both the decision to pay and the amount households are willing to pay for improved solid waste collection services are influenced by income, education, age, and home ownership.

The issue of households' willingness to pay for improved solid waste management have been extensively researched into in most developing countries. But the findings from these studies are rather inconsistent and mixed. In most studies (Assa, 2013; Awunyo-Vitor, et al. 2013; Afroz & Masud, 2011 and Rahji & Oloruntoba, 2009;), education and income

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have positive effects on WTP. However, while Alhassan& Mohammed (2013) and Oteng-Ababio (2010b) found that women were more willing to pay for solid waste services, Afroz, (2011) and Assa, (2013) found no statistically significant relationship between willingness to pay and gender in their studies in Bangladesh and Malawi respectively. Similarly, in the studies by Awunyo-Vitor, et.al. (2013), Assa (2013) and Afroz, (2011), older people were more willing to pay for improved solid waste services than younger people. In contrast, Rahji&Oloruntoba (2009), Amiga, (2002), Banga, et.al. (2011) and Hagos, et.al. (2012) found that younger people were more willing to pay for improved solid waste services.

However, the determinants of willingness to pay (WTP) for solid waste management has not been analyzed yet in the proposed area. Therefore, this paper attempts to analyze the determinants of willingness to pay (WTP) for improved solid waste management (SWM) system in Lekhnath, Kaski, Nepal.

Data and Methods

For this research, primary data was used and quantitative data was collected to find the determinants of willingness to pay for improved solid waste management system. Both descriptive as well as exploratory research design was applied during the study. For this purpose, at first Lekhnath Municipality was selected purposively. The total number of Household in Lekhnath Municipality is 11,830. At second stage, as ward no. 1, 3, 5, 7, 11 and 12 have some dense areas and some more observable solid waste, so these wards were selected purposively. So, 1204, 730, 603, 393, 795 and 922 i.e. total 4647 households of these selected wards is the population of the study. From these population, 217 respondents (at 6.5 percent margin of error and 5 percent level of significance) are proportionately distributed in wards 1, 3, 5, 7, 11 and 12 as 56, 34, 28, 19, 37 and 43 respectively. At final stage, the information was collected from 217 households using systematic sampling technique. For this, we have $N = \text{Total study population} = 4647$, $n = \text{sample size} = 217$, $k = N/n = 4647/217 = 21.4 \approx 22$. Then the information was collected by using systematic random sampling

techniques in the interval of 22 households. So, multistage sampling technique was used for this study.

Data was collected through field survey using pre-structured questionnaires following the interview technique with the respondents. For the reliability of data, based on the reviewing of literatures, the variables were identified and questionnaire was designed so as to include all these variables. Verbal consent was taken from the respondents before conducting the interview. Then questionnaires were pre-tested in a similar setting with twenty two (10% of the total sample size) respondents in Pokhara Valley and necessary correction were made, collected data were checked for errors and omission on consistency of data was maintained. Multiple Linear Regression analysis was carried out to find the determinants of willingness to pay for solid waste management systems.

The multiple linear regression model

$$Y_{\text{willingness to Pay}} = b_0 + \sum_{i=1}^{16} b_i X_i \dots (i)$$

Where, $Y_{\text{willingness to pay}}$ = Willingness to pay (WTP) for improved solid waste management system, it is the maximum price that the people want to pay per month for the improved solid waste management system. X_1, X_2, \dots, X_{15} , and X_{16} are the independent variables i.e. Sex of the respondents, age of the respondents, family size, Family type, Caste/ethnicity, education of the respondents, Total number of employed person at home, Total number of literate person at home, Major occupation of the respondents, house ownership, tentative weight of accumulated solid waste per day, Monthly Income of household, Visit at any hotel/restaurant during last 12 months, Any member go abroad, Remittance received in last one year and Having any livestock at household respectively. b_0 = Constant or intercept made of regression plane. Similarly b_1, b_2, \dots, b_{15} , and b_{16} represents the regression coefficients of the independent variable as defined.

Results and Discussion

Based on the data collected from 217 households, social, economic and demographic characteristics of the respondents are explored (table 1).

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Majority of the respondents are above forty years age. The minimum age is 20 years and the maximum is 75 years with average as 44.95 years. Similarly almost three fourth of the respondents are male. It shows the existence of the majority of the male.

Majority of the respondents are married. More than two fifth of the respondents are from nuclear family. Majority of the respondents are Brahmin/Chhettri followed by Janajati and Dalit. Most of the respondents are with the educational level as SLC. More than two fifth of the respondents have their major occupation as business followed by foreign labour, service, agriculture and wage labour. Majority of the respondents have been living in their own house. More than three fifth of the respondents have livestock in their house whereas almost two fifth does not have any livestock in their house. Majority of the respondents have at least one member at abroad from their household. Further majority of the respondents have visited any hotels and restaurant within last twelve months. Further, more than three fifth of the respondents do not have livestock in their house. The tentative average wastes produced per day from their house is 1 kg with minimum 0.1 kg and maximum 10 kg per day.

Table 1
Social, Economic and Demographic Characteristics

Characteristics	Number	Percent
Age		
Up to 40 years	81	37.3
Above 40 years	136	62.7
Minimum= 20 years , Maximum = 75 years, Average = 44.95 years		
Sex		
Male	159	73.3
Female	58	26.7

Characteristics	Number	Percent
Age		
Up to 40 years	81	37.3
Above 40 years	136	62.7
Minimum= 20 years , Maximum = 75 years, Average = 44.95 years		
Sex		
Male	159	73.3
Female	58	26.7
Marital status		
Married	209	96.3
Unmarried	8	3.7
Family type		
Nuclear	140	64.5
Joint	77	35.5
Family Size		
Average (less or equal to 5)	160	73.7
Large (More than 5)	57	26.3
Caste/Ethnicity		
Brahmin/Chhetri	127	58.5
Janajati	69	31.8
Dalit	21	9.7
Educational status		
Illiterate	14	6.5
Just Literate	12	5.5
Primary	16	7.4
Secondary	41	18.9

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Characteristics	Number	Percent
Age		
Up to 40 years	81	37.3
Above 40 years	136	62.7
Minimum= 20 years , Maximum = 75 years, Average = 44.95 years		
Sex		
Male	159	73.3
Female	58	26.7
SLC	91	41.9
Intermediate and Above	43	19.8
Major occupation of the household head		
Agriculture	31	14.3
Business	91	41.9
Service	38	17.5
Foreign labour	53	24.4
Wage labour	4	1.9
House ownership		
Own	203	93.5
Rented	14	6.5
Visited any hotels and restaurant during last 12 months		
Yes	185	85.3
No	32	14.7
Having any member at abroad		
Yes	66	30.4
No	151	69.6
Having any Livestock		

Characteristics	Number	Percent
Age		
Up to 40 years	81	37.3
Above 40 years	136	62.7
Minimum= 20 years , Maximum = 75 years, Average = 44.95 years		
Sex		
Male	159	73.3
Female	58	26.7
Yes	83	38.2
No	134	61.8

Sources: Field Survey, 2016

Further the existing situation of solid waste management system in the study area are explored (table 2). Most of the respondents responded that they do not have the community to manage the solid waste management. Almost all are not the member of the community. Almost all of the respondents are not satisfied with the community. Very few of the respondents pay for the solid waste management. Almost nine tenth of the respondents responded that there is solid waste management system in the study area. Main disposal method/site for solid waste management of majority of the respondents is Burn followed by cannal, near open places, send in waste management vehicle, road side and rivulets. Majority of the respondents responded that the best method for solid waste management is recycling followed by burning and landfills. Almost all has durable container for storing solid waste in their household. Majority has plastic container. Some has metal container while others have paper and rug containers. More than eight tenth of the respondents have separate containers for renewable and non-renewable solid wastes. Almost all households have plastic as solid waste produce. Half of the households have paper, one third of the households have food wastes, one fourth of the respondents have glasses as the solid waste produced while very few has

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other solid waste produced like clothes. Around ninety percent of the respondent responded health as one of the impact of solid waste produced. Nearly two third of the respondents said air pollution is another impact of solid waste produced. Water pollution, foul smelling and soil pollution are other impact of the solid waste produced.

Table 2

Existing Situation of Solid Waste Management

Name of the variables	Number	Percent
Having any ommunity to manage solid waste management		
Yes	27	12.4
No	190	87.6
Any member belong to the community		
Yes	4	1.8
No	213	98.2
Satisfaction from community for SWM		
Yes	23	10.6
No	194	89.4
Any pay for SWM		
Yes	24	11.1
No	193	88.9
Any system of SWM		
Yes	27	12.4
No	190	87.6
Main disposal site used for SWM		
Near Places(Open Places)	29	13.4
Road Side	6	2.8
Cannal	47	21.7
Rivulets	2	0.9
Burn	116	53.5
	10	

Send in Waste Management Vehicle	17	7.8
Best method for solid waste disposal		
Recycling	131	60.4
Landfills	20	9.2
Burning	66	30.4
Having durable container for storing solid waste at household		
Yes	211	97.2
No	6	2.8
Types of container at household		
Metal	6	2.8
Plastic	195	89.9
Others	16	7.3
Having Separate container for renewal and nonrenewal solid wastes		
Yes	177	81.6
No	40	18.4
Type of solid waste produced*		
Plastic	213	98.2
Food wastes	79	36.4
Paper	107	49.3
Glasses	52	24.0
Others	9	4.1
Impact of solid waste produced*		
Health	195	89.9
Foul smelling	41	18.9
Air pollution	134	61.8
Water pollution	85	39.2
Soil pollution	53	24.4

*Based on multiple responses
Sources: Field Survey, 2016

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Further, determinants of willingness to pay for solid waste management system are analyzed. For this purpose, multiple regression analysis was performed taking the dependent variable as willingness to pay for improved solid waste management system i.e. maximum price that the respondent want to pay per month for improved solid waste management system and the independent variables as mentioned above. The average amount that the respondents have willingness to pay for solid waste management system is Rs 56.84 per month with Rs 500 as highest amount. It may be useful for making policies for local authorities to fix money from the people for collecting solid waste in the study area.

Table 3
Determinants of Willingness to Pay for Improved Solid Waste Management System

Predictors	B	T	Sig.
(Constant)	-60.350	-1.290	.199
Sex of the respondents	4.314	.546	.586
Age of the respondent	-.006	-.015	.988
Family Size	-.159	-.120	.905
Family type	11.953	1.514	.132
Caste / ethnicity	-6.833	-1.294	.197
Educational level of the respondents***	5.047	1.714	.088
Total number of employed person at home	-.366	-.082	.934
Total number of literate person at home	-1.499	-.673	.501
Major occupation of the household	-4.217	-1.092	.276
House ownership**	34.751	2.510	.013
Tentative amount of solid waste per day	2.646	.736	.463
Monthly income of the household	2.601×10^{-5}	.415	.678

Visit to any hotels restaurants in last one year	7.542	.762	.447
Having Any member abroad*	45.495	3.969	.000
Remittance received in last one year*	8.876×10^{-5}	7.076	.000
Having any livestock	-1.561	-.225	.822

significance at 1% level of significance; **significance at 5% level of significance; *significance at 10% level of significance*

Source: Field survey, 2016

Having any member abroad and Remittance received in last one year have positive significance on willingness to pay. Further, it is also found that Having any member abroad and remittance received in last one year have significant impact on willingness to pay for improved solid waste management system ($p < 0.01$). House ownership has significant impact ($p < 0.05$) which is supported by Banga et. al (2011) whereas educational level of the respondents has significant impact at ten percent level of significance ($p < 0.1$) which is supported by Aklilu (2002); Banga et. al (2011) and Dhungana (2016). Although Family size, Having any livestock in household and total number of literate person in household show the negative impact on willingness to pay, they are not statistically significant. Further, the other variables also do not have significant impact on willingness to pay for improved solid waste management system.

The multiple linear regression model for the estimated willingness to pay for improved solid waste management system is

Maximum amount that the respondents want to pay for improved solid waste management system

$$= -60.350 + 4.314 X_1 - 0.006 X_2 - 159X_3 + 11.953 X_4 - 6.833X_5 + 5.047X_6 - 0.366X_7 - 1.499X_8 - 4.217X_9 + 34.751X_{10} + 2.646 X_{11} + 2.601 \times 10^{-5}X_{12} + 7.542 X_{13} + 45.495X_{14} + 8.876 \times 10^{-5}X_{15} - 1.561X_{16}$$

$$R^2 = 0.355, \text{ Standard error} = 45.499, \text{ F-ratio} = 6.439^*$$

*significant at 1% level of significance

Determinants of Willingness to...

Where, X_1 , X_2 ,, X_{15} , and X_{16} are the independent variables i.e. Sex of the respondents, age of the respondents, family size, Family type, Caste/ethnicity, education of the respondents, Total number of employed person at home, Total number of literate person at home, Major occupation of the respondents, house ownership, tentative weight of accumulated solid waste per day, Monthly Income of household, Visit at any hotel/restaurant during last 12 months, Any member go abroad, Remittance received in last one year and Having any livestock at household respectively.

As evident from the amount that the respondent has willingness to pay for improved solid waste management system, the coefficient of multiple determinations (R^2) of the estimated linear function is 0.355. This shows that 35.5 percent variation in the dependent variable (Maximum amount that the respondent has willingness to pay for improved solid waste management system) is explained by the variation in independent variables taken under consideration. The F-value is found to be highly significant which indicated a “good fit” of the estimated equation. The intercept is found to be negative but not significant.

Conclusion

The tentative average wastes produced per day from their house is 1 kg with minimum one hundred gram and maximum ten kilogram per day. Main disposal method/site for solid waste management of majority of the respondents is Burn followed by cannal, near open places, send in waste management vehicle, road side and rivulets. Almost all of the respondents are not satisfied with the community responsible for solid waste management system in the study area. The average amount that the respondents have willingness to pay for solid waste management system is Rs 56.84 per month. Further, it is found that Having any member abroad, Remittance received in last one year and House ownership are the major determining factors for willingness to pay for improved solid waste management system in the study area. However, other factors like Sex of the respondents, age of the respondents, family size, Family type,

Caste/ethnicity, education of the respondents, Total number of employed person at home, Total number of literate person at home, Major occupation of the respondents, tentative weight of accumulated solid waste per day, Monthly Income of household, Visit at any hotel/restaurant during last 12 months, and Having any livestock at household do not have any significant impact on willingness to pay for improved solid waste management system in the study area.

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Research Article
Level of Knowledge and Practice of Patient Care Ethics
among Nurses in Pokhara

Arati Timilsina

Lecturer, Novel Academy,

Bhagawati KC

Professor, TU IOM, Pokhara Campus, Nepal,

Email: aratisharma2010@gmail.com

Abstract

Ethics deal with standards of conduct and moral judgment. Every day nurses require to make ethical decisions during patient care. They should have good knowledge and adequate practice of ethics to make ethical decisions. The aim of this study was to identify the knowledge and practice of patient care ethics among nurses.

A descriptive cross sectional research design was used to conduct the study. Simple random sampling method was adopted to select 108 nurses among 133 nurses working in a regional hospital, Pokhara. Self-administered structured questionnaire schedule was used for data collection and analyzed using IBM SPSS Version 20. Descriptive and inferential statistics such as frequency, percentage, mean, standard deviation, Chi-square test was used to analyze the data.

The findings revealed that 65.1 percent of nurses had satisfactory level knowledge and 76.4 percent had adequate practice level of patient care ethics. There was significant association between nurses knowledge level and professional qualification ($p < .001$). The level of practice does not have significant association with socio-demographic and job related variables. Similarly, no significant association between knowledge and practice level of patient care ethics was found.

It concludes that the nurses with satisfactory level of knowledge and adequate level of practice are more than the nurses with unsatisfactory knowledge level and inadequate practice level of patient care ethics. Their practice of ethical principle is better than their knowledge in all principles except in the principle of justice. Nurses' knowledge and practice of patient care ethics should be upgraded through educational and awareness programme.

Keywords: *ethical principles, knowledge, nursing ethics and practice*

Introduction

Nurses are one of the health service providers and members in health system, so are responsible for giving care to the clients and patients based on ethical issues. Ethics deals with standards of conduct and moral judgment. Nurses are expected to behave with exemplary ethical behavior, greater than that would be expected of an “ordinary person”. In nursing profession, ethical values are inseparable (Johnstone, 2004). Nursing ethics refers to ethical standards that govern and guide nurses in everyday practice such as “being truthful with clients”, “respecting client confidentiality” and “advocating on behalf of the client” etc. In order to conduct their appropriate function to manage situations and to give safe and proper legal and ethical care in today's changing world Nurses need ethical knowledge (Chitty & Kittrell, 2007).

In order to meet the criteria to be considered a profession, nurses must demonstrate ethical behavior and regulation by its own code of ethics. Nursing ethics research provides the opportunity to discover and explain the moral nature of nursing knowledge and practice (Woods, 2005). When making clinical judgments, ethical principles provide foundation for nursing practice and basis for nurses' decisions on consideration of consequences and of universal moral principles (Jane, 2011). In order to make appropriate decisions, nurses require an understanding of how laws, ethics and nursing interface (Furlong, 2006).

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Nursing profession is facing many challenges due to various reasons such as globalization, lacking professional empowerment, privatization of nursing education, lacking nursing sector policies, poor monitoring in health institutions, consumer demand for quality care etc. These challenges have been associated with incumbent ethical and moral dilemmas which are born out in the daily practices of nurses (NHRC, 2010). In a developing country like Nepal, all the hospitals may not have continuing nursing education facility or the ethical aspects are not highlighted. But the public awareness is increasing as a result of advancement in science and technology. Therefore, nurses working in the hospital also need to be updated with present knowledge on ethical aspects in patient care. There seems a lack of study on knowledge and practice of ethical principles among nurses in Nepal. Moreover, there is too little research conducted related to ethical knowledge and practice among nurses in Nepalese scenario. The general objective of this study is to identify the level of knowledge and practice of patient care

ethics among nurses.

Data and Methods

A descriptive cross-sectional research design was conducted to assess the knowledge and practice of patient care ethics among nurses. The study site was Western Regional Hospital (WRH), a government hospital of Nepal which is located in Ramghat, Pokhara (approximately 200 KM west from Kathmandu, the capital city of Nepal). A probability simple random sampling method was used to select 108 nurses from the sampling frame of 133 nurses using lottery method.

A self-administered questionnaire schedule was developed to collect quantitative data on the basis of objectives of the study. The questionnaire consisted of three parts with 31 questions. The developed instrument included full range of response options, designed to identify the respondent's level of knowledge and practice towards patient care ethics. The part I of the questionnaire consisted of demographic variables such as nurses' age (Q1), marital status (Q2) and job related variables such as

qualification (Q3), current position (Q4) and duration of work experience (Q5).

The part II of the questionnaire comprised of questions regarding the knowledge of ethics (Q6), code of ethics set by (Q7), importance of knowledge of ethics to work (Q8), the source of knowledge of ethics (Q9), presence of ethical committee in the institution (Q10), meaning of ethical principle (Q11), list of ethical principles (Q12), knowledge of autonomy (Q13, Q14, Q20.1, Q20.2, Q20.3, Q20.5), knowledge of beneficence (Q15, Q20.4 & Q20.6), knowledge of non-maleficence (Q16 & Q17), knowledge of justice (Q18 & Q19), meaning of ethical issue (Q21), list of ethical issues (Q22) and meaning of ethical dilemma (Q23). The part III of the questionnaire comprised of questions related to the "practice of ethical principle" such as frequency of ethical problem encountered (Q24), practice of autonomy (Q25, Q26, Q30.1, Q30.2, Q30.3, Q30.5 & Q30.7), practice of beneficence (Q26 & Q30.4), practice of non-maleficence (Q27) and practice of justice (Q28 & Q29). The part I, part II and part III were developed by the researcher herself on the basis of literature review and consultation with advisors, faculties and subject matter expert.

Tool was finalized on the basis of objectives of the thesis research. Content validity of the instrument (tool) was ascertained by consultation with colleagues, research advisors, faculties and subject experts. Pretesting of the tool was done in a Hospital which is similar in setting to assess the clarity, feasibility and appropriateness of tool among 11 (10% of the sample) nurses in Gandaki Medical College, Pokhara, Nepal. Necessary modification was done after pretesting in order to ascertain the relevancy, consistency and completeness of instruments. Similarly, sentence structure was made more simplified after pretesting with the help of language expert. Since the respondents were homogenous, reliability has not been completed.

The study was carried out after the approval of research proposal from the Institutional Review Board (IRB), Tribhuvan University (TU), Institute of Medicine (IOM) and Research Committee of Pokhara Campus, TU, IOM,

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for ethical clearance. Nursing director of the hospital and ward in-charges were briefed about the objectives, duration, time and process of data collection of the study. The data was collected by the researcher herself from January 01 to January 27, 2017. In order to protect the right of nurses, informed consent (both verbal and written) was taken from each nurse before collecting data. The anonymity of the information was maintained by asking not to write their names in the questionnaire. The participation in the study was voluntary and was free to withdraw at any time of data collection. All information obtained was treated with confidentiality and was used for the sole purpose of research. Prior the data collection, the researcher introduced herself and explained the objective of the study and the time required to fill the questionnaire form.

To enhance the response rate, the self- administered questionnaire attached to the envelope was hand delivered to the individual nurse by the researcher herself. All the questionnaires were collected on the same day of distribution. During the time of collecting data, the researcher gave some informal information about ethical principles to the nurses as per need and queries. A total of 106 nurses returned the questionnaires, representing 98.15% response rate.

Data was arranged and tabulated in computer to present the findings and was analyzed and interpreted by employing both descriptive (frequency, percentage, mean and standard deviation) and inferential statistical method (Chi-square test). The level of significance was set as 5% with p value <0.05 and 95% confidence interval. Regarding knowledge, each of the correct answer was given the weightage score 1. Total score was converted into percentage. On the basis of score percentage obtained by the nurses, knowledge level was categorized as 'satisfactory' if the percent score was 60% or more and 'unsatisfactory' if less than 60% (Hassan et al., 2012). Practice was also measured on the basis of score obtained by the nurses on practice related questions. Each of the correct answer was given the weightage score 1. Total score was converted into percentage. On the basis of score percentage obtained by the nurses, practice level was categorized

as 'adequate' if the percent score was 60% or more and 'inadequate' if less than 60% (Hassan et al., 2012). Linearity was checked for knowledge and practice of patient care ethics which followed normality so mean \pm SD exist.

Results and Discussion

Table 1

Respondents classified according to selected background characteristics

n=106

Variables	Number	Percentage
Age in years		
Below 21	11	10.4
21-30	67	63.2
31-40	12	11.3
More than 40	16	15.1
Mean Age \pm SD in years	28.86 \pm 9.52	
Marital status		
Unmarried	54	50.9
Married	50	47.2
Widowed	2	1.9
Professional qualification		
PCL Nursing	68	64.2
BN	27	25.5
B.Sc. Nursing	11	10.4
Current position		
Volunteer Staff Nurse	32	30.2
Staff Nurse	61	57.5
Ward In charge	13	12.3
Duration of work experience in years		
Below 5	69	65.1
5-10	16	15.1
11-15	3	2.8
More than 15	18	17.0

Source: Field survey 2017

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Table 1 shows the distribution of socio-demographic and job related characteristics of nurses in which the overall mean and standard deviation of age of the nurses was 28.86 ± 9.52 . Among the nurses 63.2 percent were in 21-30 years group. As regard to marital status, about a half (50.9%) of the nurses were married. Concerning professional qualification, 64.2 percent of the nurses had completed Proficiency Certificate Level in Nursing. More than half (57.5%) of the nurses were working as “Staff Nurse”. Regarding the work experience, 65.1 percent of the nurses had experience of 1-5 years.

Table 2

Respondent’s classified according to sources and level of Importance of Ethical Knowledge **n=106**

Characteristics	Number	Percentage
Sources		
Nursing curriculum	84	79.2
Work experience	14	13.2
Self-reading	6	5.7
In-service training	2	1.9
Level of importance		
Very important	96	90.6
Moderately important	6	5.7
Least important	4	3.8

Source: Field survey 2017

Table 2 presents that 79.2 percent of the nurses considered nursing curriculum as the main source of knowledge of ethics to nurses. It also reveals that more than 90 percentile (90.6%) of the nurses considered knowledge of ethics to nurses as very important. Only 3.8 percent of them considered as least important.

Table 3

Respondents classified according to level of Knowledge and Practice on Ethical Principles **n = 106**

Principles	Knowledge n (%)	Practice n (%)
Autonomy	161 (75.9)	100 (94.3)
Beneficence	64 (60.3)	66 (62.2)
Non- maleficence	163 (76.8)	102 (96.2)
Justice	110 (51.8)	65 (30.6)

Source: Field survey 2017

Table 3 illustrates the nurses' knowledge and practices of ethical principles. It is clear that the highest score on knowledge (76.8%) and practice (96.2%) was obtained on non-maleficence. The lowest score was obtained on the principle of justice that is, on knowledge 51.8 percent and 30.6 percent on practice. The table also reveals that the score on practice was higher than on knowledge on all the ethical principles except on the principle of justice.

Table 4

Respondents classified according to Level of Knowledge on Patient Care Ethics **n = 106**

Level of knowledge	Number	Percentage
Satisfactory (60 and above)	69	65.1
Unsatisfactory (<60)	37	34.9
Total	106	100.0

Source: Field Survey 2017

Note: Cut off score was set as per (Hassan et al., 2012).

Table 4 depicts the level of knowledge of study nurses' that 65.1 percent of them had satisfactory level of knowledge on patient care ethics

Table 5

Respondents classified according to the Level of Practice on Patient Care Ethics **n = 106**

Level of practice	Number	Percentage
Satisfactory (60 and above)	81	76.4
Unsatisfactory (<60)	25	23.6
Total	106	100.0

Source: Field survey 2017

Note: Cut off score was set as per (Hassan et al., 2012).

Table 5 shows that 76.4 percent of the nurses had satisfactory level of practice on patient care ethics.

Discussion

While dealing with the professional ethics, it is important to focus on the nurses' knowledge and practice. The current study attempts to answer the questions of how much the nurses are knowledgeable on patient care ethics focusing on ethical principle, to what extent they are practicing in clinical practice, and whether their knowledge and practice are correlated and influenced by their socio-demographic and job related variables. The study rationale evolved from the increasing concern of patient care professional ethics.

The findings of this study reveals that nearly two-third (65.1%) of nurses have satisfactory level of knowledge and more than three quarters (76.4%) of them have adequate level of practice of patient care ethics. There is statistically significant relation between nurses "level of knowledge on patient care ethics and professional qualification ($p < .001$). The level of practice does not have statistically significant relationship with socio-demographic and job related variables. Similarly, there is no statistically significant association between knowledge and practice level of patient care ethics.

This study shows that 65.1 percent of nurses have a satisfactory level of knowledge of patient care ethics. The result might be because of incorporation of nursing ethics in nursing curriculum. This finding is in line with previous study conducted at Egypt by Hafez et al. (2016). On contrary, a study conducted in a teaching hospital in Nepal conclude that 45 percent of nurses had an adequate knowledge of nursing ethics and law (Shrestha & Jose, 2014). The discrepancy behind this might be because of more provision of capacity building training and exposure regarding patient care ethics by government hospital nurses. Moreover, the majority of nurses working in government hospital has long work experience and exposure than of private hospital nurses where staff-turnover is more as private hospitals are less attractive than the government-run hospital (Adhikari, 2014).

In this study, the knowledge score is least on justice (51.8%) and highest on non-maleficence (76.8%). This result contrast with Hassan et al. (2012) which showed that the highest score on knowledge was obtained on beneficence (98.8%). The reason behind the highest score on non-maleficence in this study is because of the nurses' perception that they should not harm patient, is well accepted in their context. The present study also concludes that majority (90.6%) of the nurses perceived that knowledge of ethics to nurses is very important. This finding is similar to the findings of other studies (Iglesias & Vallejo, 2014; Hariharan et al., 2006). This study also finds that the major source of knowledge about ethics is reported as nursing curriculum 79.2 percent which is similar with the finding of Mohajjel-Aghdam et al. (2013).

This study further reveals that 76.4 percent of the study nurses have adequate level of practice of patient care ethics. This finding is similar to findings of the study conducted at Egypt by Hafez et al. (2016). This conveys that the practice of study nurses is better than their knowledge. On contrary, a study conducted in a teaching hospital in Bhairahawa, Nepal found that only half (50%) of nurses had an adequate practice of nursing ethics and law (Shrestha & Jose, 2014). This discrepancy can be because of

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nurses working in government hospital had long working experience and exposure than that of private hospital nurses which refines practice with repeated exposure. Regarding the frequency of ethical problem encountered during their clinical practice, more than one-third (34.9%) of the study nurses encountered daily. Whereas only 4.7 percent of them have encountered daily. The contradictory findings was noted in a study conducted at Spain by Iglesias & Vallejo (2014), which showed that only 11.6 percent of the study nurses encountered ethical problem daily and 32.6 percent had encountered annually.

Conclusion

The findings of this study conclude that the nurse with satisfactory level of knowledge and adequate level of practice are more than the nurses with unsatisfactory and inadequate level of knowledge and practice of patient care ethics. The nurses' practice of ethical principles on patient care is better than their knowledge but it is still inadequate in principle of justice. Nurses' knowledge is influence by job related characteristics like professional qualification, while their practice is not influence by those characteristics.

Recommendations

Sufficient education, training and exposures such as seminar and workshop are required to enhance more knowledge and practice of patient care ethics to nurses in order to assure the quality of patient care. It is also recommended to establish ethical committee in the hospital and ensure nurses representation on the committee to enhance knowledge and practice of nurses in patient care ethics. Hospital authority should give high priority for patient care ethics as a core area of intervention.

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Research Article
**Customers Satisfaction towards Life Insurance Claim
Settlement in Nepal**

Damodar Basaula

Janapriya Multiple Campus ,Pokhara

Email: basaula_42db@hotmail.com

Abstract

Claim settlement has been like a mirror to each life insurance companies which public see the real face of their business. A company which fails to settle the claim, the satisfaction of customers would definitely distracts the business and discourage to continue or the repurchase of policy. The main purpose of the research paper is to examine the awareness and satisfaction of customers towards life insurance claim settlement in Nepal. Descriptive research designed has been employed in the study. Sample comprises 391 respondent agents for which stratified sampling were used. Primary data were obtained through questionnaire method specifically the five point likert scale. The data collected for the study were analyzed through SPSS software and MS Excel too. The study revealed that majority of the respondents has neutral response on the satisfaction towards claim settlement. However they think that the claim settlement process speed would definitely help to increase life insurance business. The study revealed that government should focus on awareness of life insurance and make it mandatory for every citizen

Keywords: Claim, life insurance, risk, satisfaction

Introduction

Human beings are exposed of various kinds of risk of uncertain, unexpected and unforeseen events such as untimely death, loss of properties by fire, theft and accident etc. which cause the financial losses.

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Risks and events are uncertain. They cannot be eliminated but can be divided, managed and reduced significantly with the help of insurance. Insurance is the way of transferring a loss from one person to another person or institution in exchange of payment. Insurance company who sells insurance policy is insurer and policy holder is the insured who purchase insurance policy and shift the risk to the insurer (Singh, 2010).

Insurance is a means to minimize future uncertainty and financial losses. Acting as a risk transfer mechanism is the primary function of insurance (Holyoak&Weipers, 2002). Rejda (2008) stated that sharing or pooling of losses is the heart of insurance, pooling is the spreading a losses incurred by the few over the entire group so that average loss is substituted for actual loss. Therefore, insurance is a co operative device to spread the loss caused by particular risk over a number of persons who are exposed to it and who agree to insure themselves against the risk.

The lack of awareness and having low income generation of people in Nepal, have hindered the saving intention in the life insurance though some people have saved in the form of cooperatives. Before the institutionalization of the insurance activities in Nepal, some foreign companies were involved in insurance business. Nepalese practice of insurance began when RatriyaBeema Sansthan (RBS) was established in 1968 in the form of government owned public insurance company. History of life insurance companies in Nepal was 46 years and till the date, total nine life insurance companies are operating life insurance business in Nepal and only around 9% people out of total population are insured till the date (Insurance Board, 2014). It is very sluggish growth of life insurance in Nepal as the life insurance has become one of the most important needs of every human being in the world.

Existing claim settlement practice done by the insurance companies also may be the cause of slow growth of life insurance in Nepal. Whether the life insurance companies are settling the claim fairly and timely, whether the people are satisfied or suffered from problem during the time of claim settlement may be the question to be solved. Claim settlement has been like

a mirror to each life insurance companies which public see the real face of their business. A company which fails to settle the claim, the satisfaction of customers would definitely distracts the business and discourage to continue or the repurchase of policy. Such dis satisfied client might even advice to their friends, relatives and other general public not to patronize such companies rather than appreciation of buying insurance policy.

The consequent problems may lead the life insurance company less selling of insurance policy and downward trend of reducing volume, low premium income collection, low capital formation and minimal contribution of life insurance companies to the gross domestic product of the country. Prudent claim administration strategy may promote customer loyalty as it helps to develop the perception of belongingness within a particular group of customers thereby providing the company with opportunity to retain existing customers while attracting new ones and profitable ones (Brear, 2004).

Ahuja (2004) points out that for the continued development of the insurance industry, there is a need to review the 26 per cent limit on foreign equity ownership. In insurance, the extent of insurance business that an insurance company can underwrite depends on the amount of capital available with it. This is because it has to follow the solvency norms defined by the regulator. Underwriting higher risk thus calls for having a higher capital. Given the limited ability of the Indian partners to garner additional capital, there is a strong case for raising the limit so that the competition in insurance can blossom fully. Henneberger and Alexandre (2006) in a paper analyzed the employment effects in the service sector. It was shown that positive employment effects in services which have been taken for granted in the literature are likely only for a very limited subset of services, namely services that require physical proximity and whose users have high mobility costs. For all other services, negative effects of FDI on domestic employment are possible, and in some cases even likely.

Rastogi and Shankar (2007) claims that insurance industry contributes to the financial sector of an economy and also provides an important social

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security net in developing countries. This study identifies the causes and the objectives with which the sector was reformed in 2000 to conclude that only in the last decade, the hybrid model of privatization with regulation adopted by the Government has yielded positive results and the sector has started to look up. The sector in its present form looks promising for the consumers, the insurers and the nation as a whole. Bhatia and Sethi (2007) in his paper reveals that a helpful approach of an insurer towards selling policy coverage and educating the policyholder in the event of terrorist attacks for coverage of such events has become imperative in the current state of affairs when attacks by terrorists have become unpredictable and causing severe damage and despair to the families of claimants. Good communication skills and intelligent diplomacy would lessen the ultimate pain that may be inflicted by the terrorist attacks on the families of policy holders. There should be empathy rather than finding out the loopholes and repudiating and rejecting the claims.

Viswanadham (2005) studied claims settlement operations of LIC of India with the objectives of evaluating performance in terms of both maturity and death claims before and after IRDA period. Claim settlement processing time expressed in speed ratios and adjudicatory measures of the corporation to redress the grievances of policyholders in settlement of claims. The study concluded that corporation should provide efficient service with courtesy in the matters of claim settlements. It should create highest trust in the minds of policyholders by establishing open and transparent grievance redressal procedure. As, satisfied customer will be a brand ambassador for the insurance company; claim settlement should be given more importance. Kalani, Salunkhe and Ahirrao (2013) examined claim settlement ratio of LIC with other insurance companies in India. Study observed that there are cases of frauds in claim settlement that may happened but if the policyholder uses proper precautions he will prevent himself from fraud. LIC of India provides better corporate services for settling the customers claim. D-mat may improve transparency and efficiency of the claim settlement. Authors studied comparison of claim settlement ratio of LIC with other life insurance industry and survey of policyholders and opinion

regarding claim settlement. Yadav and Mohania(2013) the study entitled claim settlement of life insurance policies in insurance services with special reference of Life Insurance Corporation of India. Authors have focused on management framework of LIC for the settlement; impacts of claim settlement on the sale of life insurance policies by LIC of India, claim settlement process followed by LIC of India, awareness towards claim settlement among customers and analyze quality of service provided by LIC of India for claim settlement.

Neuman(2007) worked on evaluation of performance of LIC of India. Objectives were to study importance of life insurance in human life, working of LIC, major attributes for the success of plans, operating efficiency, performance evaluation, growth of LIC. Overall study suggests that LIC should try to introduce new plans with facilities. LIC should strengthen their working, and should control operating cost. Many studies affirmed that prompt claims settlement contributed to organization performance, while some disagreed with the assertion that claims payment contribute to the insurance companies' performance. For instance, Butler and Francis (2010) discovered that prompt claims settlements has positive and significant relationship with insurance performance in terms of customer satisfaction and loyalty. Harry (2012) asserted that insurers need to take their claim handling function more seriously because if a claim is handled well, it results to higher customer retention but if handled poorly, policyholders will lose confidence in the insurer and this may damage its most cherished reputation. Omar (2005) assessed consumers' attitudes towards life insurance patronage in Nigeria and found out that there is lack of trust and confidence in the insurance companies due to slow or lack of claims settlements. Another major reason for this attitude is lack of knowledge about life insurance product. These findings mean that even if the share capital of insurance is increased in multiples, the performance of the industry could still be limited by the attitudes of Nigerians. In the same line, Yusuf, Gbodamasi and Hamadu (2009) conducted an empirical study on the attitudes of Nigerians towards insurance services. The study was conducted among 392 members of the public (insuring and non-insuring) to

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gauge their awareness level and general attitudes towards insurance companies and their operations. The findings presented different demographical factors and attitudes towards insurance companies and their services.

Albert cited in Pandey (2007) noted that one of the reasons for low penetration of insurance business in the country is due to insurers' delay in settling claims. Insurance business is based on trust but is fraught with fraud as perpetrated by the various actors in this sector in Nigeria. Daniel (2013) also discovered that failure to settle claims and delay claims settlement are the causes of insurance failure in Nigeria. According to Oshinloye (2009), claim is an important aspect of insurance business in that poor claim settlement records of an insurance company may spell doom for such a company while a good reputation for good claim settlement records on the other hand may mean prosperity with respect to acquisition of more business." Insurance industry in Nigerian will experience growth and development as long as they are prepared and ready to settle all genuine claims on time. In the same vein, Augustine and Bamidele (2013) asserted that the image problem suffered till today by insurance companies in Nigeria is mainly because of what is seen as the insurance companies' posture of "smile to collect premium and frown to pay claim. The insuring publics do not even trust the insurers because they believe that they would always look for a way out at time of payment even when the claims are genuine. Hewitt (2006) also found that prompt claims settlement by insurance companies influence customer loyalty in advance countries. However, findings of Bates and Atkins (2007) and Ndubuisi (2008) conflicted with previous studies. They discovered that claims payment could be very costly as claims constitute the largest cost of an insurer and this has contributed to poor performance of insurance companies.

The main purpose of the research paper is to examine the satisfaction of customers towards life insurance claim settlement in Nepal

Data and Methods

In this study, the researcher has aimed to explore knowledge on satisfaction of customers towards life insurance claim settlement practices particularly 9 life insurance companies working in the country and claim settlement strategies for risk minimization and promotion of insurance in life insurance sector. This study was based on primary information and the data were quantitative in nature. Whole life insurance agents from different 9 life insurance companies were the population and 391 agents had been taken as samples of the study. Samples were taken by adopting convenient sampling technique. Closed-end questionnaires were used as a tool of data collection. Primary information's were collected by using face to face interview and interview schedule. Descriptive studies are investigation of populations, not individuals. It is more practicable than questionnaires. In this method someone gives the clarification as and when needed. Schedule is a tool of obtaining answers to a set of questions from the respondents and investigator fills it by face to face interview. Both questionnaires and schedule are very similar but they also differ in some aspects; questionnaires are sent to the respondents by mail, where as a schedule is used directly in interviews.

Standard questions that were used by previous research studies in other countries of the globe were adopted to meet the internal validity of the research. About 10 percent of the sample (40) was chosen for the pre- test and then required modification was made after pre- test for measuring reliability of the study. Descriptive statistics and simple percentage have been used to analyze the data.

The study locations, is urban and rural areas of Nepal having diverse climate where population dynamics has been found high. The diverse geographic feature reflects the different demographic pattern existed in the region. The population has included the total life insurance agents working in regulation of the life insurance in the country. The data has been collected from local policy holders, insurance agents, and other stakeholders of the life insurance management. As it is difficult to collect whole data to study, sampling technique has been adopted for the present study.

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About 391 respondent agents from each category were interviewed. According to Shoie (2003), the size of the sample should not be too large and not too small but it should be optimum based on logical criteria. There are many factors responsible for the selection of the sample, such as the size of the universe, availability of resources, degree of accuracy, heterogeneity and homogeneity of the universe, nature of the study, method of sampling adopted and the nature of respondents.

The raw data has been collected through different techniques as discussed above, needed editing and processing. In the first step, information has been carefully edited and incomplete answer has been evaluated according to the research theme. These collected information have been analyzed according to the objectives of research.

Meaningful tables has generated from the process of data. The data has been analyzed by using both qualitative and qualitative techniques. In this process description, explanation and generalization have been made using statistical tests. Similarly, discourse and statistical analysis has been linked with tables and figures have been used to achieve the objectives (Cresswell, 2013).

The computer readable forms of coded responses were entered into SPSS computer program. The SPSS for Windows provides a powerful statistical analysis and data management system in a graphical environment, using descriptive menus and simple dialog boxes. For this study, the descriptive statistics: frequency, correlation, and cross-tabulation were used in order to meet the research objectives and thereby to answer the defined research questions.

Results and Discussion

The response on availability of different policy as customer need were recorded based on the five point Likert Scale ranging from totally disagree to totally agree in which neutral was in the middle followed by partially disagree to partially agree. Table 1 shows the result of response of agents on availability of different policy as customer need in the market.

Table 1:
Response on Availability of Different Policy as Customer Need

Indicators	Frequency	Percent
Totally disagree	45	11.5
Partially disagree	21	5.4
Neutral	87	22.3
Partially agree	199	50.9
Totally agree	39	10.0
Total	391	100.0

Source: Field Data, 2014

The table 1 has shown that 50.9 percent respondent agents out of 391 with majority rated that they were partially agree that there is available of different policy as customer need. Only 45 that is 10% totally agreed that there is sufficient policies and products in the market according as customer need. However, 22.3% rated neutral, 11.5% totally disagree and 5.4% partially disagree with the market availability of the policies.

The response of agents about the service available to poor and marginalized were recorded based on the five point Likert Scale ranging from totally disagree to totally agree in which neutral was in the middle. Table 2 shows the result of response of agents on service available to poor and marginalized in the country.

Table 2:
Response on Service Provided to Poor and Marginalized

Indicators	Frequency	Percent
Totally disagree	43	11.0
Partially disagree	22	5.6
Neutral	89	22.8
Partially agree	204	52.2
Totally agree	33	8.4
Total	391	100.0

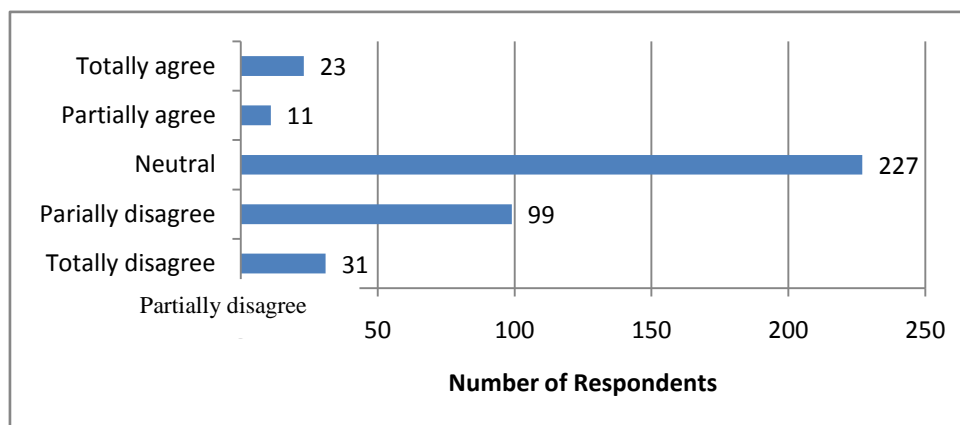
Source: Field Data, 2014

Customers Satisfaction towards ...

Table 2 has shown that 204 respondent agents that are 52.2% out of 391 participants with majority rated that they were partially agree that there is service to poor and marginalized people in life insurance. About 11% totally disagreed, 5.6% partially disagreed, 22.8% remained neutral and 8.4% totally agreed to the fact that there is availability of services to poor and marginalized.

Claim return is the happiest moment to the clients in general. It is also measured as the rate of life insurance business success. The response of agents about the policy holders' satisfaction with the claim return was recorded based on the five point Likert Scale ranging from totally disagree to totally agree in which neutral was in the middle. Figure 1 shows the result of response of agents on policy holders' satisfaction level with claim settlement.

Figure 1: Response on Policy Holders Satisfied with Claim Settlement



Source: Field Data, 2014

Figure 1 has shown that 227 respondent agents out of 391 with majority rated that they were neutral to the satisfaction of policy holders' on claim settlement. About 23 respondents were totally agree on full satisfaction, 11 rated that they were partially agree, 99 demonstrated that they were partially disagree and only 31 rated that they were totally disagree on the satisfaction towards policy holders' claim settlement.

Necessary improvement on claim process and policy sold were also felt needed during the assessment of the views of the respondents. The response

of agents about the need of improvement on claim process and policy, were recorded based on the five point Likert Scale ranging from totally disagree to totally agree in which neutral was in the middle. Table 3 shows the result of response of agents on need of improving claim process and policy

Table 3:

Response on Need of Improvement in Claim Process and Policy

Indicators	Frequency	Percent
Totally disagree	112	28.6
Partially disagree	16	4.1
Neutral	8	2.0
Partially agree	234	59.8
Totally agree	21	5.4
Total	391	100.0

Source: Field Data, 2014

Table 3 has shown that 234 respondent agents that is 59.8% out of 391 with majority rated that they were partially agree to the need of necessary improvement on claim process, policy and regulations. About 28.6% rated that they were totally disagree for necessary improvement, 5.4% totally agreed for the improvement, 4.1% partially disagreed and only 2% remained neutral to the view.

The response of agents assessed about the time allotment for claim settlement taking 15 days as the normal and legal process interval. Table 4 shows the result of response of agents on timely settlement of claims within 15 days.

Table 4:

Claim Paid with Interest (>15 days)

Description	Frequency	Percent
No	218	55.8
Yes	173	44.2
Total	391	100.0

Source: Field Data, 2014

Customers Satisfaction towards ...

The table 4 has shown that 218 respondent agents that is 55.8% disagreed that the company took more than 15 days to settle the claim cases and paid without interest. About 173 (44.2%) agreed that the claim process was paid with interest and it took more than 15 days.

The response of agents about the belief that claim settlement process affects the growth of a company were recorded based on the three point Likert Scale ranging from totally disagree to totally agree in which partially agree was in the middle. Table 5 shows the result of response of agents on awareness about the belief that claim settlement process affects the growth of a company.

Table 5:

Claim Settlement Process Affects Growth of a Company

Description	Frequency	Percent
Disagree	100	25.6
Partially Agree	172	44.0
Agree	119	30.4
Total	391	100.0

Source: Field Data, 2014

The table 5 has shown that 172 respondent agents that is 44% out of 391 rated that they partially agreed on the role of claim settlement process that affects growth of a company. About 30.4% agreed on the role of claim settlement that affects on the growth of the company where as 25.6% disagreed on the role of claim settlement that affects the growth of the company.

5. Conclusions

The study was conducted to study customer's satisfaction towards claim settlement of life insurance in Nepal. The evidences have been found in line with the fact that entrepreneurial development, launching innovative products, increased institutional delivery along with inbound claim calls attracts the customers for policy repurchase. It has claimed that life

insurance has not only for security but has been taken as social prosperity through socio economic development.

Claims management is considered to be one of the most valuable possessions of any insurer. It is one aspect of insurance practice, the handling claims, which can make the image of insurance company. In fact, one of the principal functions of life insurance is the settlement of claims because it is the fear that a loss might occur that induces individuals and economic institutions to take out insurance policies. The problem of running an effective claims administration that would satisfy the customers, thereby earning the confidence of the customers and consequently inducing repurchase.

There was therefore a need to carry out a research with a view to finding out a more efficient and effective method of handling claims that will meet customers' satisfaction and in turn, redeem the sinking image of the insurance companies in the eyes of the insuring public, pave way for better performance and hence contribute to the economic development of Nepal. The emphasis here was to investigate the relationship between fast claims settlement and the sales and marketing of insurance products. Due to the constraints of time, the inability to measure the level of demand using the total sales and marketing figures of the selected company and the fact that the total amount of claims settled as reflected on their financial statements is not a true reflection of the extent of customer satisfaction in the claims service provided by the insurers, the researcher relied more heavily on the responses from the agents who were randomly picked from the company's clientele. There is lack of awareness about life insurance in the people. So, awareness programs should be launched by the Government through Insurance Board so that everyone should be aware about the risks of the future. Risks are uncertainties because nobody knows the future. The Government has to keep the life insurance in its first priority. It has to manage an environment so that every people of Nepal feel safe by doing life insurance. It means government has to purchase the life insurance policies for its each and every citizen making mandatory.

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There needs to be more research conducted in the field of claim settlement and the policy holders' understanding of life insurance policy use and claim settlement improvement in Nepal. Further research is needed to determine if these findings are transferable to a larger audience, or if they are unique to them.

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Research Article

Application of Cost Reduction Tools in Manufacturing Organizations at Pokhara

Devilal Sharma, Lecturer, TU

Faculty of Management, Prithvi Narayan Campus

Email: dlshaema@gmail.com

Abstracts

Today's business organization's success highly depends upon the satisfaction of customer needs and wants since it become the age of globalization. All the manufacturing organizations of Pokhara valley are needed to mass customize their product as the requirement of the customer and satisfy to their needs and wants. For this purpose, organizations have to use the modern technology. This study aims to evaluate the application of cost reduction tools in Nepalese manufacturing organizations with reference to Pokhara valley. Out of total manufacturing firm, only 10 organizations have been selected at least two samples from each stratum out of the target population. Primary data have been collected through the structured questionnaires by distributing it to the production manager or finance manager of the concerned organization. The information has been collected through unit visits. An empirical investigation has been conducted in order to find out various aspects of cost reduction tools. The major tool used for this purpose is the questionnaire. Nepalese manufacturing organizations are selecting the purchase of raw material, production planning and control as the area of reducing their cost. All of the organizations are conscious about TQM as the technique of cost reduction. Most of the organizations are applying product line rationalization, supply chain management, KAIZEN system, reengineering as the technique of cost reduction. Most of the organizations are not applying the Design for manufacturability and concurrent engineering, on demand lean production,

build to order, part standardization, Just in Time production system as the tools of cost reduction.

Keywords: Application, Cost Reduction, Nepalese Manufacturing Industries, Industrialization, Cost Reduction Tools

Introduction

Extensive development of industry in a country is called industrialization. Nowadays many countries in the world have been industrialized. Industry produced goods of various kinds and supplies them to the consumers. Every country in the world wants to extend its industry. Industrialization is the process of social and economic change that takes place along with technological innovation. Britain initiated industrialized textile making by using new technology that replaces the human labor. This was widely considered industrial revolution. The huge increase in productivity was possible from Britain's imported raw cotton that stood at 1000 tons in 1760 and 222000 tons in 1850 (www.journals.cambridge.org). Before the world war-II, Nepal had basic industries like curio, bricks, tiles, biscuits, confectionaries and so on. The early years of Nepal's industrial history were not very smooth. Policy contradictions, capital inadequacy and infrastructural difficulties posed major constraints. This difficulty still continues. Technically, Nepal's industrialization process began 75 years ago when Udyog Parishad was constituted in 1935 and company act was enacted in 1937 with the aim to promote and protect the agriculture, industry and commerce. Nepal's industrialization process got momentum from 1936, the year when Indian capital began to flow into Nepal to take advantages of the available cheap raw materials and labour. Indians considered they were relatively sage here from India's complicated custom and tax law under the British rule. The company act provided for the incorporation of industrial enterprises, a joint stock principle with limited liability. As a result, the first prominent Indian businessmen Radha Krishna Chamaria, from a well known family of Marwari financiers from Kolkotta, assisted establishing Biratnagar jute mill as a collaborative venture of India

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and Nepali entrepreneurs with initial capital of 1,60,000 Indian rupees (www.wikipedia.org/wiki/industrialization.nepal).

The manufacturing sector posted a decline in terms of per capita growth in the last decade, a government report has shown. Among the sectors contributing to the national economy, manufacturing was the only sector that saw the decline over the period. The sector saw a decline of 0.2 percent per capita from 2000-01 to 2012-13, the period marked by the Maoist insurgency, political instability, power crisis and labor problems. Besides the decline in per capita growth, the sector's contribution to the gross domestic product (GDP) fell to 6.2 percent in 2012-13 from 9 percent In fiscal year 2000-01, according to the report titled "Development of Manufacturing Industries in Nepal: Current State and Future Challenges" released by the Central Bureau of Statistics (CBS). Manufacturing's contribution to the GDP in Nepal is the lowest compared to a few other select countries of the South Asian region, with Bangladesh having the highest contribution of 17.6 percent, (www.kathmandupost.com, Jan 29 2015).

Industrial development in Nepal is at an initial stage with all types of manufacturing industries, contribution for not more than 15.1 percent of the Gross Domestic Product (GDP), while contribution of service and agriculture sector to the GDP remains 53.2 percent and 31.7 percent respectively (www.indexmundi.com/nepalgdp-composition-by-sector). However, small and medium enterprises (SME'S) overwhelmingly dominate the industrial sector of Nepal. It plays a major role as sources of employment in the manufacturing sector and significantly contributes to value addition and export trade of the country.

A good control report highlights significant information by focusing management's attention on those items in which actual performance significantly differs from the standard. For cost control purposes, a budget provides standard costs. As management constructs budgets, it lays out a road map to guide its efforts. It states a number of assumptions about the relationships and interaction among the economy, market dynamics, the

abilities of its sales force, and its capacity to provide the proper quantity and quality of products demanded. An examination of the details of the budget calculations and assumptions reveals that management expects operations to produce the required amount of units within a certain cost range. Management bases its expectations and projections on the best historical and current information, as well as its best business judgment (<https://www.inc.com/encyclopedia/cost-control-and-reduction.html>).

Cost reduction may be defined as an attempt to bring cost down. Cost reduction implies real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their product suitability for the use intended. The goal of cost reduction is achieved in two ways: i) by reducing the cost per unit and b) by increasing productivity. The steps for cost reduction include elimination of waste, improving operation, increasing productivity search for cheaper materials, improved standards of quality finding other means to reduce costs (Lal; 1996; 1077). The term cost reduction denotes real or genuine savings in production, administration, selling and distribution costs brought about by the elimination of wasteful and inessential elements from the design of the product and from the techniques and practices carried out in connection therewith. The necessity for cost reduction arises when profit margin has to be increased without an increase in the sales turnover i.e. for the same volume of sales, the cost of sales should be reduced (Ojha & Gautam, 2008:147).

In this context widely used cost reduction tools used in manufacturing firms globally includes design for manufacturability and concurrent engineering, on demand lean production, build-to-order, Mass-customization, the proactive management of variety, part standardization, product line rationalization, supply chain management cost reduction, cost of quality, KAIZEN System (Continuous improvement), reengineering and just in time production system.

Evidence has shown in diary industries toward cost reduction that the organization could not found to use the ABM, Build to order, Mass

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customization, Quality Control techniques of cost reduction (Nepal, 2005). Regarding the application of cost reduction tools, the main reason behind less use to JIT in Nepalese manufacturing organization is the lack of information about JIT, and non-availability of suppliers. There is the lack of skilled manpower and internal failure in applying TQM. The main cause of not applying benchmarking is lack of proper direction and co-ordination. The constraint cause of ABM is poor organization culture. The companies are trying to achieve objective by means of increasing selling price. In order to make success of the system properly, Nepalese manufacturing companies should establish the long term stable relationship with the employees (KC, 2009). An attempt to reduce individual costs in one may be offset by increased costs in other areas, a trade off situation. Increased cost in one area can be motivated if the total costs decrease. In the case for ABB a centralized distribution model will reduce the costs in all areas. Hence, a centralized distribution model will decrease and increase the service level for ABB. The total logistics costs can be reduced by almost 28 percent using a distribution centre (Forderberg, 2010). Majority of the organizations are not using the JIT Production System, ABM, TQM tools for cost reduction (Sharma, 2011).

The contribution to the cost reduction in the automobile industry can provide a coherent framework for companies' management teams with some ideas to reduce cost. Video-interviews have been used with two managers from SVW and GAC Toyota. These five costs can be solved by planning the best route, the method of economic order quantity, the method of activity based classification and just-in-time. The Materials are factors to help automobile companies reduce costs in the production sectors. Standardization of materials and improvement of productivity have been provided, the effective implementation of those two measures can help automobile companies reduce production costs directly in the Chinese automobile market (Zhiran & Menxiao, 2012).

About 80% of all cost reductions are caused due to direct improvements related to the development of offshore wind farms. This is mainly due to

the fact that the wind turbine contributes a relatively large part of the investment costs and that cost reductions may be only 40-60% compared to current investment costs. Main reason behind this large cost reduction is the assumed mutual learning of onshore and offshore wind turbines with increasing diffusion. The remaining 20% of total cost reductions are caused by autonomous developments. Most important are the development of steel prices, as this directly affects the foundation structures and towers. Finally, the long-term stable offshore prospects may support cost reductions. No single country has the potential to satisfy this need over an extended period of time. Thus, a policy recommendation is to consider a joint European policy regarding the stimulation of offshore wind might be a great benefit both to ensure offshore wind diffusion and cost reduction (Junginger & Faaij, 2013). In manufacturing unit, where its main cost element is the material cost. Manufacturing companies are preferring techniques like value engineering, quality control, budgetary control, for the purpose of cost reduction. This technique fulfills the objective of company i.e. “Low Cost Manufacturer” (Barbole, Nalwade & Parakh, 2013).

Cost reduction in distribution can thus be effectively obtained by a depth analysis of the distribution system of the area; if not feasible then the results form a similar area can be employed to with necessary modifications. Different aspects such as mode of transportation, location of distribution center, methodology for reduction of secondary freight costs etc. has to be taken care of. Proper planning on the basis of the data available is to be employed. Moreover constant simultaneous analysis of the employed method is to be observed to constantly monitor the ground situation and the improvements that can be employed. Corporate profitability, which was conventionally considered to be a function of cost, capital employment, revenues and customer service, is now much a function of effective supply chain management as well. The concept is encompassing the strategies of procurement, quality control, extensive use of global sourcing along with human training and management leading to the concept of value added management (Patil, 2014). There are worth investing more attention in to the procurement policy, both order quantities

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and reorder points. This is for trying to reduce total supply chain costs related to purchase costs and inventory carrying costs. It is proven that there are possible savings for putting more attention to articles from suppliers. Optimizing these values is considered for a short term period a good solution for trying to reduce total supply chain costs for spare parts from supplier to buyer (Glide, 2015). The steps to reduce the costs are Arrange product development projects according to priority and importance, employ personnel focused only on one project, make personnel development and management, as well as improving the personnel structure the essential aims, keep the organization continually advanced, make decisions where the highest professional competence and the necessary oversight are present, invest in time and capability in the early product development phases, ensure the properties of products early and with low effort, discover the causes of change and avoid them in the future, before carrying out the changes, test the entire process chain for their effects, increase efficiency with tools for improvement of communication, analyze and optimize the processes of development before using the new tools, training is needed in methods and their application in different situations, define, advance and enhance the core competencies in product development, build up and advance product development partnerships, make the effects of complexity and complexity modification transparent, search for existing or similar parts before deciding to develop entirely new parts and at last examine and reveal all of the consequences of new variants (Hundal, 2015).

Long term sustainable development is possible if any country directly and indirectly depends up on the promotion and growth of business and industries. Business and industries are main key factors for development of a country. The success of businesses and industries largely depends up on the efficient utilization of limited resources. For initiating the business and industrial enterprises, the cost plays the vital role. Every business firms or industries must bear cost to run day to day business activities. So cost is unavoidable factor for business firms. Every business organization is worry about management of cost in its day to day operation. So it is very

challenging job for every organization. In developed countries, management of cost and application of cost reduction tools are also very challenging tasks. In the developing countries like Nepal, business firms are said to be losing their competitiveness due to higher cost. As Nepal has entered into WTO, Nepalese manufacturing organizations have to face high competition. Free entry of highly quality base cheap products are main headache for Nepalese entrepreneurs. Due to this, Nepalese products are less competitive with the products of other countries made of highly sophisticated technologies with lower price. This is the main challenging issues for Nepalese organizations. So, it has been a must for Nepalese manufacturing enterprises to apply the cost reduction tools effectively and efficiently.

There are many problems which are faced by the Nepalese manufacturing organization in Nepal. They are related with political interference, lack of finance, small market, lack of mutual trust, lack of efficiency of manpower, lack of technical knowledge, labor problems, lack of infrastructure etc. Likewise over capitalization, bureaucratic system prone to corruption, long time consumption for decision making, political interference and excessive control have discouraged the private sector and hurt public sentiments or confidence. Frequent changes in government and their policies have gained less confidence and expectation of the private sector. Hence, Nepal has been considered to be the country with limited level of investment climate.

In this context, the research work intends to what extent do Nepalese manufacturing organizations with reference to Pokhara valley apply cost reduction tools? The main objective of the study is to evaluate the application of cost reduction tools in Nepalese manufacturing organizations with reference to Pokhara valley.

Data and Methods

All together the 264 manufacturing organizations established and operating in Pokhara valley (www.doind.gov.np/ind-stat-2070/71) have been taken as population of the research study. Due to the limitation of cost and time, only 10 organizations have been selected, at least two samples from each

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stratum out of the target population. The samples have been stratified as three industries from food industries, viz. Him Shree foods (Pvt.) Ltd., Pokhara, Pokhara Noodles (Pvt.) Ltd., Pokhara and Karmacharya Bakes and Foods, Pokhara. Similarly two paper industries such as Global Saikshik Samagri Kendra, Industrial State, Pokhara and Nawa Durga recycling (Pvt.) Ltd., Industrial State. On the other hand, three from Gas, Polypipe and plastic product industries such as Shakti Gas Industries, Pokhara, Grihalaxmi Gas Co. (Pvt.) Ltd., Pokhara and Jaya Packaging (Pvt.) Ltd., Industrial State, Pokhara and of two dairy industries Fishtail Dairy (Pvt.) Ltd., Pokhara and Sujal Dairy (Pvt.) Ltd., Industrial State, Pokhara.

For this study, primary data have been collected through the structured questionnaires consisting of 27 multiple choice questions by distributing it to the production manager or finance manager of the concerned organization. The information has been collected through unit visits. An empirical investigation has been conducted in order to find out various aspects of cost reduction tools. The major tool used for this purpose is the questionnaire. A total 15 set of questionnaires were distributed to the sample manufacturing organizations, but only 10 sets of questionnaire were returned back from these organizations. The collected information has been tabulated in a frequency distribution for the purpose of data presentation, analysis and extract of findings. As the respondents are given opportunities for giving more than just one answers to the questions, the column total reflects sampled organizations from each subsectors and the row total shows the total number of organizations choosing a particular answer. For the analysis of data, percentage analysis method has been adopted.

Result and Discussion

A survey was conducted over ten manufacturing organizations in Pokhara valley to explore about how they are trying to utilize the cost reduction tools as a means of profit maximization. Response toward widely used ten different tools of cost reduction was examined and tried to analyze here. There are many areas which are required to apply in the cost reduction program. A survey was conducted to gather information about areas on

which organizations are suffering from cost related problem and applying cost reduction program. The study revealed the following results:

Table 1

Areas Selected for Cost Reduction

Particulars	Food industries	Paper industries	Gas , Polypipe and plastic industries	Dairy industries	Total	
					No	%
Product design	0	0	1	0	1	10
Production planning & control	1	2	0	0	3	30
Equipment and plant layout	0	0	1	0	1	10
Selling and distribution	1	0	0	0	1	10
Purchase of material and control	1	0	1	2	4	40
Total	3	2	3	2	10	100

Source: Field survey, 2016

The above result shows that most of the manufacturing organizations have selected the purchase of raw material and control as the area of cost reduction. 40% of the organization out of sampled have favored the purchase of raw material in lower price as the cost reduction program. Similarly, 30% organizations have considered the production planning and control as the cost reduction program. Likewise, 10% favored the product design, 10% favored the equipment and plant layout, while 10% favored the selling and distribution as the area of cost reduction from which price of the product can be lowered. From the above result, it can be said that no organization gives priority for product design as the area of cost reduction. Most of the organizations give more emphasis on purchase of raw material and control as the cost reduction areas.

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As described earlier, there are various types of cost reduction tools, which are using by Japanese manufacturing organizations at present. This study deals whether Nepalese manufacturing organizations are applying the cost reduction program or not. If they are not applying such tools then it reveals the causes of higher cost.

Table 2

List of Manufacturing Firms Applying and Not Applying Cost Reduction Tools

Cost Reduction Tools	Applying		Not Applying		Total	
	No.	%	No.	%	No.	%
DFM & CE	4	40	6	60	10	100
On Demand Lean Production	3	30	7	70	10	100
Build to Order	2	20	8	80	10	100
Mass-customization	0	0	10	100	10	100
Part Standardization	4	40	6	60	10	100
Product Line Rationalization	7	70	3	30	10	100
Supply Chain Management	8	80	2	20	10	100
Total Quality Management	10	100	0	0	10	100
KAIZEN System	8	80	2	20	10	100
JIT Production System	1	10	9	90	10	100
Reengineering	8	80	2	20	10	100

Source: Field Survey, 2016

The above data reveals that only 40% organizations are using the Design for manufacturability and concurrent engineering (DFM & CE) as the cost reduction tool, while 60% organizations are not adopting this tool for reducing cost. The above data reveals that 30% organizations are applying on demand lean production and 70% organization out of sampled are not adopting this tool as the cost reduction. Similarly 20% of the organizations out of sampled organizations are using Build to order as cost reduction tool, while 80% of the organizations are not applying this tool as the cost

reduction. From the above data only 40% of the organizations are using the standardized parts, while 60% of the sampled organizations are using the varieties of parts. From the above data, only 70% of the manufacturing organization are using the product line rationalization as the technique of cost reduction, while 30% organization out of sampled organization are not applying this technique due to different reasons such as due to the fear of losing customer, due to the fear of decreasing sales volume etc. Furthermore, it can be seen that 80% of the sampled organizations are managing their supply chain as the cost reduction tool, while 20% of the sampled organization could not applying the supply chain management technique. Moreover, all of the sampled Nepalese manufacturing organizations are applying the Total quality management as the cost reduction tool. In addition, it can be seen that 80% of the sampled organizations are continuously improving their organization by solving problem step by step, while 20% of the sampled organization are not adopting the KAIZEN system to improve their organization. Table 2 shows that only the 10% of the sampled organizations are applying the Just in Time production system as the cost reduction tool, while 90% of the sampled organizations are not applying this technique as cost reduction tool. Furthermore, it can be seen that most of the organizations are applying the Reengineering business process as the technique of cost reduction. 80% of the sampled organizations are applying the Reengineering technique as the cost reduction tool, while 20 percent of the sampled organizations are not applying this tool for the reduction of cost. The above table shows that 100% of the sampled organizations think that there is necessity of applying cost reduction tools to compete in the global market, but there is lack of managerial, technical manpower, lack of knowledge about the different cost reduction tools, lack of modern technology etc, which may restrict in the application of this technique.

In this ground most of the manufacturing industries based on Pokhara valley has not been adopting and applying the cost reduction tools. What are the causes due to them are not permitted to apply the tools? The study tries to identify the causes for not applying the tools as:

Table 3**Causes of not Applying the Cost Reduction Tools**

Cost Reduction Tools	Lack of Skilled Manpower		Lack of Knowledge about tool		Lack of top Management's support		Lack of Technology Availability		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
DFM & CE	1	10	5	50	-	-	2	20	2	20	10	100
Build to Order	1	10	6	60	-	-	1	10	2	20	10	100
Mass-customization	2	20	1	10	-	-	-	-	7	70	10	100
Part Standardization	2	20	7	70	-	-	1	10	-	-	10	100
Product Line Rationalization	-	-	2	20	-	-	4	40	4	40	10	100
Supply Chain Management	-	-	3	30	-	-	-	-	7	70	10	100
Total Quality Management	-	-	2	20	-	-	4	40	4	40	10	100
KAIZEN System	2	20	2	20	-	-	2	20	4	40	10	100
JIT Production System	1	10	2	20	-	-	6	60	1	10	10	100
Reengineering	2	20	4	40	-	-	2	20	2	20	10	100

Source: Field Survey, 2016

Note: Others include fear of revenue loss due to decrease in sales, non availability of supplies and fair environment, fear of losing market share.

From the table above it can be said that the main practical difficulty in applying the Design for Manufacturability and Concurrent Engineering as the cost reduction tool is lack of information about this tool. 5 manufacturing organization out of 10 sampled organizations, which are not using the DFM and CE due to lack of knowledge and information about this cost reduction tool. Two out of 10 not uses it due to lack of technology, two due to other reasons and one manufacturing organization not adopting DFM and CE due to the lack of skilled manpower. Further, it can be seen that 60% of the organization out of the sampled which are not using the Build to order as the cost reduction tool due to non availability knowledge regarding the tool. 20% organization out of sampled are not applying build

to order due to other reasons and 10% each due to lack of skilled and technical manpower, and availability of technology. Moreover, it can be said that most of the organizations are not using the standardized parts due to the lack of suppliers supplying standardized parts. about 70% organizations out of sampled which are not using standardized parts due to the lack of suppliers supplying standardized parts, while 20% organization are not using the standardized parts due to the lack of knowledge and 10% due to other reason about the part standardization. From table above it can be seen that 40% due to not availability of technology, 40% due to other reasons and 20% due to lack of knowledge regarding the tool organizations which are not applying product line rationalization technique as the cost reduction tool. However, it can be seen that 50% of sampled organizations are not using supply chain management due to the lack of suppliers for spontaneous supply chain, while 70% organizations are not applying supply chain management as the cost reduction tool due other reasons and 30% due to the lack of knowledge about supply chain management. From the data presented above, it can be seen that 40% organizations are not applying due to other reasons where as 20% due to lack of technical manpower and 20% due to lack of knowledge about the KAIZEN system. Moreover, it can be said that most of the sampled organizations which are not applying Just in Time production system due to lack of modern technology. 60% of the sampled organizations are not applying this tool due to lack of modern technology, while 20% organizations are not using this technique due to the lack of knowledge about just in time production system. Likewise, 10% sampled organizations are not applying Just in Time production system due to lack of knowledge about JIT and 10% due to other reasons. From the above table it is cleared that 40% of the organization which are not applying Business process Reengineering is due to lack of knowledge about the Business process Reengineering, where as 20% due to lack of skilled manpower, 20% due to lack of technology and 20% due to other reasons. No one sampled organizations not applying anyone tools of cost reduction due to lack of top management's support. Thus, it is cleared that the industrialists and executives are highly

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committed to adopt the cost reduction tools in the Nepalese manufacturing sectors.

Conclusions

After conducting this research work on the topic of cost reduction tools used in Nepalese manufacturing organization, it can be concluded that, Most of the organizations located in Pokhara valley are not applying the design for manufacturability and concurrent engineering as the tool of cost reduction due to the lack of knowledge about the tools. Most of the organizations are not applying the on demand lean production system as the cost reduction tools. Most of the organizations based in Pokhara valley are not applying the build to order as the cost reduction tool. No one of the organizations is applying the mass customization as the cost reduction tool due to the lack of modern technology. Most of the organizations of Pokhara valley are not applying part standardization as the technique of cost reduction. It can be concluded that most of the organizations of Pokhara valley prefer the product line rationalization as the cost reduction technique. Furthermore, it can be concluded that almost of the organizations of Pokhara valley are using the Total quality management as the technique of cost reduction. It is also concluded that most of the organizations are not applying the Just in time production system as the tool of cost reduction. Most of the manufacturing organizations established in Pokhara valley are applying the KAIZEN system and Business Process Reengineering as the technique of cost reduction tool. Most of the Nepalese manufacturing organizations are selecting the purchase of raw material, production planning and control as the area of reducing their cost. All of the organizations are conscious about TQM as the technique of cost reduction. Most of the organizations are applying product line rationalization, supply chain management, KAIZEN system, reengineering as the technique of cost reduction. Most of the organizations are not applying the Design for manufacturability and concurrent engineering, on demand lean production, build to order, part standardization, Just in Time production system as the tools of cost reduction.

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Research Article
Role of Board- Manager Relation on Cooperative Performance

Dhaneshwar Rakhal

Faculty of Management, Prithvi Narayan Campus, Pokhara

Email: rakhald@hotmail.com

Abstract

Cooperatives are based on the philosophy of equality and mutual help i.e. 'All for each and each for all'. They cover a wide range of development services in Nepalese context. The members of a cooperative elect a board of directors in its general meeting for the day to day operation. The board prepares policy and procedures, and appoints manager(s) to implement the policies and run the program. One of the internal issues in saving and credit cooperatives is the relationship between managers and the board of directors which affects on the performance level of the cooperative. In this regard, the main objective of this paper is to assess the relationship between managers and the board of directors, and its impact on the performance of saving and credit cooperatives in Pokhara. The study also covers the managers' feelings of job satisfaction, career development opportunities, and responsibilities of board of directors and managers. Out of 212 savings and credit cooperatives in Pokhara Sub-metropolitan, 77 cooperatives were selected as sample. A questionnaire survey with the managers was carried out to derive the primary information, and annual audited reports are used as secondary sources of data. The results indicate that board-manager relation does not affect the responsibilities of board of directors and managers, and academic qualifications of managers are positively related to performance of the cooperatives. Finally the paper concludes that the board manager relationship is positively related to return on assets of the cooperatives.

Keywords: Board of directors, job satisfaction, managers, performance, Pokhara, returns on assets, saving and credit cooperatives

Introduction

Cooperative is a member controlled business which covers a wide range of development services. Cooperatives have been instrumental in financial inclusion for the rural and agricultural households in Nepal. It is accepted as a most important part of three-pillar economy comprising of the state, cooperatives and the private sector. Although, there are some serious issues in cooperatives, especially in saving and credit cooperatives such as the requirement for suitable legislation for regulating such cooperatives, effective supervisory and monitoring arrangement, adhering to member based business activities, setting good governance practice, putting internal control in place, following ethical practices in business, and bridling the temptation to make and distribute undue profit (Khatiwada, 2014).

The internal structure of the cooperatives in Nepal contains general assembly as apex organization, the executive board of directors as the operational agency, and the account and the supervision committee as the strong internal committee with the responsibility to perform the job of auditing by itself or hiring the auditors. The board of directors can organize different subject-wise subcommittees to help in its daily activities smoothly according to needs (Thakuri, 2010). The board of directors appoints the employees of the cooperative society according to the needs of the organization. Most of the cooperatives appoint one manager, and the supporting staff having the position of assistant manager, accountant, cashier/treasurer, marketing staffs, security guards etc. (Thakuri, 2010).

Directors in a cooperative hold a crucial position between members and the managers. Normally, the manager of the cooperative leads the office, with the responsibility of daily transactions. Similarly, the manager act as a bridge between the board of directors and employees. In few cooperatives, one member from the board of director is working as executive director or managing director of the cooperatives (Thakuri, 2010; Zivkovic, Hudson, Johnson & Park, 2015). There are several issues relating to the cooperative

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governance performance i.e. diverse backgrounds of directors, duties and responsibilities of the board of directors and managers, good relation between board of directors and managers, maximizing resources and minimizing cost of cooperatives, and accepting the diverse roles by the managers (Santiaguel, n. d.). One of the issues of cooperatives is the relationship between manager and the board of directors of the cooperatives.

Another issue or challenge of saving and credit cooperative management that the cooperative members are consumers, farmers, workers, fishers, informal economy operators – they are not necessarily professional in managing cooperatives. Smaller cooperatives may not be able to hire professional managers and must therefore rely on the skills of elected member, who may excel in their trade but have never seen a balance sheet. This is the reverse of the medal of “democratic management”, which needs to be addressed through training, education, and appropriate advisory, and support services (Schwettmann, 2014). The effectiveness of management is one of the most important factors in determining the success or failure of any firms, whether it is cooperative or an investor oriented firm. Both the board of directors and the managers are involved in the cooperative management process and activities such as planning, organizing, staffing, directing, and controlling. The board needs to keep managers adequately informed about cooperative plans, policies, and strategies. For the success of the cooperatives, the board requires to fulfill the adequate employees in a cooperative, to train employees, to take step for job satisfactions and to spend the career of the employees in the organization. The working relationship between the board and the manager requires respect and the understanding of each other's responsibilities for the cooperative to be successful (Cobia, 1989 as cited in Zivkovic et al., 2015). Thus, the board manager relationship is the most important part of the cooperative performance.

Conceptual Framework

Feltus, Petit and Vernadat (2009) define responsibility as “having the obligation to ensure that something happens” (p. 2). Feltus et al. also

highlight that being responsible needs one or many capacities, accountabilities and commitments. But at the opposite, one commitment and accountability always relate to one responsibility, whereas one capability may be attached to many responsibilities. Accountability is the state of being accountable for the achievement of the results of an activity. Capability describes the required qualities, skills or resources to perform an activity (Feltus et al., 2009). Commitment is the moral engagement of a person to achieve objective and perform the task in respect of an ethical code. In cooperative societies, it is the responsibility of the board of directors to ensure that the cooperative societies comply with the standard and policies that enhance good governance (Otieno & Ombuna, 2015). It means managers and boards are accountable for their own action relating to themselves and others.

The relationship between boards and manager is viewed very differently within the contrasting theoretical perspectives. The agency and democratic perspectives stress the importance of the board monitoring and controlling the work of managers. In contrast, stewardship theory stresses the role of the board as a partner to management, working in collaboration to improve top management decision-making (Cornforth, 2004). Mole (as cited in Cornforth, 2004) has pointed tension and conflict seems most likely to occur when boards and senior managers have different expectations of their respective roles. The interdependent of board and managers offer to establish a productive working relationship is through open discussion and negotiation over roles and responsibilities. Therefore, it is important that the boards regularly review their relationship with managers and how they are working together.

Job satisfaction refers to the attitudes and feelings of employees that they have about their work. Positive and favorable attitudes towards the job indicate job satisfaction. Therefore, job satisfaction is a positive emotional state that employee experiences about their duties (Shrestha, 2015). Luthan (as cited in Tella, Ayeni & Popoola, 2007) notes response, expectancy, and attitudes as dimensions of job satisfaction. Emotional response is the matter

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of experience and feeling. It cannot be seen or touched. Job satisfaction is also determined by how well outcomes meet the expectations of employee. So, it is the difference between the amount of rewards employees receive and the amount they expect they should receive. An attitude can be as a positive or negative evaluation of people, objects, events, activities, and ideas. Job satisfaction represents employees' attitudes about different factors: pay (salaries and wages), the work itself, career development opportunities, supervision and coworkers.

Manager with a high level of job satisfaction holds positive feelings about the job, while a person with a low level holds negative feelings. Job satisfaction influences on productivity and absenteeism of employees. Productivity has the efficiency relationship between input and output. The evidence suggests that productivity is likely to lead to satisfaction. It also seems that organizations with more satisfied workers as a whole are more productive organizations. Absenteeism is the failure of people to attend work. There is an inverse relationship between satisfaction and absenteeism. Consequently, managers' job satisfaction tends to center on its effect on organizational performance.

Performance is the act of carrying into action, achievement, accomplishment, representation, and duty. Performance management is the process of creating a work environment or setting in which people are enabled to perform to the best of their abilities (Otieno & Ombuna, 2015). Performance management is a whole work system that begins when a job is defined as needed and it ends when an employee leaves the organization. Managing performance requires developing people with ensuring that organizational aims are achieved (Otieno & Ombuna, 2015). It means, therefore, to look first at managing performance at the level of basic standards and responsibilities.

There is no consensus on the dimensions of organizational performance. Some studies focuses on one or two dimensions. However, two clear-cut dimensions can be suggested: financial and non-financial performance. The dimensions for financial performance include profitability, return on assets,

return on investment, market return, sales revenue and others, while the dimensions for non-financial performance include customer satisfaction, job satisfaction, turnover, service quality, quality of job performance and others (Ilhaamie, 2015). Thus, organizational performance is a multi-dimensional concept. Hence, Seldon and Sowa (as cited in Ilhaamie, 2015) suggested that researchers use a multi-indicator in order to measure the complexity of the organizational performance dimension. In this regard, the study used only financial measure of performance i.e. ROA.

Data and Methods

The paper is descriptive in nature and mainly based participants' experiences and views. Primary data were obtained by using structured questionnaire survey. Annual audited reports of Finance Year 2015/16 are also collected from the sample cooperatives which are basically used for calculation of return on assets. Besides, literature related to cooperatives, manager and board relation, organizational/cooperatives performance are also consulted and used whenever necessary.

Mid July 2015, there were 212 savings and credit cooperatives in Pokhara Sub- metropolitan (Cooperative Training and Division Office, 2015). These entire cooperatives are treated as population. Out of 212 cooperatives, 77 cooperatives of Pokhara Sub-metropolitan were the sample of the study. The entire managers (i.e. office head) of the sample cooperatives are the sample respondents for the primary data and convenient sampling was used. Copies of questionnaire schedule with the cover letter were prepared as the instruments for the collection data. The questionnaire was based on previous research (Adrian & Green, 2001; Zivkovic et al., 2015) and it was translated in Nepali to make it easier for the respondents. The respondents were visited for questionnaire survey in their offices of the cooperatives. The time for the respondents was set with the respondents' cooperation. The questionnaire was filled up and collected immediately. With the questionnaire, the annual audited reports also collected from the sample cooperatives. All the data collected from the questionnaire and annual audited reports are processed in the computer using SPSS software. The responses frequencies are categorized and frequencies percentage are computed and interpreted. Additionally, regression analysis and regression models are used whether applicable.

The empirical model also used in the analysis is specified in following regression equation:

$$ROA = \beta_0 + \beta_1(JOB) + \beta_2(CAREER) + \beta_3(BOARD) + \beta_4(ACADEM) + \beta_5(SEX) + \varepsilon$$

In the model, return on assets (*ROA*) represents dependent variable which is the performance variables of the cooperatives. The financial ratio, i.e. *ROA* of all the sample cooperatives were calculated from their audited annual financial statements of the fiscal year 2071/72 (BS). In addition to the variable described above, other right side or independent variables include the overall job satisfaction (*JOB*), career development opportunities (*CAREER*), board manager relationship (*BOARD*), academic qualification (*ACADEM*) and sex (*SEX*) of the respondents. Similarly, intercept or a constant value (β_0), regression coefficients ($\beta_1, \beta_2, \dots, \beta_5$) and error term (ε) are also used on the right side of the regression equation.

Results and Discussion

Background Information

The responses regarding background information are presented in Table 1 to 4. Age distribution of the respondent managers is given in Table 1. About 36.4 percent of managers are less than 30 years of age, 29.9 percent of managers are of 30 to 40 years of age, 20.8 percent are 40 to 50 years and the rest are more than 40 year and above. The average age of manager is 35.65 years.

Table 1
Age wise Classification of Respondents

Years	No	Percent	Mean	Minimum	Maximum
20 — 30	28	36.4	35.65	22	63
30 — 40	23	29.9	Years	Years	Years
40 — 50	16	20.8			
50 — 60	6	7.8			
60 and Above	4	5.2			
Total	77	100.0			

Source: Survey Data 2016

As is evident from Table 2, majority of respondent (77.9 percent) are male and 22.1 percent are female respondents.

Table 2
Sex wise Classification of Respondents

Sex	Number	Percent
Male	60	77.9
Female	17	22.1
Total	77	100.0

Source: Survey Data 2016

As evident from Table 3, 76.6 percent of cooperative managers are married and the rest, 33.4 percent are unmarried. It indicates the dominance of married managers in saving and credit cooperatives in Pokhara.

Table 3
Marital Status of Managers

Marital Status	No	Percent
Married	59	76.6
Unmarried	18	23.4
Total	77	100.0

Source: Survey Data 2016

Table 4 shows the educational background of the managers of saving and credit cooperatives selected as sample. Most of the financial practitioners hold the bachelor or higher degree. The Table shows 48.1 percent of managers are holding bachelor's degree, 28.6 percent and 18.2 percent are holding master's degree and higher secondary degree respectively.

Table 4**Academic Qualification of Managers**

Level-wise Qualification			Stem-wise Qualification		
Level	No	Percent	Stem	No	Percent
Below Secondary	1	1.3	Management	52	67.5
Secondary Level	3	3.9	Law	2	2.6
Higher Secondary Level	14	18.2	Social Science	14	18.2
Bachelor Level	37	48.1	Education	3	3.9
Master and Above Level	22	28.6	Other	6	7.8
Total	77	100.0	Total	77	100.0

Source: Survey Data 2016

Similarly, 3.9 percent and 1.3 percent are holding secondary level and below secondary level respectively (Table 4). As was expected, the table also indicates most (67.5 percent) of the managers hold the degree in management stream (subject), 18.2 percent holds the degree in social sciences and 3.9 percent managers hold the degree in education stem. Rest other (7.8 percent) includes the degree in English literature, science, and without specialization (secondary and below the secondary level of education).

Career Development Activities

With respect to career development activities, the opportunities for the career development, managers' participation in cooperative management training, and their involvement in planning and budget preparation meeting were examined as variables of career development activities. About career development opportunities in the field of cooperatives, 37.7 percent respondents have felt satisfied, 26 percent stated not satisfied, 22.1 percent respondents have opinioned that they are dissatisfied, 9.1 percent respondents have felt highly satisfied and 5.2 felt they are completely dissatisfied. Thus, the majority of the respondents are of opinion that they

are dissatisfied in the on the career development in the job of cooperatives (Table 5).

Table 5

Career Development Opportunities

Level of Satisfaction	No	Percent
Highly satisfied	7	9.1
Satisfied	29	37.7
Not satisfied	20	26.0
Dissatisfied	17	22.1
Completely dissatisfied	4	5.2
Total	77	100.0

Source: Survey Data 2016

Board Manager Relation

As regards to the board manager relationship, managers were asked about the types of board manager relationship in their cooperatives. In this regards, majority (62.3 percent) managers noted that their relationship is "adult-adult". Similarly, 15.6 percent, 11.7 percent, 10.4 percent managers noted that the relation: "parent-child", "other" and "principal-agent" respectively (Table 6). The responses 'other' includes "neighbor", "leader follower", "friendship", "brotherhood", "chain of command", "body and mind" and "nail and marrow" (*nang ra masu*).

Table 6

Board Manager Relation in Respondents' Cooperatives

Relation	Frequency	Percent
Parent–Child	12	15.6
Principal–Agent	8	10.4
Adult–Adult	48	62.3
Other	9	11.7
Total	77	100.0

Source: Survey Data 2016

Board Manager Responsibilities

Managers were asked to rank eight areas of primary responsibility for performing by board or manager or equally between them (Table 7). For three of the eight areas, the majority of manager ranked "manager more responsible" or "manager most responsible". These areas are "managing day to day operations of the cooperatives" (94.8%), "informing members about the cooperative and its activities" (61.1%) and "furnishing information needed for long range planning" (48.1%). Similarly, managers identified three areas where "board and manager equally responsible". These areas are: "informing members about the cooperative and its activities principles" (57.1%), "developing programs for implementation of cooperative's policies" (53.2%) and "setting of business for the welfare of the cooperative members" (42.8%). Finally, manager selected only two areas where "board more responsible or board most responsible", are: "approving the purchase of major capital assets (72.8%) and "maintaining minutes of the board of directors' meeting" (45.5%). Out of eight areas, the result of six areas agrees with the result of Adrian and Green (2001). These six areas are: "managing day to day operations of the cooperatives", "furnishing information needed for long range planning", "informing member about the cooperatives and its activities", "developing programs for implementation of cooperative's policies", "setting of business for the welfare of the cooperative members" and "approving purchase of major capital assets"

Table 7

Managers' Responses for Division of Primary Responsibilities between Management and Board of Directors

Area of Responsibility ¹	N	Response Ranking				
		1	2	3	4	5

¹ Adrian and Green (2001) used fourteen areas of responsibility relating to board and manager of the cooperatives. Out of them only eight areas are appropriate in Nepalese context and used in this paper.

a. Setting of business for the welfare of the co-op	77	18 (23.4) ²	13 (16.9)	33 (42.8)	5 (6.5)	8 (10.4)
b. Managing day to day operations of the	77	1 (1.3)	0 (0)	3 (3.9)	43 (55.8)	30 (39.0)
c. Maintaining minutes of the board of directors'	77	17 (22.1)	18 (23.4)	15 (19.4)	19 (24.7)	8 (10.4)
d. Approving purchase of major capital assets	77	37 (48.1)	19 (24.7)	18 (23.3)	1 (1.3)	2 (2.6)
e. Developing programs for implementation of co-op's	77	8 (10.4)	10 (13.0)	41 (53.2)	9 (11.7)	9 (11.7)
f. Furnishing information needed for long range	77	6 (7.8)	6 (7.8)	28 (36.3)	27 (35.1)	10 (13.0)
g. Informing members about the co-op and its activities	77	4 (5.2)	3 (3.9)	23 (29.8)	31 (40.3)	16 (20.8)
h. Hiring, training and setting compensation for	77	15 (19.5)	15 (19.5)	44 (57.1)	1 (1.3)	3 (2.6)

Note. The divisions of response are defined as follows: 1 = board most responsible, 2 = board more responsible, 3 = Board and manager equally responsible, 4 = manager more responsible and 5= manager most responsible.

Source: Survey Data 2016

For the calculation of the overall board manager responsibilities, all the variables of areas of responsibilities, setting of business for the welfare of the co-op members, managing day to day operations of the cooperatives, maintaining minutes of the board of directors' meeting, approving purchase of major capital assets, developing programs for implementation of cooperative's policies, furnishing information needed for long range planning, informing members about the co-op and its activities, principles and Hiring, training and setting compensation for employees, have been added to get overall job satisfaction level of the managers. Then the median

² Figures in parentheses indicate percentage over total responses.

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was computed to find the percent of responsibilities of board, manager and both. Median value has been used to find out overall board manager responsibilities because of responsibilities is being the qualitative dimension. The final outcome shows 48.1 percent, 45.5 percent and 6.5 percent of the board of directors, managers and both (combining board of directors and managers) are responsible for the given areas (Table 8).

Table 8

Overall Responsibilities between Management and Board of Directors

Particulars	No	Percent
Board of Directors	35	45.5
Both (Board of Directors and Managers)	5	6.5
Managers	37	48.1
Total	77	100.0

Source: Survey Data 2016

To test whether the association between board manager responsibility and board manager relationship is significant, chi-square test was run, but there is no significant association observed. The result indicates that board manager responsibility and board manager relation are not related (since the p-value .368 is greater than 5 percent). It means board manager relationship does not affect the responsibilities of the board of directors and managers (Chi square =6.5 with df 6 and p-value =0.368).

Job Satisfaction

All the job satisfaction variables, job security, reward and punishment system, compensation and benefit system, communication with the board, nature of the work, current remuneration system, career development opportunities, nature of supervision and business relation with the board, have been added to get overall job satisfaction level of the managers. The final outcome shows 44.2 percent of managers are satisfied and 55.8 percent of managers are dissatisfied (Table 9).

Table 9

Overall Job Satisfaction

Response	No	Percent
Satisfied	34	44.2
Dissatisfied	43	55.8
Total	77	100.0

Source: Survey Data 2016

Organizational Performance and Board Manager Relation

One model is developed to evaluate the impact of overall job satisfaction, career development opportunities, academic qualification, sex of the respondents and board manager relation on the financial performance of saving and credit cooperatives in which financial performance is measured by return on assets.

For the purpose of the linear regression of ROA on the various measures (independent variables) produces the following results:

$$ROA = 4.67 - 0.282(JOB) + 0.004(CAREER) + 0.226(BOARD) + 0.792(ACADEM) - 1.461(SEX)$$

The ANOVA points out that the overall fit of the model is significant because p-value is less than one percent (p-value= 0.001 with df 5 and F-value =4.45). The model indicates that academic qualification and board manager relationship are positively related to ROA (but not significant because p-value of both 0.115 and 0.613 are greater than five percent level). In the model, the overall job satisfaction is negatively related with ROA where as p-value (0.002 is less than one percent) is highly significant (Table 10). This is conflicting results as compared to earlier studies (Zivkovic et al., 2015) which may be due to the various limitations such as information on ROA, computation of overall job satisfaction etc.

Table 10**Regression Equation of ROA on Selected Variables**

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.671	3.315		1.409	.163
	Overall Job Satisfaction	-.282	.088	-.380	-3.191	.002
	Career development opportunities	.004	.406	.001	.010	.992
	Board Manager Relation	.226	.446	.055	.508	.613
	Academic Qualification	.792	.497	.193	1.595	.115
	Sex of Respondents	-1.461	1.002	-.171	-1.458	.149

Dependent Variable: ROA

*Source: Survey Data 2016***Conclusion**

With the purpose of assessing the effect of Board-Manager relation on the performance level of cooperatives in Nepalese context based on a questionnaire survey in Pokhara, this study finds that this relation is more 'adult- adult' relation. The majority of the managers are well-qualified, energetic, matured and competent in their field however; the percentage of female managers is low. Regarding career development opportunities, the majority of the sample respondents expressed their dissatisfaction. Similarly, under the heading of Board-Manager responsibilities, the data shows that the Board is more responsible than the managers and the combination of both. However, the result of chi-square indicates that the Board-manager relation does not affect the responsibilities of the board of directors and managers.

Concerning the cooperative performance and board manager relation, one model is developed to evaluate the impact of overall job satisfaction, career development opportunities, academic qualification, sex of the respondents and board manager relation on the financial performance of saving and credit cooperatives in which financial performance is measured by return on assets. The model indicates that academic qualification and board

manager relationship is positively related but not significant. In the model, the overall job satisfaction is negatively related with return on assets where as p-value is highly significant.

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Research Article

Factors Affecting the Efficiency of Inventory Management of Janapriya Multiple Campus, Pokhara

Hari Bahadur Bhandari

Faculty of Management

Janapriya Multiple Campus, Pokhara, Nepal

Abstract

Each and every organization needs inventories to perform day to day activities to achieve set objectives. This study entitled ‘FACTORS AFFECTING THE EFFICIENCY OF INVENTORY MANAGEMENT OF JANAPRIYA MULTIPLE CAMPUS, POKHARA’ is to assess the factors that affect on inventory management of the campus. Basically, the study is based on primary data including 21 sample out of total population 28. Stratified random sampling is used to select a sample size of 21 respondents. Structured questionnaire and other official documents are used to collect data from primary sources. Samples were three groups of office staff. Group wise distribution of sample was top level, middle level and assistant level. The collected data are tabulated and presented according to the needs and objectives of the study. Descriptive statistics of mean and standard deviation were used for data analysis. Factors related with proper record keeping of inventory, financial resources, skill possessed by store staff and bureaucratic procurement procedure positively affect on the effectiveness of inventory management. Proper inventory record, stock information and competent & qualified store employees are very important for the effectiveness of inventory management. Sufficient fund, skillful store clerks, training and development for store staff, few quality suppliers and easy process of budget release are inevitable for superior inventory management.

Factors Affecting the Efficiency of ...

Keywords: Cost, inventory management, office supplies, over/under stocking, procurement, store record

Introduction

Inventories are current assets. These are tangible assets held by an organization. In manufacturing concerns, inventories include stock of materials, semi-finished goods, (work in progress), finished goods, packing materials, factory supplies and spares. Cost of unsold goods is inventories for trading concern. Service organizations like schools, campuses, hospitals etc also need in the form of office materials/supplies. All form of inventories hold some economic value. Thus the sum of raw materials, semi-finished goods, finished goods, spare parts, office supplies and other consumable stores is known as inventory.

A firm should determine its optimum level of investment in inventories and to do this, two conflicting requirement must be met. First, it must ensure that inventories are sufficient to meet the requirement of production and sales and second, it must avoid holding surplus inventories that are unnecessary because of the costs involved. The optimal inventory level lies somewhere between these extremes (Drury, 2012, p.632).

Inventory management deals with eternal issue of how much to keep on hand as well as how much and how frequently to order. All organizations have to operate in dynamic environment. There exist uncertainty in demand and lead time. As a result organization needs inventory management. Hongren, Dater and Rajan (2015) defined "Inventory management includes planning, coordinating and controlling activities related to the flow of inventory into through and out of an organizations" (p.1042). Inventory management is a tool of management and it is concerned with planning, organizing and controlling the movement of stocks from their initial purchase to destination. Low level of inventory adversely affect on the day to day operation of an organization. On the other hand, high level of inventories increases losses, damages, opportunity cost and other holding cost. Therefore there should be optimum level of inventory. Maintaining the optimum level of inventory in any organization is inventory

management. It is concerned with minimizing relevant inventory costs I.e. purchase cost, ordering cost and carrying cost.

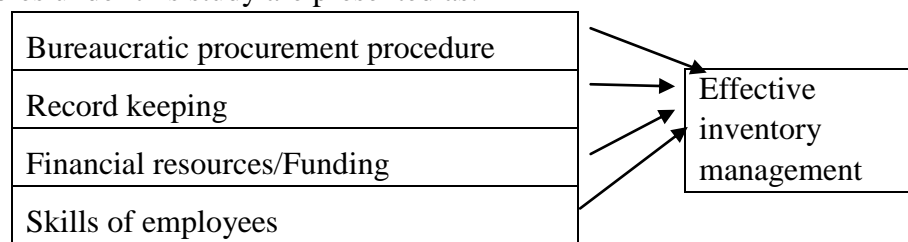
Enterprise Resource Planning(ERP)implementation enhance accuracy of inventory management. The ERP provides speed and reduce cost in managing inventory(Nayakeri & ochiri, 2014).Documentation is crucial in ensuring efficient inventory management. Stock records provide the management with the information to ensure accountability through stock audit exercise(Ondari & Muturi, 2016).Internal inventory security procedural practices, inventory auditing and computerized inventory control individually and collectively have significant positive impact on procurement performance(Onchoke and Wanyoike, 2016). Inadequate forecasting of requirement, scheduled time for deliveries, inefficient staff, scheduled time for receiving, issuing and unorganized storage facilities affect information sharing between the customer and supplier are the causes of overstocking and under and affecting effective inventory management (Onkundi & Bichanga, 2016). Staff training, level of technology, stock evaluation and procurement policies had a significant connection on the efficiency of inventory management. Poor stock taking, outdated procurement system and long bureaucratic procedure had unfavorable impact on the effectiveness of inventory management(Fredrick, Mike & Zipporah, 2017). Previous studies are related with manufacturing company, trading stores and hospitals. There is not any study that has been done on inventory management of community campus like Janapriya Multiple Campus (JMC). Therefore the study certainly fulfills the gap. This study aims to examine the factors affecting the efficiency of inventory management. It will indicate the different factors that effect on the effective inventory management. Likewise, it will also help to formulate plans and policies regarding inventory management of JMC. It will also provide a base for the further studies to researchers on related topic.

Data and Methods

Janapriya Multiple campus (JMC) is a QAA certified public campus affiliated to Tribhuvan University ,Nepal. JMC was established in 1991A.D/(2048 B.S.).The campus is nonprofit social organization generating needed financial resources locally. At present JMC is adopting the strategy to accept grants provided by Nepal Government through

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University Grants Commission(UGC). However the main source of income to meet its operating and other cash outlay is fee from the student. Therefore, the campus needs to minimize cost as far as possible. Inventory management helps to minimize cost of office supplies used. There are different factors that contribute to proper functioning of inventory management. Some of the variables on which the effectiveness of inventory management depends include bureaucratic procurement procedure, inventory records, financial resources and skills of employees. The variables under this study are presented as:



In this study, descriptive research design is used to achieve the stated objective. The population of this study was 28 including all the non-teaching staff of JMC except office helpers or peon. The target population is stratified into top level, middle level and assistant level. This study applies disproportionate stratified random sampling technique to select sample size of respondents. Sent percent of top level staff, 72.72% of middle level staff and 55.56% of assistant level staff were collected as sample size. The selection of the sample size is as follows.

Table 1
Target population and sample size

Categories	Target population	Sample size
Top level	8	8(100%)
Middle level	11	8 (72.72%)
Assistant level	9	5 (55.56%)
Total	28	21 (75%)

Source: Annual report, JMC (2073)

The study is based on primary data. Primary data were collected by using self administered questionnaires distributed personally at the respondent's place of work by the researcher. Closed ended and scaling questionnaires were collected. The data gathered from the questionnaire was edited to ensure completeness, consistency and accuracy. Collected data were analyzed through the use of statistical packages for social sciences(version 22) software. Mean and standard deviation of descriptive statistics have been used to explain the finding of the study.

Results and Discussion

This section deals with the analysis of factors affecting on inventory/office supplies management of JMC. Three forth (75%) of total population were selected as sample to draw proper conclusion from this study.

Table 2

Effects of bureaucratic procurement procedure factors on the effectiveness of inventory management

Factors	1	2	3	4	5	Mean	Standard deviation
Management should try to avoid long procurement process	18	3	0	0	0	4.86	0.37
Rigid rules and policies for procurement should be eliminated	1	3	0	1	16	1.67	1.28
There should be procurement committee to acquire inventory	16	4	0		0	4.67	0.71
Bureaucracy forces on conformity rather than performance	6	10	0	4	1	3.76	1.19
Management should try to keep good relation with fewer quality suppliers as opposed to many suppliers	17	4	0	0	0	4.81	0.39

Source: Field survey, 2074

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Table 2 shows responses of respondents towards the factors related with bureaucratic procurement procedure. Most of the respondents strongly agreed on the view that management should try to avoid long procurement process and management should have good relation with few suppliers rather than many suppliers as shown by mean and standard deviation 4.86(0.35) and 4.81(0.39). Majority of the respondents focused on provision of procurement committee to acquire inventory indicated by mean 4.67 and S.D.0.71. The mean and standard deviation for the elimination of rigid rules and regulation is 1.67 and 1.28 respectively. Bureaucracy forces on conformity rather than performance has not significant effect on the effectiveness of office supplies management as compared to other bureaucratic factors.

Table 3
Effects of record keeping factors on the effectiveness inventory management

Factors	1	2	3	4	5	Mean	St.deviation
Lack of advance technology or use of manual inventory system increase storage cost	13	8	0	0	0	4.62	0.49
Accuracy of inventory records is necessary to provide effective service	15	6	0	0	0	4.71	0.45
Perpetual stock taking is essential to determine replenishment of individual stock item	18	3	0	0	0	4.86	0.35
Proper inventory record is necessary to overcome overstocking and under stocking.	21	0	0	0	0	5.0	0
Stock information is very important for effective inventory management	20	1	0	0	0	4.95	0.21

Source: Field survey, 2074

It could be seen from Table 3 that JMC non teaching staff strongly agreed on record keeping of inventory for the effectiveness of inventory management as the mean responses of all five factors is more than 4.0 which is the midpoint signifying indifferent. It could be seen that the highest response with zero S.D. is 4th item with mean 5. This is followed by the 5th and 3rd items which are stock information is very important and perpetual stock taking is essential to determine replenishment of individual stock items with mean and S.D. 4.95(0.21) and 4.86(0.35) respectively. Then, these factors are followed by accuracy of inventory records is necessary to provide effective service and lack of advance technology or manual inventory system increase storage cost as shown by mean and S.D. 4.71(0.45) and 4.62(0.49) individually.

Table 4

Effect of funding factors on the effectiveness of inventory management

Factors	1	2	3	4	5	Mean	St.deviation
There should not be lengthy process of budget release for the procurement of inventory	18	3	0	0	0	4.86	0.35
Sufficient fund for inventory contribute for efficient service of an organization.	12	9	0	0	0	4.57	0.49
It is necessary to provide some petty cash to store keeper (not more than Rs 2000)	8	10	0	2	1	4.05	1.09
Sufficient fund is necessary to maintain sustainable relation with quality suppliers	14	7	0	0	0	4.67	0.47
It is necessary to allocate sufficient fund to take insurance policy of office supplies/stock	9	10	1	0	1	4.24	0.92

Source: Field survey, 2074

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Table 4 shows that all the respondents agree on the effect of funding factors on the effectiveness of inventory management. The sequence of the agreement are: There should not be the lengthy process of budget release for procurement, sufficient fund is necessary to maintain sustainable relationship with suppliers, sufficient fund for inventory contribute for efficient service of an organization, allocation of sufficient fund for stock insurance and petty cash not more than Rs 2000 needed for store keeper with mean and S.D. 4.86(0.35), 4.67(0.47), 4.57(0.49), 4.24(0.92) and 4.05(1.09) respectively.

Table 5

Effect of Skill possessed by store staff factors on the effectiveness of inventory management

Factors	1	2	3	4	5	Mean	st.deviation
Competent and qualified employees helps to minimize cost of inventory management	20	1	0	0	0	4.95	0.21
Qualification should be matched with job requirement	16	5	0	0	0	4.76	0.43
Training and development program is necessary for effective inventory management	19	2	0	0	0	4.90	0.29
Knowledge of stock taking is inevitable for store staff	18	2	1	0	0	4.81	0.31
Store staff should have organizational, communication and problem solving skills	19	2	0	0	0	4.90	0.29

Field survey, 2074

It is clearly shown by Table 5 that most of the respondents agree that competent and qualified employees help to minimize cost of inventory management with mean 4.95 and S.D. 0.21. This is followed by 3rd and 5th factors having same mean and standard deviation of 4.90 and 0.29. As per

Table 5, majority of JMC staff agree that knowledge of stock taking is inevitable for store staff and qualification should be matched with the job requirement along with mean and standard deviation 4.81(0.31) and 4.76(0.43) respectively.

Conclusion

Inventory management is very important since it enables to avoid high investment upon office supplies and other cost associated with inventory. According to the above result and discussion of collected data, it can be concluded that the factors related with proper record keeping of inventory, financial resources(funding), skill possessed by store staff and bureaucratic procurement procedure positively affect on the effectiveness of inventory management. Proper inventory record, stock information and competent & qualified store employees are very important for the proper functioning of inventory management as well. Documentation is crucial to ensure efficient inventory management. There should be sufficient fund, skillful store clerks, training and development for store staff, few quality suppliers and easy process of budget release for the effectiveness of inventory management.

Acknowledgement

I warmly express my special appreciation to all the non teaching staff of JMC who provide their valuable time to response on research questionnaire to bring out this research paper. It would be unfair if I forget Pro. Dr. Vikash Kumar K.C. for his kind co-operation and encouragement for the completion of this paper. Finally, the author is thankful to Basundhara Basnet, Resamlalpoudel, Ravi Bhandari and other supporters for providing continued help and support throughout the research period.

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Research Article

Social Relationship at Workplace and Emotional Attachment of Employees: An Evidence of Pokhara Based Development Bank

Nabin Bahadur Adhikari

Faculty of Management, Tribhuvan University

PN Campus, Pokhara

Email: kazinabin@hotmail.com

Abstract

Effective social relationship at workplace and the emotional attachment is must for the survivable and betterment of the organization. This research paper aims to investigate employee social relationship at work and their emotional attachment with organization. For this regard hypothesis were set to test under some constraints. The study applied empirical approach in which a survey questionnaire was used to collect quantitative data and other statistical techniques like Chi square test, Pearson correlation was applied and conclude that employee commitment towards organization has some relationship to the social relationship at workplace. Additionally, the level of job involvement is associated with social relationship at workplace. Employee who is highly involved in job may not have the same proportion of level of social relationship at workplace.

Keywords : Commitment, Emotional Attachment , Social relationship, , work place

Introduction

It is believed that social relationships in the workplace also focus on employee feelings, attitudes, and perceptions. In organization, employee interacts with colleagues in the form of subordinates, peers or supervisors but feelings, attitudes and perceptions may be positive or negative. Hanpachern, Morgan & Griego (1998) and Madsen et al. (2005) focused on

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social relationships with employee readiness for change and found a significant correlation between them. This study also focuses on employee likes and dislikes and enjoyment related to talking, interacting and working in social relationships factor.

Bowlby(1969) and Ainsworth (1967) have stated that attachment is regarded to the personal development. It makes the claim that the ability for an individual to form an emotional and physical “attachment” that gives a sense of stability and security necessary to take risks, branch out, and grow and develop. Emotional attachment is related to the affective aspect of the individual. Hence it is concerned with the feeling of pride and personal sense of obligation to perform their duties within the organization. It is developed by work experience such as job challenge, degree of autonomy, and a variety of skills. (Dunham, Grube, Castaneda, 1994).

An emotionally attached employee gets fully engaged with the organization. High levels of engagement promote retention of talent, foster customer loyalty and improve organizational performance and stakeholder value (Lockwood, 2007). Employees remain enthusiastic about their company; feel valued for the contributions they make to the organization and not just for the salary they receive. In a survey conducted by gallop organization (2004) it is found that top 24% of businesses experienced less turnover, higher levels of profitability, increased revenues and greater customer loyalty due to higher level of employee engagement (Gill, 2009).

Engagement is influenced by many factors ranging from workplace culture, organizational communication and managerial styles to trust, respect, leadership and company reputation (Lockwood, 2007).

With the direction of NRB many banks and FIs have merged together and most of them are in pipeline for this process. OM Development Bank is the result of the merger of Bishow Bikash Bank and Fewa Finance Company limited. The major objective of this research work is to identify the level of social relationship of worker at workplace and their emotional attachment. This research work tries to acquire the answer of the following questions:

- Is there any correlation between social relationship at workplace (SRW) and employee commitment towards organization (ECO)?
- What sort of relationship does Job Involvement and social relationship at workplace has?

The hypothesis of the study was;

H1: There is no correlation between social relationship in workplace and employee commitment towards organization.

H2: There is no correlation between Job Involvement and social relationship in the workplace.

Data and Methods

OM Development Bank is formed after the merger of Fewa Finance Company (FFinance) and Bishow Bikas Bank (BBBank). This study was conducted in Fewa Bikas Bank before merger where all the staffs from head office and its branches are included. The total population number of staff presently working in the bank is 229 after the merge. Before the merge there were 112 employees at BBBank with 14 branches and 117 employees at FFinance with its 16 branches.

These banks were selected due to the easiness because their head offices were located in Pokhara. For this empirical study, a random sampling has been done from the staffs of Fewa Bikas Bank (formed after the merger of BBBank and FFinance Co. Ltd). The targeted participants of the main survey were the staff of the Fewa Bikas Bank which is formed after the merger of BBBank and FFinance Co. Ltd. 50-50% of total number of population of both the institutions was taken as a sample size. Non probability accidental sampling technique was used for selecting samples.

The Survey was used for collecting the first hand data. The procedure adopted for this survey follows a quantitative approach (descriptive research design) has been used to determine the relationship among the variables. The major source of data and information used for this study is

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primary sources. The data are collected through survey questionnaire method.

Questionnaires along with the covering letter were sent to the staff through the email and personal visit. Email addresses of the staff were obtained from the IT Head of the institution. All the questionnaires were closed ended. Demographic information's were collected using nominal question method with number of options to choose. Meanwhile, the secondary data have been obtained through the related websites, report, journals, articles, magazines and others.

Statements that measure the respondent's perceptions were developed using a five points Likert scale. A Likert scale was chosen because respondents can explicitly understand it and scale discriminates well between perceptions respondents; their degree of agreement or disagreement.

Based on quantitative data, both descriptive and exploratory analysis was done using the IBM SPSS Statistics version 21 for the preparation of this article. Frequencies, means and standard deviations as descriptive analyses were used to describe the samples. Beside this, the Cronbach's alpha coefficient (to determine the internal consistency), Kurtosis and Skewness, Chi-Square Test and Pearson Correlation techniques were used for the further data analysis. Normality test of major variables (SRW and EA) were done in order to determine whether the data collected were normally distributed or not. Kurtosis and Skewness, K-S and S-W tools were used for the determination of parametric and non-parametric data. Meanwhile, Cronbach's alpha coefficient of major variables was computed in order to determine the internal consistency and reliability among the items within the each variable.

Results and Discussion

The data collected from the sample are presented in the following table followed by the description of data mentioned in the table.

Table: 1

Demographic Characteristics

Characteristics	Category	Frequency	Percentage
Previous Organization	Bishwa Bikas	25	50
	Bank	25	50
	Fewa Finance Co. Ltd		
Gender	Male	37	74
	Female	13	26
Age	Below 21	1	2
	Below 40	45	90
	40 +	4	8
Marital Status	Married	33	66
	Unmarried	17	34
Number of Dependent in Family	1-2	10	20.4
	3-4	21	42.9
	5 and above	18	36.7
Highest Education Level	Master's and above	25	51
	Bachelor Degree	19	38.8
	Intermediate Degree	5	10.2
	Less than 1 year	10	20
	1-5 years	30	60
Number of Years Worked in Previous Post	6 years and above	10	20
	Less than 1 year	7	14
	1-5 years	30	60
Number of Years Worked with Previous Employer	6 years and above	13	26

Characteristics	Category	Frequency	Percentage
Present Position at Organization	Managerial	4	8.5
	Level	18	38.3
	Officer Level	23	48.9
	Assistant Level	2	4.3
	Supportive Level		
Position in Previous Organization	Managerial	4	8.5
	Level	14	29.8
	Officer Level	26	55.3
	Assistant Level	3	6.4
	Supportive Level		
Number of Times Exposed to Organizational Changes	First time	37	78.7
	Second time	9	19.1
	More than	1	2.1
	second time		

Note: Total number of sample was 50 including Missing data.

(Source: field survey, 2016)

The characteristics such as age, gender, marital status, present employment status, past employment status, higher education level, number of dependents, years in previous position and years with previous employer and the number of times exposed to the changes like merger were asked to the respondents in the questionnaire. Of the total respondents (50%, n=25) were previously employee at BBBank and (50%, n=25) were previously employee at FFinance Co. Ltd. Majority of the participant were male (74%, n=37) with the age group 21-40 (90%, n=45). The majority of the participant were married (66%, n =33) and the number of dependent mostly lies at 3-4 (42.9%, n=21). About 51% of had more than Master's Degree (n=25) as the highest level of education which is followed by the Bachelor's Degree with 38.8%. Majority of the participants are working as Assistant level at previous position (48.9%, n=23). 60% (n=30) employee worked 1-5 years with the previous employer and likewise 60% (n=30)

employee worked 1-5 years in the previous post. Likewise the participants who worked as assistant position at previous organization has the majority (55.3%, n=26). Most of the participants (78.7%, n=37) reported that they were exposed to such kind of the changes like merger, structural change, for the first time.

Social Relationship at Workplace

Social relationship in the workplace focuses on employee feelings, attitudes and perceptions. It includes employee interaction with colleagues in the form of subordinates, peers or supervisors that may be positive or negative.

A Pearson product- moment correlation coefficient was conducted to evaluate the null hypothesis that there is no relationship between SRW and ECO (N=49). Preliminary analysis showed that there were no violations in the assumptions of normality. There was significant evidence to reject the null hypothesis and conclude that there was a medium, positive association between ECO (M=3.2623, SD=0.37702) and SRW (M=3.9184, SD=0.36654), $r(48) = 0.341$, $p < 0.05$. Hence, the social relationship at work place is associated with employee commitment towards organization to the low level.

Table: 2

Mean and Standard Deviation of ECO and SRW

Variables	Mean	Std. Deviation	N
Mean of ECO	3.2623	0.37702	50
Mean of SRW	3.9184	0.36654	49

Table: 3

Pearson Correlation of ECO and SRW

Test Measures	Value
Pearson Correlation	0.341
Significance (2-tailed)	0.016

Note: Correlation is significant at the 0.05 level (2-tailed)

Emotional Attachment

Emotional attachment is the feeling of pride and personal sense of obligation to perform their duties within the organization. It is related to the affective aspect of the individual. There were 7 items that were been used to measure the emotional attachment of the employee.

A Pearson product- moment correlation coefficient was conducted to evaluate the null hypothesis that there is no relationship between SRW and JI (N=49). Preliminary analysis showed that there were no violations in the assumptions of normality. There was significant evidence to reject the null hypothesis and conclude that there was a small, positive association between JI (M=3.7366, SD=0.35589) and SRW (M=3.9184, SD=0.36654), $r(48) = 0.285$, $p < 0.05$. Hence, level of Job Involvement is associated with Social Relationship at workplace to the low level.

Table: 4
Mean and Standard Deviation of SRW and JI

Variables	Mean	Std. Deviation	N
Mean of SRW	3.9184	0.36654	49
Mean of JI	3.7366	0.35589	49

Table: 5
Pearson Correlation of SRW and JI

Test Measures	Value
Pearson Correlation	0.285
Significance (2-tailed)	0.047

Note: Correlation is significant at the level 0.05 level (2-tailed)

Conclusion

There is no correlation between social relationship in workplace and employee commitment towards organization, so Null hypothesis is rejected. As an answer to the research question 1st the social relationship at work place is associated with employee commitment towards organization to the low level. It shows that employee commitment towards organization has some relationship to the social relationship at workplace. Employee who is

highly committed towards the organization may not have same proportion of level of social relationship at workplace.

There is no correlation between Job Involvement and social relationship in the workplace that's why the Null hypothesis is again rejected or accepts the alternative hypothesis. The conclusion of research is that the level of Job Involvement is associated with Social Relationship at workplace to the low level. Employee who is highly involved in job may not have the same proportion of level of social relationship at workplace.

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Research Article

HIV Stigma and Discrimination Management in Pokhara, Nepal

Ram Prasad Aryal

Faculty of Humanities and Social Sciences

Pokhara University, Pokhara, Nepal

Email: aryalrampd@yahoo.com

Abstract

Stigma and discrimination attached to Human Immuno-deficiency Virus (HIV) and Acquired Immuno-deficiency Syndrome (AIDS) are not new issues in Nepal where the issues are often considered to be the outcomes of either extra-marital sexual activities or sharing needles for drug use with people living with HIV (PLHIV). These activities are considered to be outside norms and values of Nepalese societies. Consequently, PLHIV are stigmatized and discriminated against in family and society. There are number of studies on stigma and discrimination attached to HIV and AIDS. However, there are very limited studies on management of HIV stigma and discrimination in Nepal. Therefore, this paper aims to look at HIV stigma and discrimination in general with a view to contextualize these issues, and to examine management of HIV stigma and discrimination in particular after being HIV diagnosed. This study follows qualitative research approach, face to face in-depth interview with 16 PLHIV in Pokhara during the period February-March 2017. This study investigates ways the participants have been able to manage their HIV stigma and discrimination in a greater extent at present with their own individual rigorous efforts, and supports made by local body and organizations/hospitals working in the field of HIV and AIDS as well. This paper has important policy implications, especially in the management of HIV stigma and discrimination in Nepal and other countries with similar socio-cultural contexts.

Keywords: Discrimination, HIV, Management

Introduction

This paper follows theoretical framework from the original idea of Goffman's stigma and its strategic management as this framework focuses on social stigma and discrimination (Goffman, 1963). His theoretical framework is still applicable in the field of stigma and discrimination in terms of culturally sensitive issues of health (Carnevale, 2007). At present, practices of giving HIV knowledge and treatment to PLHIV, launching stigma and discrimination reduction programmes, and organizing their social network that have made PLHIV gradually feel reductions in stigma and discrimination in their lives in recent years (UNAIDS, 2015; Stangl, 2010). This study on HIV and AIDS is very important in attaining fast track goals as set by UNAIDS (2015: 4):

UNAIDS is calling for new Fast-Track targets, which will enable us to focus on where the results can and need to be achieved: stepping up HIV treatment through 90-90-90 targets (90% of people living with HIV knowing their HIV status, 90% of people living with HIV who know their status on antiretroviral treatment, and 90% of people on treatment having suppressed viral loads), and reaching ambitious prevention and stigma reduction targets.

HIV was identified in Nepal in few people in 1988 and the number of HIV reported cases have increased steadily. There are four major modes of HIV transmission, hetro/homo-sexuality, sharing needles for drug use with PLHIV, parental transmission, and blood transfusion, in the country. An overwhelming majority of PLHIV have been HIV infected due to sexual intercourse, irrespective of hetro-sexuality or homo-sexuality. Internal and international migrations are attributed to increasing number of HIV cases, especially after introduction of multi-party democracy in the country in 1990 (KC, 2004; Joshi, Banjara, Subedi, Sharma, & Karki, 2004; Nepal, 2007). Thereafter, Nepal government emphasised on foreign labour migration to reduce unemployment situation in the country after being Nepal as a multi-party democratic country. Such migration resulted into an

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increase in HIV infections as a few numbers of emigrants have been HIV infected due to unsafe sexual behaviour during their stay outside the country (Aryal, 2015; Aryal, Tiwari, Thapa & Pandey, 2011). As of July 2016, there were 28,865 reported cases across the country (National Centre for AIDS and STD Control, 2016). More than three-fifths of the total PLHIV are males in the country and the corresponding figure for females is nearly 40 percent.

HIV is considered as the outcomes of homosexuality, extra-marital heterosexuality, drug using habits that are outside the norms and values in Nepalese society. Consequently, HIV is associated with stigma and discrimination in Nepal (Beine, 2002). However, a general analogy could be made with regard to PLHIV who are living in urban areas are more likely to have access of HIV knowledge and treatment, HIV stigma and discrimination reduction programmes, and other such programmes conducted by government and non-government organizations as these programmes in Nepal are often urban oriented. In this sense, this research focuses on studying the lived experiences of PLHIV in terms of their stigma, discrimination and their management. This paper is intended to identify positive factors that reduce HIV stigma and discrimination after being HIV positive in the Nepalese socio-cultural contexts. There is a very limited research on management of stigma and discrimination with regard to PLHIV, especially in the context of Nepal. Although there have been undertaken some studies related to HIV and AIDS, they have been done from merely positivist approach (quantitative aspects) in which people do not have chance to express their heartfelt experiences. Therefore, this study is important in fulfilling the research gap, capturing the lived experiences of PLHIV on their stigma and discrimination management using qualitative research approach.

Data and Methods

This paper follows a qualitative research approach with a view to examining the lived experiences of stigma, discrimination and their management in PLHIV in the Pokhara, Nepal. This is one of major cities

affected by HIV and AIDS in the country. There is a dearth of research among PLHIV in the city on stigma and discrimination management though some other studies on HIV and AIDS have been conducted by various organizations/institutions (such as New Era, 2009) from epidemiological perspectives. This research aims to undertake a deeper understanding of the lived experiences of PLHIV. The research area of HIV and AIDS in Nepal is regarded as culturally sensitive issue (Nepal & Ross, 2010). The field work was carried out for data collection through hospitals and organizations, maintaining confidentiality of 16 participants by using their pseudonyms during the period February-March 2017. With an understanding of qualitative research, this study utilised a semi-structured questionnaire with a framework of various themes to be explored, drawing on the lived experiences of research participants (Bryman, 2012). Ethical approval was gained from Pokhara University Research Centre (PURC) and Institutional Review Committee (IRC), Pokhara University. After completion of data collection, the field data were translated from Nepali into English. This study used a thematic analysis, examining the responses provided by participants in the research field (Braun & Clarke, 2006). The field data were analysed using a meaning-making approach based on socio-cultural understandings of the Nepalese society.

Results and Discussion

Results

Stigma and Discrimination

Some PLHIV, especially males, have been stigmatized and discriminated in both family and society due to their sexual behaviour outside marital union. In general, PLHIV who were HIV infected due to sexual behaviour outside marital union are often stigmatized and discriminated at home and in their society. In this regard, one of male participants, who was HIV infected around eight years ago, shared his experiences on stigmatization and discrimination in his family and society like this way:

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Villagers do not want to be close with me, thinking of disease [HIV] transmission. They say that they do not eat feast at any party at my home...My children and wife do not behave me well like before [Prior to HIV infection]. They do not prefer me to stay at home. It is also okay for me to stay outside home. It does not matter as it is necessary to work for livelihood anywhere else.

He also shared his experiences on how he was HIV infected while working in India, outside the country like this way:

When my friends proposed me to visit somewhere else for entertainment, I told them not to go anywhere else. They insisted me to go and drink wine, a little bit far from my place of residence. I said to them, "I do not drink [wine]". But I was insisted. We drunk wine. Then, they told me to go to their room [friends' place of residence]. They insisted me telling, "Let us go, cook and eat meat and fish". We reached there and found that there were such persons [commercial female sex workers]. They said to me, "They are our own relatives and you do not have any problem [HIV transmission]". I added that there have been problems [HIV transmission and its effects on stigma and discrimination]. They repeated me that I did not need to be afraid. Then, I had sexual intercourse.

In this study, many PLHIV, both males and females, feel stigma after being HIV diagnosed and do not want to disclose their HIV status to their family and society. One of females living with HIV, uttered that she felt deep stigma when she was identified as being HIV positive in the course of giving birth to her baby at hospital. When doctors and nurses came to her and told her HIV positive status after her blood test, she tried not to disclose her HIV status. She shared her experiences with regard to stigma like this way:

They [doctors and nurses] convinced me so much about the situation [HIV diagnosed]. They made me aware of the situation. I cried a lot that time, but what I should do. Things happened already

and I could do nothing for the situation. After all they asked me to call the nearest relatives. I told them [nurses] to call my father [father in law] because if mother came to know about this she would tell to everyone but father would not tell anyone. So, in my mind father [father in law] came at once. After that I called my father [father in law] ... I felt so sorry for myself. I thought, "If someone knows about me, they will hate me. Now, I think I don't have anything to live in this world. My life is empty. What can I do although I am alive? There is no meaning of my life".

Likewise, another female living with HIV, expressed her stigma by not disclosing her status to other people except her mother in law at home in this way:

They [neighbours and other people] still don't know it [HIV]. My husband told me not to tell them. If my husband died before telling to relatives, the situation would be worst. So I have told about our disease [HIV] to mother-in-law. Several times we have gone to take medicine, informing mother-in-law. Many years ago my husband became very sick. So, I have told her about this. But others are not informed about it.

In this study, a few PLHIV, especially females, shared their experiences on family, societal and institutional discriminations. Some PLHIV, especially females, were discriminated at home. In this regard, one of female participants, who was separated from home, could not stay with family members due to HIV and had to be away from her husband's home. Even her son and daughter scolded her to go away from her family. She uttered her experiences of family discrimination like this way:

When family members knew about me [HIV status], they quarrelled with me. My son and daughter scolded me. I also told them I did not need you. I did a lot of struggle to grow you up. I decided to leave the family and to go out. I left home, reached there [A Place], and worked in road construction site...When I spent outside home for

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few years, separating from family, I would have such behaviours [sexual intercourse].

Likewise, a widow female living with HIV has faced societal and institutional discrimination after being HIV diagnosed. In regards to discrimination made by her neighbours, her comb was anonymously passed on to others in her village. She came to know that her neighbours did not use it to comb their hair, thinking that HIV could be transmitted from that comb. Likewise, her son did not have an opportunity to study in school because of her HIV positive status though her son was not HIV infected. She shared her experiences on discriminations like this way:

I heard one of my villagers threw away my comb that I used because of my HIV status. They thought that HIV could be transmitted from that comb. My elder son stopped studying because villagers used to say his father [her husband] died due to HIV positive. While going to school also, everybody began to tell such things. His friends used to discriminate him and did not want to stay together on same bench. They did not want to play together as well. They even used to tell the teacher to give him torture, physical punishment and so on. So, my son left study after completing class VII.

She also shared another institutional discrimination she faced while going to hospital for her daughter's treatment like this way:

Once I went to hospital with my daughter as she was suffering from fever. There was a heavy crowd of people at hospital. I was one of PLHIV but my daughter is not infected with HIV. As soon as my turn came, doctor put gloves in both hands even though he was already informed that my daughter is HIV negative. I felt so bad in this case. Doctors know that HIV does not transmit by hands. Furthermore, they didn't have to check up me, but for my daughter. In that condition I felt so much pain in myself. They have already known that my daughter is not HIV positive. Hence such action made me so sad because they were treating a large number of

people without gloves. This was one of the misbehaviour shown by doctor to me.

Management of Stigma and Discrimination

Many PLHIV have concealed their HIV status to protect themselves from stigma and discrimination. They have been able to perform their responsibilities without disclosing their HIV status. For example, a married female participant who has been living with her family where father and mother in laws also stay, shared her experiences of stigma management. When her PLHIV friends living with HIV want to come her home, she avoids such visit from her friends, thinking of relatives and neighbours may guess about her HIV status like this way:

Sometimes friends [PLHIV] make a field visit at the interval of 15 days. I suggested them not to come [her home]. After that they have not come too. I told them such things because if there are other people like me then they [relatives and neighbours, HIV negative] will obviously guess me [HIV positive]. Everybody [among PLHIV] will know about my problem. I told them not to come rather if any problem arises I would call them. I also told them to provide their contact numbers. After that no one visits our home.

Sharing lived experiences after being HIV diagnosed among PLHIV seems to be a way of reducing stigma, and it also provides an opportunity of transcending their relationship with each other. PLHIV can enjoy sharing their experiences of HIV and its related issues of stigma and discrimination with their friends living with HIV. It enhances their HIV knowledge and importance of having medicine to prolong their life span. For example, a female participant shared her lived experiences like this way:

We are given chance to meet friends like us who have been living with HIV. At one of organisations in Pokhara, a sister who cooks food for us is also HIV positive. She consoles me not to take any tension. I am very happy with her and her friends [PLHIV] when I go there [Pokhara]. We don't have to take care of taking food item

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and can take anything as per our wish. The thing is that we have to take medicine regularly for life time. We can also stay alive as long as that of HIV negative people. This made me very much happy. We have to take medicine daily and don't have to do anything else [refraining from any food item]. We remember such things and take medicine daily.

Family cooperation and consoling to PLHIV in their family seem to be a conducive environment to stay in their family. Of course, family cooperation makes PLHIV comfort to cope with challenges related to HIV stigma and discrimination outside their home. One of female participants, whose husband died due to HIV, shared her experiences on how PLHIV's family members cooperate her with regard to HIV in this way:

Luckily, my children don't say anything. Brother-in-law, sister-in-law, and mother-in-law also don't say anything. If they told me bad or hated me, I would feel bad and nervous. They tell me, "Although you have HIV, don't feel so. Do your work, earn for children and sustain your life. It does not matter even though you are HIV infected".

She further makes clear about importance of HIV medicine and HIV knowledge like this way:

Previously there was no ART [Anti-retroviral Therapy]. Medicines were also not available. Nowadays there is medicine available. So PLHIV can also work like those normal people [HIV negative people]. If there was no medicine for this disease [HIV], I would also die. Next thing is that people previously had a lot of misconception about HIV. They even thought that mosquito bite could cause HIV transmission. But nowadays they know HIV does not transmit due to this [mosquito bite]. They have knowledge about how HIV gets transmitted. They are aware about this matter. I hope so. They don't hate us nowadays. Brothers-in-law are aware of this matter. So they do not ignore me and hate me. We stay together, eat

together and work together. Family members don't take it too much seriously.

Many PLHIV have been feeling an inner strength emerged gradually that they are like other HIV negative people, which helps them being felt of reducing self-stigma in a greater extent. When they are able to manage their self stigma with an increasing HIV knowledge, they turn into their responsibilities of rearing children. In this regard, one of female participants shared her experiences as follows:

Previously I also had willingness to die. But nowadays I don't feel so. I think I have to live for my daughter and son. They are already grown up. I don't feel I have HIV nowadays because I can work like normal people [HIV negative people]. From the last Mangsir [November/December], I started having ART. It has already been one year. Before starting ART I didn't have any problems also.

Stigma and discrimination attached to HIV depend upon their contextual background of society whether societal people have their knowledge on HIV and AIDS. PLHIV who stay in such a place, where many HIV negative people have HIV knowledge, have not been stigmatized and discriminated in their society. It also depends upon individual physical ability and skills to work with other people living in the society. In this regard, a male participant shared his experiences on stigma and discrimination that he never faced such problems in this way:

In my society, many people know about me. We have our own Kshetri (one of major castes in Nepal) society. My house is in the district [A district]. Although many people know everything [HIV] about me, they don't hate me. Somebody doesn't still know that I am HIV positive. Sometimes, at village, we cut goat. We always stay together, eat meat and enjoy. Sometimes we together drink wine. Villagers request me to stay with them, eat together and go home. They don't separate me. I am very happy with their behaviour.

Discussion

In general, degree of HIV stigma and discrimination differs from physical health and earnings. PLHIV who are physically active and can gain their earnings themselves; they are not discriminated in their family and society. In this study, even PLHIV aged 60 years and above who have been working in his farmland equally as his previous ages prior to HIV diagnosis, have not been discriminated against in family and society. Some of PLHIV have worked in their farmland even in old ages in addition to their pension. In such households, neither individual living with HIV nor his/her family members have disclosed their family member's HIV status to their society with a view to maintaining confidentiality. Consequently, such PLHIV have not faced stigma and discrimination in family and society due to HIV as stated in Goffman's stigma theory (1963), and Parker and Aggleton's conceptual framework (2002). In contrast, PLHIV who are weak physically and can not contribute to their family economically; they have been heavily discriminated against in family. In the cases of females who were more likely to be HIV transmitted due to sexual intercourse outside marital status, even their children have scolded such females heavily and have not allowed them to stay together in the family. Likewise, some of males who were HIV infected due to sexual intercourse outside marital union were also not treated well like prior to HIV diagnosis. Thus, how PLHIV have been HIV infected are also matter of concerns with regard to degrees of HIV stigma and discrimination in Nepalese society.

PLHIV who have been discriminated at early stage of HIV positive, immediately after HIV diagnosis, in family and society have been able to manage their stigma and discrimination well at later stage by applying various strategies such as migration, economic independence, hiding and disclosing HIV status, and social service. In this study, migration has been chosen as a better way of managing stigma and discrimination as well as becoming economic independence. Likewise, hiding HIV status in society is another way of managing stigma and discrimination by not disclosing HIV status to anyone outside home, even discouraging other PLHIV who wish to visit home, thinking of that other neighbours would guess about HIV. PLHIV have managed their livelihood, either working in their farmland or becoming service holder or both. This has supported them

being economically independent and managing stigma and discrimination. Some PLHIV have also served as social worker to help other PLHIV who do not have HIV knowledge and treatment through various organizations working in the field of HIV and AIDS.

Conclusion

This paper concludes that economic independence is one of major ways of managing HIV stigma and discrimination in Nepalese society while going through life history of each participant in one or other way after being HIV diagnosed. PLHIV in this study have managed their stigma and discrimination by applying various strategies in which economic independence seems to be interlinked with most of other strategies they adopt in their lives.

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Research Article

Awareness on Hypertension and its Self-Management Practices among Hypertensive Patients in Pokhara, western Nepal

Ranjita Karmacharya

Teaching Assistant

T.U.I.O.M. Pokhara Nursing Campus

Email: karmacharyaranjita@gmail.com

Kalpana Paudel

Instructor

T.U.I.O.M. Pokhara Nursing Campus

Abstract

Hypertension is a condition that affects most of the population throughout the world and is a leading cause of morbidity and mortality. Hypertension-related knowledge and practice such as life style modification, physical activity, nutrition etc. plays an important role in controlling and preventing its long-term complications of hypertension. Therefore the purpose of the study was to find out the awareness of hypertensive patients about their own disease and self care practices. A cross-sectional descriptive study was done in the Pokhara sub metropolitan-13 (10% of total toles). Data was collected with all the respondents who were taking anti-hypertensive medicine of that area, which included 67 respondents. Data was collected from July to August, 2015 with structured interview schedule and data analysis was done by using SPSS version 16. Eighty six percent of the respondents were aware about hypertension. Most of the respondents (64%) belonged to the age group of 60 and above with mean age of 65.21 ± 11.92 years, 60% were male, 71.6% were literate and 38.8% were diagnosed as hypertension since 1 to 5 years. Fifty two percent of the respondents have positive family history of Hypertension. The awareness regarding hypertension seems good but less self care practices among the

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study population was revealed. Therefore, efforts should be made towards improving the lifestyle modification of hypertensive patients through the initiation of motivational strategies and interventions such as free health camps, mobilization of Community Health Volunteers to encourage the public towards self care practices.

Keywords: Awareness, hypertension, self-care practice

Introduction

Throughout the world, human health is being shaped by the same powerful forces: demographic ageing, rapid urbanization, and the globalization of unhealthy lifestyles. One of the most striking examples of this shift is non-communicable diseases such as cardiovascular disease. One of the key risk factors for cardiovascular disease is hypertension. Hypertension is a silent, invisible killer that rarely causes symptoms. Raised blood pressure is a serious warning sign that significant lifestyle changes are urgently needed. Hypertension already affects one billion people worldwide, leading to heart attacks and strokes. Researchers have estimated that raised blood pressure currently kills nine million people every year (WHO, 2013).

The prevalence of Noncommunicable diseases (NCDs) is increasing in Nepal. In 2008, nearly 50% of total deaths in Nepal were estimated to be due to NCDs, and Cardiovascular disease (CVD) accounted for 25% of these deaths. Hypertension, one of the major risk factors for CVD, was estimated to be present in 27.8% of Nepalese adults aged 25 years and above. The self-reported hypertension prevalence of 9% is much lower than the measured hypertension prevalence of about 31%, indicating that a large proportion of those with hypertension remain undiagnosed. Even in those who have been diagnosed, compliance with medication and knowledge of behavioural changes remain low (Dhitali & Karki, 2013).

Hypertension is a preventable disease but its prevention and management are major public health challenges in the world. A number of important causal factors for hypertension have been identified, including excess body weight; excess dietary sodium intake; reduced physical activity; inadequate

intake of fruits, vegetables, and potassium; and excess alcohol intake but the prevalence of these characteristics is high. It has been estimated that a 5 mmHg reduction of SBP in the population would result in a 14 % overall reduction in mortality due to stroke, 9% reduction in mortality due to Coronary heart disease (CHD), and a 7 %decrease in all-cause mortality (National High Blood Pressure Education Program, 2004).

Regarding risk factors of hypertension majority of patients were aware about family history, smoking and excessive salt intake increases the risk for developing hypertension (62.4%, 58.4% and 82.2%).On the other hand patients were not aware about; older age, drinking alcohol, high cholesterol level and some drugs increase risk for hypertension (41.6%, 66.3%, 99.0% and 93.1%) and only 12.9% had good level of knowledge regarding symptoms and complications of hypertension (Hay &Mezayen, 2015).

A study conducted on 664 cardiac hypertensive patients revealed that 81.8%, did not know that hypertension is defined as high blood pressure, 97.1% of the sample population did not know that top measurement of blood pressure was referred to as systolic and only 25.0% correctly recognized normal systolic blood pressure to be less than 140mmHg, 7.4% of the patients consulted their doctor for hypertension once or twice in a month (Bilal et.al, 2016).

Nepal's health-care system is unprepared to deal with these changes in disease burden, from tackling communicable, maternal and child health issues to NCDs. Poor people are thus most vulnerable to the burden of hypertension and other NCDs due to their inability to afford the long-term treatment needed, therefore effective prevention and control of hypertension is thus urgently required. This demands appropriate training and mobilization of the health workforce are needed. Other measures include improving access to health care and essential medications, building institutional capacity to care for patients with hypertension, promoting lifestyle changes through community engagement, and introducing innovative policies to ensure the financial sustainability of these changes (Dhitali&karki , 2013).Therefore, the objectives of this study wereto find

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out the awareness about hypertension related to their own disease and self care practices among hypertensive client.

Data and Methods

The cross-sectional descriptive research design was conducted to assess the awareness and self- care practices among hypertensive patients in Pokhara sub metropolitan-13. In Pokhara sub-metropolitan there was 18 wards from them one ward was chosen randomly, that was ward no.13. There were 30 Toles in ward no 13, out of which 10% (3) Toles were selected randomly which included Bhajhapatan “kha”, Kahunkhola and Tinamchure. It has a population of about 1425 and 285 households.

Target population comprised all the hypertensive patients under the medical treatment. Complete enumeration was done to select the sample from household survey. Data collection approval was taken from the ward office of ward no.13, Pokhara sub metropolitan. Data was collected after explaining the purpose of the study and taking verbal informed consent from those who were willing to participate in the study with 67 respondents from July to August, 2015.

Structured interview questionnaire was developed related to awareness of hypertensive patient about their own disease and self- care practices. The questionnaire comprised of twenty six items. The questionnaire sought information on participants' age, sex, educational background, religion, marital status and occupation. Items to assess awareness regarding their own disease and self -care practices such as history of HTN, patient's clinical experiences of the disease (e.g. symptoms and signs, treatment process e.g. self- report on medication compliance, diet, life style adjustment) were included. Interview of all the patients were conducted separately after explaining the purpose and obtaining informed consent. The collected data were analyzed using Statistical Package for Social Science (SPSS) 16 version. To determine content validity, the questionnaire was developed after extensive literature review and given to the expertise related to the subject, after receiving the feedbacks, required modifications

were implemented. The reliability of the variables was maintained through Cronbach's alpha indicator, where the result showed alpha level of 0.78.

To calculate awareness and self-care practices, each affirmative answer was given one score. The mean score was taken to assess whether the respondents were aware or not, and whether they had good self-care practice or not. The chi-square test was used to find out the association between awareness and practice.

Results

This study revealed that 86.6% of the respondents were aware about hypertension. Among 67 hypertensive patients, most of the respondents (64%) belonged to the age group of 60 and above with the mean age of 65.21 ± 11.92 years. Majority of the respondents were male (60%) and belonged to Hindu religion (67%). Most of the respondents (85.1%) were married, more than half (71.6%) were literate and 38.8% were diagnosed as hypertension since 1 to 5 years. Homemaker and agriculture were found to be less (17.9%) than other occupations. More than half (52%) respondent's families have history of Hypertension.

Table 1: Awareness on Hypertension

n=67		
Characteristic	Aware Frequency (%)	Not Aware Frequency (%)
*Causes of Hypertension		
Excessive thinking, worries, stress, etc	50(74.6)	17(25.3)
Overweight and old age	44(65.6)	23(34.3)
Smoking and alcoholism	34(50.7)	33(49.2)
Hereditry	32(47.7)	35(52.2)
*Sign and Symptoms		
Hypertension		
Dizziness and fatigue	38(56.7)	29(43.2)
Headache and palpitation	41(61.1)	26(38.8)
Flushing face and blurred Vision	24(35.8)	43(64.1)
Internal heat	26(38.8)	41(61.1)

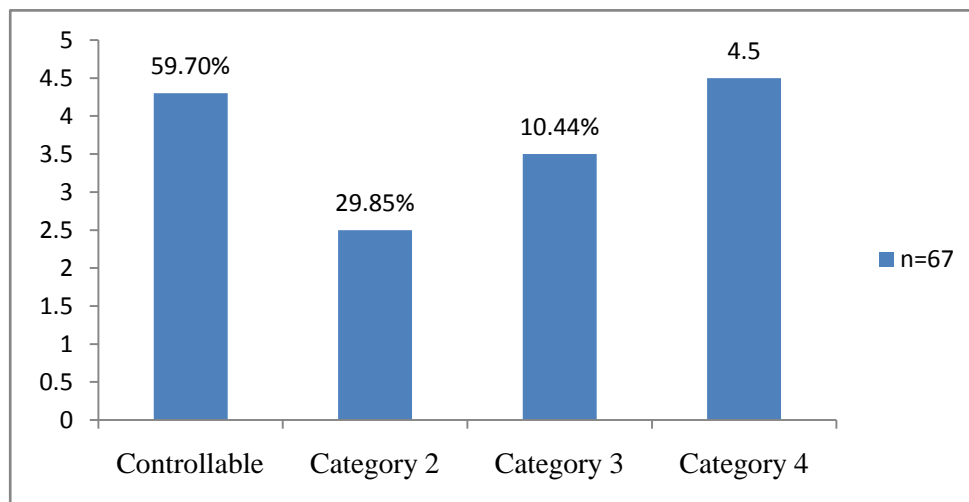
Characteristic	Aware Frequency (%)	Not Aware Frequency (%)
*Preventive measures		
Reducing weight and stress	13(19.4)	54(80.5)
Intake of low salt and low fat diet	5(7.4)	62(92.5)
Regular exercise	3((4.4)	64(95.5)
By medication	63(94.0)	4(5.9)
Complication of Hypertension	49(73.1)	18(26.9)

Source: Field survey 2015

*Multiple responses answer

Table 1 shows that less than half (47.7%) respondents mentioned hereditary as a cause of hypertension, majority (61.1%) respondents reported headache and palpitation as the major sign and symptoms. Fewer respondents knew about other preventive measures except medication. Seventy three percent respondents knew about the complication of hypertension.

Fig.1 Knowledge on Prognosis of disease



Source: Field survey 2015

Nearly sixty percent respondent knew that hypertension is controllable disease, which is followed by not controllable (29.85%) and 10.44% have no idea about its prognosis.

Table 2: Self-care practices to control Blood pressure

Characteristics	n=67	
	Yes Frequency (%)	No Frequency (%)
Personal Habit		
Smoking	17(25.4)	50(74.6)
Alcoholism	19(28.4)	48(71.6)
*Dietary habit		
Low fat and low salt	54(80.6)	13(19.4)
Plenty of vegetables	12(17.9)	55(82.1)
Plenty of fruits	11(16.4)	56(83.6)
*Using measures to reduce stress (n=39)	39(58.2)	28(41.8)
Watch program on T.V	28(41.8)	39(58.2)
Go religious site	22(32.8)	45(67.1)
Yoga/meditation	8(11.9)	59(88.0)
Regular blood pressure monitoring	40(59.7)	27(40.3)
Discontinue medicine	11(16.4)	56(83.6)
Changing dose by themselves	3(4.5)	64(95.5)

Source: Field survey 2015

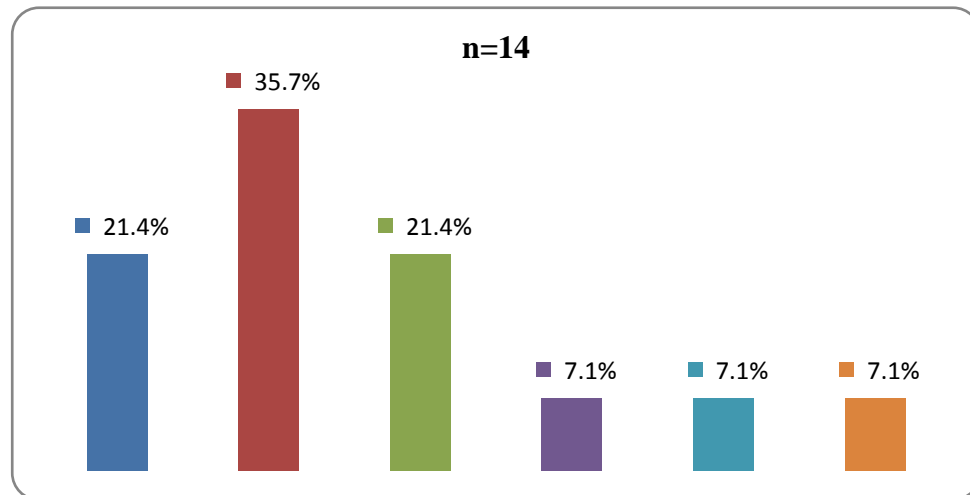
***Multiple responses**

To control blood pressure more than 70% respondent did not take alcohol/smoking, majority (80.6%) respondent took low fat and low salt diet, more than half (59.7%) respondents monitored blood pressure regularly, 58.2% respondent used measures to reduce stress, from them most of the respondents used to watch television. Almost eighty five percent of the respondents took medicine regularly. About the antihypertensive medicine, 16.4% discontinued the medicine and 4.5%

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respondent used to change dose of the medicine by themselves. Likewise 23(34.3%) respondents do regular physical exercise, 23(34.3%) are irregular and 21(31.3%) respondents not done any exercises.

Fig 2: Reasons for no compliance with medication



Source: Field survey 2015

This figure depicts that higher (35.7) percent of the respondents have not compliance with medicine after they feel good which is followed by 21.4% feeling bad after taking medicine, 7.1% respondents not complying because of lack of expenses.

Discussion

Hypertension is a common health problem in developing countries and prevalence is rising steadily. This study revealed that the prevalence of hypertension is 64% in people aged 60 and above, majority of the respondents were male (60%) and belonged to Hindu religion (67%). Similar finding were found the study conducted in Banepa Municipality which showed that 55.49% hypertensive cases were age above 65 years and 47.75% were male (Manandhar, Koju, SinhaHumagain, 2012). Likewise Chinese adults had greater number of men hypertensive than women (29.2% vs 24.1%) and greater numbers of patients were age above 65 years (Yunet.al, 2013). Therefore similar trends were found in

neighboring country. This study revealed that most of the respondents (85.1%) were married, more than half (71.6%) were literate and 38.8% were diagnosed as hypertension since 1 to 5 years. Homemaker and agriculture were found to be less (17.9%).

This study revealed that 80% of the respondents were aware about hypertension. Nearly sixty percent respondent knew that hypertension is controllable disease, which is followed by not controllable (29.85%) and (10.44%) have no idea about its prognosis. Study in India shows that the awareness level about hypertension was average in majority (52.4%) of the participants (Joseph et.al, 2016). This is similar with the study done by Karmacharya, et.al, 2017 founded that less than half (44%) of the participants were aware of their hypertension status and in Bangladesh, among 777 elderly hypertensive from urban and rural sites, 44.7% were found to be aware. Therefore the awareness level in our study is also remarkably higher compared with other studies.

Joseph et.al revealed that (11.4%), respondents had good self-management practices. Regular check of weight (once in six months) was done by (49.8%) and regularity with exercises (at least 3 times a week for at least 30 minutes) was done by (51.1%) participants in south India which are less than our observations. The study revealed that there is no significant relationship between awareness and self care practice.

Conclusion

The study suggests that majority of hypertensive patients have family history of hypertension and they involve less physical activity therefore we need to be encouraging them to have their blood pressures checked regularly. There is a need to initiate programs that create community awareness regarding preventive majors, dietary management and continuation of medication. Therefore, efforts should be geared towards improving the lifestyle modification of hypertensive patients through adequate information, education and communication. There is urgent need for government or its relevant agencies to initiate motivational strategies

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and interventions such as free health camps, mobilization of Community Health Volunteers to encourage the public towards self care practices.

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Research Article
Psychosocial Problem among School-going Adolescents in
Pokhara, Western Nepal

Ratna Shila Banstola

Instructor, T U, IOM, Pokhara Campus, Ramghat, Pokhara-12

Email: bastolaratna@gmail.com

Abstract

Adolescence the second decade of life is the crucial period demanding significant adjustment to the physical and social changes. During this transitional period, if adequate care and attention is not given adolescents are prone to develop various psychosocial problems with long standing impact. This descriptive cross-sectional study was conducted to assess the prevalence of psychosocial problem and its associated factors among 360 adolescents studying in public schools of Pokhara Lekhnath Metropolitan City. Data was collected by using self-administered questionnaire. The data was analyzed in SPSS version 16 applying both descriptive and inferential statistics. Findings of the study revealed that 21.7 percent of adolescents had psychosocial problem. Adolescents who are facing physical/verbal abuse ($p=0.000$, OR: 13.54), who do not feel good about home environment ($p=0.000$, OR: 5.01), have high academic/school relates stress ($p=0.000$, OR: 5.304), who do not stay with their parents ($p=0.000$, OR: 4.49), belonged to hardly sufficient family income ($p=0.000$, OR: 3.29), those from joint family ($p=0.004$, OR: 2.12), whose mothers are illiterate ($p=0.027$, OR: 1.96) and having disrupted marital status of parents ($p=0.040$, OR: 1.78) were more likely to have psychosocial problem. Hence, the combined effort of family and school team is essential to protect adolescents from developing psychosocial problem

Keywords: Adolescent, Abuse, Family, Psychosocial problem, School

Introduction

Adolescence is the transitional period in the life span that occurs after childhood and before adulthood. In this period of rapid growth and

development adolescents experience physical and sexual maturation, along with movement toward socio-economic independence and development of identity (Shrestha, 2013). During this transition between childhood to adulthood, adolescents often face a number of crises and dilemmas; lack of adequate care and attention poses the risk of developing various psychosocial problems with long standing impact (Sharma, Gupta, Luthra & Mishra, 2014) and major impact on their psychosocial adjustment and academic performance in school (Haynes, 2002). So that early identification of mental health problems may lead to decreases in long-term disability rates (Hacker, et. al., 2006). Lack in prompt identification and proper management of these problems may have detrimental effect in their potential adult life (Rimal & Pokharel, 2013).

Adolescents currently account for 1.2 billion of the world's population. Eighty-eight percent of them live in developing countries (UNICEF, 2011). Adolescents in Nepal cover 23.62 percent of the total population i.e. nearly a quarter of the population (Ministry of Health and Population, 2011). Mental and behavioural disorders are estimated to account for 12% of the global burden of disease and these disorders of childhood and adolescence are very costly to society in both human and financial terms (WHO, 2001). Various Studies conducted in different parts of the world shows that prevalence of psychosocial problems among adolescents ranges from 13% to 45% (Ahmad, Khalique, Khan, & Amir, 2007; Syed, Hussein, & Haidry, 2009; Suhail, Anees, Najam, Zulfia & Ali, 2012; Pathak, Sharma, Parvan, Gupta, Ojha, & Goel, 2011; Saleem & Mahmood, 2013; and Sharma, et. al., 2014). In the context of Nepal, studies conducted by Bista, Thapa, Sapkota, Singh and Pokhrel, (2016) reported 17% prevalence of psychosocial problem among school children in Hetauda and Sharma, (2014) had found it as 30% in Pokhara. The environment in which some adolescents live, learn and grow can undermine their physical, psychosocial and emotional development, for example, where adolescents lack parental guidance and support, face food shortages, or are surrounded by violence, exploitation and abuse (WHO, 2017). In this backdrop the study was

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executed to assess the prevalence and associated factors of psychosocial problems among school-going adolescents in Pokhara.

Data and Methods

Descriptive cross-sectional study design and non-probability purposive sampling technique was adopted for the study. The study was conducted in public schools of Pokhara Leknath Metropolitan city. Four public schools were selected purposively because they represent adolescents from low socio-economic group among whom psychosocial problem is common (Rao & Raju, 2012) and keeping in mind to find out the factors which are more likely to cause the problem among these adolescents. From the selected schools, students of class 7, 8 and 9 with the age range of 11-16 years were included in the study. Sample size was calculated considering the prevalence of Psychosocial Problem as 30% (Sharma, 2014; Banstola, 2015) with allowable error 5% and Z value 1.96, using the formula $n = (z^2 p q)/e^2$ (Kothari, 2011). The calculated sample size was 323 and after adding the non-response rate of 10%, the final sample size was 355 but due to the practical problem 5 extra students who were present in the class during data collection time were also included, so that finally data was collected among 360 respondents.

The instrument for data collection was self-administered questionnaire which was divided in three parts. Part I related to socio-demographic information, part II consisted of questions regarding family and school related factors and part III was the standard tool to measure psychosocial problem (Paediatric Symptom Checklist – Youth Report). The tool was pretested among 35 respondents who met the similar characteristics of study samples and they were not included in the main study. The Pediatric Symptom Checklist (Y-PSC) is a brief screening questionnaire that can be administered to adolescents ages 11 and up by health professionals (doctors, registered nurses). The PSC consists of 35 items that are rated as “Never,” “Sometimes,” or “Often” present and scored 0, 1, and 2, respectively. The total score is calculated by adding together the score for each of the 35 items. For children and adolescents ages 6 through 16, a

cutoff score of 28 or higher indicates psychological impairment. This scale showed high internal reliability (Cronbach's alpha-0.89 and 0.75) when used with Nepalese adolescents studying in various school and non-school settings (Banstola, 2015; Bista, et. al., 2016). The PSC could be used without explicit permission for educational and professional research.

Data was collected after getting approval from the Institutional research committee, department of sociology, Prithvi Narayan Campus, Pokhara. Formal permission was obtained from the selected schools. The purpose of the study was explained to the respondents. Informed written consent was taken from each respondent prior to data collection. Precautions were taken throughout the study in every step to safeguard the right and welfare of all respondents. The respondents were given full authority to withdraw their participation without any fear or clarification at any time during the investigation. Confidentiality had maintained throughout the study. Obtained data was used for research purpose only. Time taken for data collection was 25-30 minutes from each respondents. The questions were clearly read out and explained by the researcher to make it clear and easy for the respondents as well as for the completeness.

Collected data was checked, reviewed, organized daily for completeness and accuracy. Data was analyzed in Statistical Package for Social Science (SPSS) version 16. Descriptive statistics (i.e frequency, percentage, mean and standard deviation) was used to describe the findings and inferential statistics (chi-square test and odds ratio) were computed to see the association between variables. The result was considered significant at 95% confidence interval with p value ≤ 0.05 .

Results and Discussion

Among 360 respondents, majority (65.4%) of the respondents were in the age group 14-16 years with mean age 14.2. Proportion of females (56.1%) was slightly higher than males (43.9%). Most (81.7%) of the respondents were Hindus. Almost equal representation found among Brahmin/Chhetri (40.3%) and Mongolian (41.1%) ethnic groups. Seventy percent of the respondents were staying with their parents and rests were not. The rest

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were staying with their relatives, friends and brother/sister etc. Regarding family dynamics, 78 percent of them had both parents live and staying together but rest were not together i.e. separated or divorced or widow or widower. Sixty eight percent of the respondents were from nuclear family, more than four members in their family (61.7%) and (21.1%) had hardly sufficient economic status of the family. (Table 1)

The overall prevalence of psychosocial problem was 21.7 percent. Taking into account of subscales 23 percent of the adolescents had internalizing problem, which was more than the externalizing and attention problem. This finding is supported by Pathak, et al. (2011) that also found overall prevalence of 30.0 percent and Internalizing syndrome was the most common (28.6%) psychiatric problem. The other studies also corroborates with this finding (Sojan & Baby, 2015; Sharma, 2014; Rimal & Pokhrel 2013; Syed, et. al., 2009; Ahmad, et. al., 2007; Al-Gamal, et. al., 2013; Joshi, et. al., 2012; Hamdan-Mansour, et. al., 2013; & Uddin, et. al., 2009). (Table 2)

The study has found the significant association between adolescents' religion with the occurrence of psychosocial problem. Similar to this Ahmad, et. al. (2007) also found the prevalence of psychosocial problem higher in Hindus than others; it might be due to the higher percentage of the respondents belonged to Hinduism in this study. There was significant association between with whom the adolescent stay and psychosocial problem. Adolescent who do not stay with their parents are 4 times more likely to suffer from psychosocial problem. Findings of Sojan and Baby (2015) also supports this finding which reported that family issues as important factor for their distress, 78.94% distressed children complained of inadequate time spent with parents whereas only 29.03% non-distressed group complained about the same. Shiferaw, Fantahun, and Bekele (2006) also reported living with both biological parents and good parent-teen connectedness are related to better psychosocial health. (Table, 3)

Table 1 Socio-demographic Background Characteristics of the Respondents

n=360		
Characteristics	Frequency	Percentage (%)
Age		
11-13 years	90	25.0
14-16 years	270	75.0
Sex		
Female	202	56.1
Male	158	43.9
Ethnicity		
Brahmin/ Chhetri	145	40.3
Janajati	148	41.1
Dalit	67	18.6
Religion		
Hindu	294	81.7
Buddhist	40	11.1
Muslim	24	6.7
Christian	2	6.0
Staying With		
Parents	253	70.3
Others	107	29.7
Type of Family		
Single	243	67.5
Joint	117	32.5
Family Size		
Up to five member	222	61.7
More than five member	138	38.3
Family Dynamic		
Both parent live and staying together	276	76.7
Separated/divorced, widow,	84	24.3

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Characteristics	Frequency	Percentage (%)
widower, both not live		
Economic status		
Hardly Sufficient	76	21.1
Sufficient	200	55.6
Surplus	84	23.3

Source: Field Survey, 2017

Table 2 Prevalence of Psychosocial problem

n=360

Psychosocial Problem	Frequency	Percentage
Problem not present	282	78.3
Problem present	78	21.7
Subscales		
Internalizing Problem	83	23.1
Externalizing Problem	30	8.3
Attention Problem	10	2.8

Source: Field Survey, 2017

Table 3 Association of Socio-demographic Characteristics with Psychosocial Problem

n=360

Characteristics	Psychosocial Problem		# p value	OR(95% CI)
	No (%)	Yes (%)		
Age				
11-13 years	70(76.7)	22(23.3)	0.564	0.845 (0.477- 1.498)
14-16 years	212(79.4)	56(20.55)		
Sex				
Male	125(79.1)	33(20.9)	0.751	1.086 (0.654-
Female	157(77.7)	45(22.3)		

Characteristics	Psychosocial Problem		# <i>p</i> value	OR(95% CI)
				1.802)
Religion				
Non-Hindu	45(68.2)	21(31.8)	0.027*	0.515
Hindu	237(80.6)	57(19.4)		(0.285- 0.933)
Ethnicity				
Brahmin/Chhetri	112(77.2)	33(22.8)		
Mongolian	120(81.1)	28(18.9)	0.521	
Dalit	50(74.6)	17(25.4)		
Staying with				
Parents	219(86.6)	34(13.4)	0.000*	4.499
Others(relatives, employer)	63(58.9)	44(41.1)		(2.653- 7.628)

Source: Field Survey, 2017[#]: Pearson's Chi square test,)**p* –value significant at ≤ 0.05 , OR: Odds Ratio, CI: Confidence Interval

The statistically significant association found between family type, mother's education, family income, parental marital status, verbal/physical abuse at home, home environment and school/academic related stress with psychosocial problem. Adolescents living in joint family were twice more likely to have psychosocial problem. There might be the less parental attention, time, focus and guidance towards the adolescents in the joint family system. Adolescents whose mothers are illiterate (1.9 times), whose family income is hardly sufficient (3.2 times) and adolescents whose parents are not together i.e. either separated or divorced or widow/widower are (1.7 times), those facing verbal/physical abuse at home (13.5 times), who do not feel the home environment is good (5 times) and having high stress at school (5.3 times) more likely to have psychosocial problem. However, there was no statistically significant association found with family size and number of siblings with psychosocial problem. (Table, 4)

Table 4 Association of Family, Home and School related Characteristics with Psychosocial Problem

			n=360	
Characteristics	Psychosocial Problem		# <i>p</i> value	OR(95% CI)
	No(%)	Yes (%)		
Family type				
Nuclear	201(82.7)	42(17.3)	0.004*	2.127
Joint	81(69.2)	36(30.8)		(1.272-3.558)
Family size				
Upto 4	94(81.0)	22(19.0)	0.391	1.273
More than 4	188(77.0)	56(23.0)		(0.733-2.210)
Number of sibling				
No sibling	5(83.3)	1(16.7)	0.764	1.390
	277(78.2)	77(21.8)		(0.160-12.07)
Father’s education				
Literate	255(80.0)	64(20.0)	0.081	2.109
Illiterate	17(65.4)	9(34.6)		(0.899-4.951)
Mother’s education				
Literate	229(81.2)	53(18.8)	0.027*	1.964
Illiterate	44(68.8)	20(31.2)		(1.070-3.604)
Family Income				
Sufficient/Surplus	237(83.2)	48(16.8)	0.000*	3.292
Hardly Sufficient	45(60.0)	30(40.0)		(1.887-5.742)
Parental marital status				
Staying together	223(80.8)	53(19.2)	0.040*	1.783
	59(70.2)	25(29.8)		(1.023-

Characteristics	Psychosocial Problem		[#] <i>p</i> value	OR(95% CI)
Separated/Widow/Widower				3.107)
Abuse at home				
Not present	275(82.6)	58(17.4)	0.000*	13.54
Present	7(25.9)	20(74.1)		(5.474- 33.52)
Home environment				
Feel good	246(84.5)	45(15.5)	0.000*	5.011
Feel not good	36(52.2)	33(47.8)		(2.836- 8.855)
School/Academic Stress				
Low	198(89.2)	24(10.8)	0.000*	5.304
High	84(60.9)	54(39.1)		(3.077- 9.141)

Source: Field Survey, 2017 [#]: Pearson's Chi square test,)**p* –value significant at ≤ 0.05 , OR: Odds Ratio, CI: Confidence Interval

In affirm to these findings, Rahi, Kumavat, Garg and Singh (2005), has observed that prevalence of psychopathological disorders was highest in children of low socio-economic status, living in overcrowded dwellings and children of illiterate mothers ($P < 0.05$). Chhabra and Sodhi, (2012) reported psychosocial problems were significantly higher in adolescents of large extended families (>8members) and in lower socioeconomic status. Ahmed, et al. (2007) also reported the higher prevalence of psychosocial problems in lower social class. According to Apollo Hospital Report (2016), poor economic condition is a risk factor for the problem.

Pathak, et al. (2011) had also found family environment and parental marital discord were statistically significant with psychosocial problem of adolescents in India. Similarly, Kouros, Merrilees and Cummings, (2008) found the association between parental marital conflict and emotional problem among children. Childhood abuse is a contributor for psychosocial problem (Apollo Hospital, 2016). There is also a higher rate of antisocial and violent behavior among adolescents who have experienced neglect

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(Moran, 2015). Moreover, Owoaje, et al (2011) found significant association of child physical punishment and family trauma with adolescent mental health problem. The exposure to conditions of abuse and neglect during childhood has been associated with an increased risk of psychological, social and behavioral impairment (Pacheco, Irigaray, Nunes, & Argimon, 2014).

Conclusion

On basis of findings it is concluded that, a sizeable population (about one fourth of the school going adolescents) were suffered from psychosocial problem and the internalizing problem was most commonly found. Furthermore, adolescents who were facing abuse at home, followed by do not feel good about their home environment, have high academic/school stress, not staying with their parents, hardly sufficient family income, who are from joint family, adolescents whose mothers are illiterate and having disrupted marital status of parents were more likely to develop psychosocial problem. Thus these factors sought for the special concern and need to be addressed. School based mental health services can handle the problem in most effective way by screening and providing help to the sufferers at earliest. It also seems imperative to have a post of psychosocial counsellor in schools. These results have policy implications in respect of the creation of a cordial school environment as well as encouraging a healthy interpersonal relationship between adolescents and their family and friends with the aim of reducing these risk factors.

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Review Article

Ramsar Lakes in the Foothills of Himalaya, Pokhara-Lekhnath, Nepal: an overview

Namita Paudel^{1*}, Subash Adhikari², Ganesh Paudel³

1 Institute of Tibetan Plateau Research, Chinese, Academy of Sciences,
Beijing 100101, China

2 Tribhuvan University, Janapriya Multiple Campus, Pokhara, Nepal

3 Tribhuvan University, Institute of Forestry, Pokhara, Nepal

*Correspondence- n.paudel@itpcas.ac.cn

Abstract

Wetlands are the most dynamic ecological units on the earth delivering voluminous ecosystem services. Pokhara-Lekhnath has prosperous wetland ecosystems with nine lake clusters nominated as 10th Ramsar site of Nepal in 2016 that act as diverse and, distinctive biodiversity hot spot and habitat. These wetlands afford abundant ecosystem services and assist vulnerable, endangered and critically endangered species. However these lakes are under tremendous pressure due to rapid urbanization, natural erosion, encroachments, land use changes in the catchment and anthropogenic inputs resulting in the shrinkage of area and deterioration in the hydrological, economic and ecological characteristics.

Keywords: Pokhara-Lekhnath; Ramsar Sites; Biodiversity hot spot; ecosystem; Lentic

Introduction

As per the definition by EPA, the wetland is an area where either water covers soil or remains in the proximity of soil for at least one season. Basically, the wetland is land area saturated with water and is ecologically sensitive and adaptive system. Wetlands are considered as intermediate ecosystems between land and water incorporating water, soil and organism

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that are adjusted to the distinctive wet environment resulting in one of the most dynamic ecosystem.

In order to conserve, perspicacious use, and encourage the member countries to list ecological, botanical, zoological, limnological or hydrological significant wetlands as Ramsar sites, Convention on Wetlands of International Importance was signed in Ramsar nominated as Ramsar convention Iran on February 2, 1971 (Ramsar Convention 1971). After successful 17 years of first Ramsar Convention, Nepal signed Ramsar Convention on April 17, 1988 (Kafle & Savillo, 2009). Till, January 2016, more than 2,220 wetlands with area 2.14 million square kilometers (4-6% of the total land surface in the world) from 169 member countries have been designated for inclusion in the List of Wetlands of International Importance. Currently, in Nepal, there are 10 Ramsar sites of international importance. Among them, Koshi Tappu wetland is first nominated Ramsar site in Nepal (1987) while Lake clusters of Pokhara Valley are the last nominated Ramsar site (2nd Feb 2016) (Ramsar Convention Secretariat, 2016).

Both natural and artificial wetlands are included in Ramsar site of international Importance. Lakes, ponds, riverine floodplains, swamps, and marshes are natural wetlands, while water storage areas and deep-water agricultural lands are artificial wetlands in Nepal. Ramsar sites in Nepal harbor various types of ecosystems and have been providing ecosystem services since many decades (Facility, 2002; Kafle & Savillo, 2009; Rodrigues, Pilgrim, Lamoreux, Hoffmann, & Brooks, 2006; Sah & Heinen, 2002). Nepal wetlands are not only very rich in biodiversity but also are rich sources of water for drinking, fishing, and irrigation. Wetlands/Ramsar sites of Nepal host endangered species i.e. Asiatic wild buffalo, water buffalo, Greater one-horned rhinoceros, Gangetic dolphin, Swamp deer, Ghadial, Bullfrog. Wetlands are recreation places for migratory birds like Demoiselle crane, cinereous vulture, common greenshank, common teal, Eurasian Curlew, good wall, great cormorant, greater spotted eagle, imperial eagle, Kentish Plover (Bhandari, 2008). In Nepal wetlands have

been reported to harbor more than 25% of total bio diversities (Facility, 2002) . Nepal wetlands (swamp in Kapilvastu) harbor 3 wild species of rice and DNA of these is used frequently to produce hybrid varieties of rice in Nepal (Bhandari, 2008). Wetland ecosystems support diverse and unique habitats. These wetlands provide numerous ecological services but are under tremendous stress due to rapid urbanization, industrialization and agricultural intensification, manifested by the shrinkage in their areal extent, and decline in the hydrological, economic and ecological functions they perform

The objectives of this study are to: a) review the Ramsar Site/wetland of Pokhara – Lekhnath Metropolitan city, b) describe the significance and threats of Ramsar Sites in terms of their geographic distribution and extent, ecosystem benefits and ecological integrity which are considered as biodiversity hub that play crucial role in ecosystem services.

Methodology

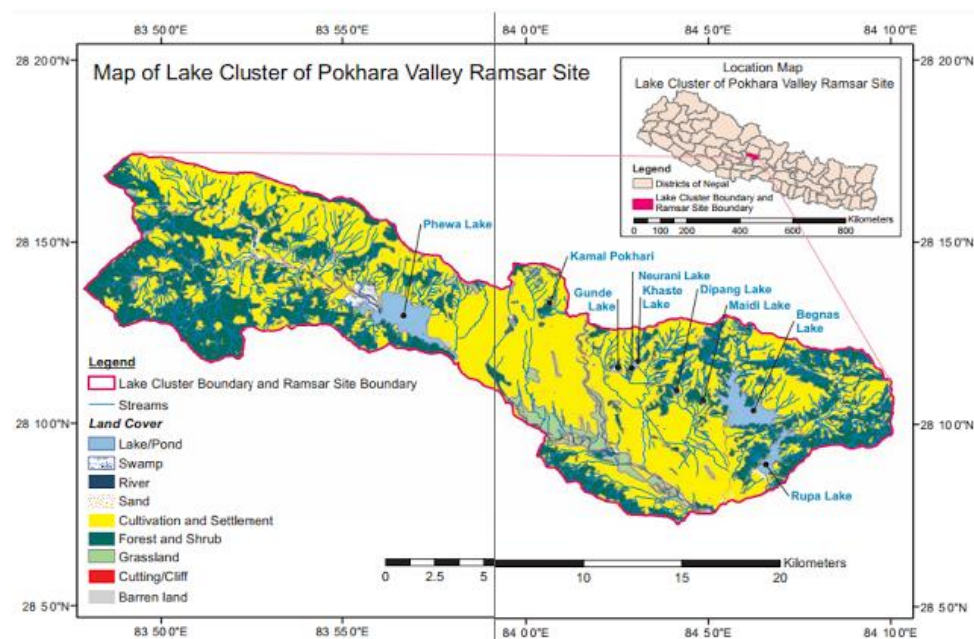
Study area

Pokhara Lekhnath is a naturally attractive and historical Metropolitan City in Nepal. It is the Headquarter of Province no 4, and is situated 200 kilometers west from Kathmandu, the capital city of Nepal. Recently, it is declared as the biggest Metropolitan city, occupying an area of 464.24 sq. km which is 9, 18 and 2.5 times larger than Kathmandu, Lalitpur and Bhataratpur metropolitan city respectively (<https://en.wikipedia.org/wiki/Pokhara>). It has population of 414,141 with population density of 892.1/Km² (<https://en.wikipedia.org/wiki/Pokhara>, Planning & Secretariat, 2012). The altitude varies from 827 meters (2,713 feet) in the southern part to 1,740 meters (5,710 feet) in the northern part (UNDP/ERRRP, No, 2013). It lies in the Mahabharata Range, Midlands and the Great Himalayan Range of Nepal between longitudes 83°48'E and 84°13'11"E and latitudes 28°4'39"N and 28°36'18"N (Oli 1996).

Pokhara Metropolitan City is one of the most rapidly urbanizing city of Nepal residing mixture of climatic conditions within the Seti river

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watershed. The climatic conditions of the central part of the basin ranges between sub-tropical to cool temperate, whereas the climatic deviations in the northern part ranges from temperate to alpine with high precipitation rate, around 3000 mm per year (Rimal et al, 2013; Tripathee et al., 2016). This city encompasses nine cluster lakes (Phewa, Begnas, Rupa, Dipang, Maidi, Khaste, Neurani, Kamalpokhari and Gunde) of ecological importance listed as 10th Ramsar Site/ Wetlands (no 2257) bearing an international gratitude and safeguarding the livelihoods and ecosystem (https://en.wikipedia.org/wiki/Ramsar_Convention).



Lake cluster of Pokhara valley

(Adopted from IUCN, Nepal, 2016)

Methods

The information's for the study were collected through review of existing literature, research papers, reports and other relevant online materials through national and international efforts. The study focuses on present

location, status, importance and threats of Ramsar Lakes in Pokhara – Lekhnath Metropolitan City.

List of Ramsar Sites in Nepal

Name of Ramsar site	Location	Area in hector	Elevation in Meter	Ramsar Designation Date
Beeshajari and associated lakes	Chitwan	3200	285	2003/08/13
GhodaGhodi Lake	Kailali	2563	205	2003/08/13
Gokyo lake and associated wetland	Solukhumbu	7770	5000	2007/09/23
Jagadishpurreservior	Kapilvastu	225	195	2003/08/13
Lake cluster of Pokhara(8-lakes)	Kaski	26106	827	2016/02/02
Mai Pokhari	Ilam	90	2100	2008/11/27
Gosaikunda and associated lakes	Rasuwa	1030	4700	2007/09/23
Phoksundo lake	Dolpa	494	3610	2007/09/23
Koshi Tappu	Sunsari	17500	90	1988/12/17
Rara	Mugu	1583	2990	2007/09/23

Source : (https://en.wikipedia.org/wiki/Ramsar_Convention)

Phewa Lake

Phewa Lake is the largest lake of Pokhara valley situated in the foot hills of Himalaya at an elevation of 782 m a.s.l., symbolizing a lake with intense anthropogenic burden from various pollutant and contaminants sources. It bears an external area of 4.35 Km² and extreme depth of 22.5 m (Sharma et al., 2015,). The major source of water is surrounding catchments and Harpan Khola that flow west to east into the lake. It is regarded as very easy access lake in southern slope of central Himalaya with great anthropogenic density due to various human uses and activities like agricultural inputs (fertilizers and pesticides), fisheries, domestic wastes, recreation and sedimentation, etc. Indigenous anthropogenic events in the watershed of Phewa Lake like traffic, waste burning, agricultural, grazing, fishing, Paragliding etc. are also creating threats on to the aquatic

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ecosystem (Rupakheti et al., 2017; Sharma et al., 2015). Landslides from territory of lake, erosion, fragile geology and siltation might drastically alter the chemical composition of lake water influencing the quality of water, lentic and lotic environment and ecosystem (Rai, 2000).

Begnas Lake

Begnas Lake is the second biggest lake in the Pokhara Valley located in the foot hills of Himalaya at an elevation of 650 m a.s.l. covering an area of 3.28 km² containing water volume of 17.96×10⁶ m³ and extreme depth of 10 m (Rai, 2000 & Rai, A. K. 1995). The chief foundation of the lake water is the catchments and Syankhudi Khola that runs west to south into the lake. It is a versatile Lake and is applicable for irrigation, commercial level fishery and recreation which encompasses dynamic role in lentic ecosystem and environment. However, the lake basin is susceptible to anthropogenic events for instance agricultural inputs, urbanization, boating and human settlements. Moreover, it is a eutrophic lake (Watanabe & Bhandary, 1988) vulnerable to the regional chemical weathering and atmospheric precipitation inputs that governs the lake chemical feature influencing the ecology integrity and lentic environment (Khadka & Ramanathan, 2013).

Rupa Lake

Rupa Lake is the third largest and densely polluted lake of Pokhara-Lekhnath Metropolitan city. This Lake is located in the foot hills of Himalaya at an elevation of 600 m a.s.l. with an area of 1.35 Km² and average depth of 3m (Rai et al. 1996). This small progressing eutrophic lake (Shrestha, 2017) has Talbesi Khola, as the major source of the lake with sole outlet Tal khola. The existence of 450 diverse species of flora and fauna exposes its diverse biodiversity (Oli, 1996). This lake assists the large varieties of floral and faunal species and is under the stress of innumerable anthropogenic elements. Biodiversity's of this lake are under numeral threats including trapping, hunting, fishing, natural soil erosion, sedimentation and agricultural inputs, human disturbance, pollution and eutrophication deteriorating the aquatic environments and ecosystem (Jha, 2008). Major floods and landslides have dumped enormous sediments in

the lake and its adjoining wetlands, and substantial deforestation around the lake consequences in the degradation of lentic environment (Kunwar & Devkota, 2012; Lake, 2008; Rai, 2000; Shrestha, 2017).

Depang Lake

Depang Lake is the third biggest freshwater Lake of Pokhara Metropolitan City situated between green hills with an area of 3.24 Km² and 3-5m depth. It is in an elevation of 562m from sea level. This is famous for fishing purpose (“Seven Lakes” lekhnath.com). This lake is also influenced by anthropogenic activities, natural erosion and sedimentation.

Khaste Lake

Khaste Lake is the freshwater lake situated in the Pokhara- Lekhnath Metropolitan city with an area of 2.4 Km² and elevation of 764m from sea level. The water body covers 1.37 Km² and is used for fish rearing and agriculture. It is also represented as ‘Bird Wetland’ and famous for observing birds. Its inflow source is Neureni Lake and outflows is Taal Khola. The region is a prospective research midpoint for the inspecting of the birds as diverse species of birds visited this lakes. This indicate its biodiversity importance. It is also affected by fishing, irrigation and agriculture inputs (“Seven Lakes” lekhnath.com).

Maidi, Niureni, Gunde and Kamal Pokhari Lakes

These are tiny lakes located in Pokhara-Metropolitan city and also play vital role in aquatic ecosystem. These lakes bear area of 0.01 Km², 0.02 Km², 0.08 Km² and 0.02 Km² respectively. Despite of being small, these lakes are significant from the view of ecosystem and environment as they play major role in ecosystem services. They are also highly influenced by anthropogenic activities disturbing the biodiversity (“Seven Lakes” lekhnath.com).

Importance

Wetlands are reflected as distinctive ecological characteristics providing abundant amenities to humanity and ecosystem (Prasad et al., 2002).

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Ecosystem imports delivered by the wetlands are water system for irrigation, fisheries, forest products, water supply for households and recreation.

Multiple ecosystem services comprise carbon sequestration, flood control, ground water recharge, nutrient removal, toxics retention and biodiversity maintenance (Bergh, Barendregt, Ecological-, & Maltby, 2000).

Multiple-use water services

Wetlands such as ponds, lakes, and reservoirs affords several and extended use water services that comprises water for irrigation, domestic desires, fisheries and recreational practices, groundwater restore, flood governor and silt detention. Commercial level fish rearing are most common in the lakes of Pokhara.

Carbon sequestration

Swamps, peat lands and marshes area involve in the significant role of carbon cycle. Wetland sediments/deposits are the durable supplies of carbon and donate nearby 40% of the global methane emissions bearing the uppermost carbon density in terrestrial ecosystems and comparatively higher dimensions to sequester supplementary carbon dioxide (Lal, 2004; Pant, Rechcigl, & Adjei, 2003; Upadhyay, Sankhayan, & Solberg, 2005; Zedler & Kercher, 2005). Wetlands sequester carbon in high proportions of organic residue inputs and decline the rates of decompositions (Pant et al., 2003).

Pollution reduction

Wetlands action as descend for pollutants in numerous agricultural and urban landscapes. It is recommended as a low cost measure to decrease point and non-point pollution from environments (Bergh et al., 2000). Riparian wetlands, diminish the nutrient constituent's load from inflow water by discarding nitrate and phosphorus components from surface and subsurface runoff (Verhoeven, Arheimer, Yin, & Hefting, 2006).

Flood regulator

Wetlands perform an imperative character in flood regulation and control. It traps suspended solids particles and nutrient components that assist to diminish the effects of flooding by arresting water resulting in the decrease of flood water movements (Boyd & Banzhaf, 2006, 2007).

Biodiversity hotspots

Unlike, other natural habitat, wetlands are also essential region for biodiversity. It support species diversity by creating natural habitat for sustainable life. Many vertebrates and invertebrates rely on wetlands for completion of life cycle where as some others partly associate with such habitat in particular periods of life cycle. It acts as platform for photosynthesis and recycling the nutrients that display a vital role and assist the food chains. Wetlands are significant breeding regions for wildlife and afford a shelter for migratory birds and aquatic animals (Juliano, 1999). Diverse aquatic plant in the Lake Cluster of Pokhara were sub-merged, free floating, rooted floating and other emerged plant species.

Emergent threat to wetland ecosystem

Wetland are utmost profoundly used, depended upon and exploited ecosystems for sustainability and welfare of living beings (Molur, Smith, Daniel, & Darwall, 2011). Loss in the wetland area consequences the adverse effect on the main functions of the ecosystem goods and services accomplished by wetlands (Sah & Heinen, 2002; Zedler & Kercher, 2005). Globally, the foremost causes of wetland loss are urbanization, land use changes, reckless irrigation, unscientific infrastructure development, industrial effluent, agricultural runoff and climate change inconsistency (Dudgeon et al., 2015; Jha, 2008; Weber, 1995). In Pokhara, extreme unscientific infrastructure development, land plotting around the periphery of Lakes increases anthropogenic inputs and, decreases the life of biodiversity and aquatic ecosystem. Traffic related emission and sounds influence the chemistry of lakes and threats birds and fishes. Natural erosion, sedimentation, rapid advancement of water Hyacinth and connection of sewage in lakes decrease dissolve oxygen and threatened the

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life of lentic environment. Researcher analyses the limnological condition and water chemistry of Phewa, Begnas and Rupa Lake identifying their controlling mechanism in temporal scale. Identifying ions, mercury and trace elements load is important as they transfer and biomagnified (Hg and Trace metals) when passing through one trophic level to another (Khadka & Ramanathan, 2013; Sharma et al., 2015). So wetlands conservation is important in order to conserve ecosystem to protect life of human, plants, birds, fish and other aquatic life forms.

Conclusion

Ecosystem assists diverse and distinctive habitats. Wetland ecosystems benefit topographic and climatic regimes. They are regarded as dynamic measure of hydrological cycle and are extremely fruitful systems in nature. Wetlands not only act as biological diversity hot spot but also deliver a wide array of ecosystem goods and services. In Pokhara, Lakes afford numerous services, comprising irrigation, domestic water supply, freshwater fisheries and recreation. They play central role in groundwater recharge, flood control, and carbon sequestration and pollution abatement (Bassi, Kumar, Sharma, & Pardha-saradhi, 2014). Still, management of wetlands has received inadequate attention. As a result, the wetlands are subjected to massive anthropogenic pressures, including land use changes in the catchment, pollution from industry and households, encroachments, tourism and over exploitation of their natural resources. Research work on sustainable wetlands management must be associated to the limnological aspects, ecological/environmental economics, hydrological and land-use changes in the catchment and socio-economic processes.

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Review Article

Constitution of Nepal and Political Development: Adaption and Challenges of Implication

Girdhari Dahal

Tribhuvan University

Prithivi Narayan Campus, Pokhara, Nepal

Email: gddahal1234@gmail.com

Abstract

The present constitution- promulgated by the Constitutional Assembly (CA) in September, 2015 is the seventh written document in the constitutional history of Nepal which has institutionalized Federal Democratic Republic achieved after the success of peoples' movement of 2006. It was made based on the principles of constitutionalism. The constitution of Nepal has addressed different issues for a modern state and is regarded as a progressive, people oriented constitution. It has also paved paths for further economic development. It has opened door for rights of the people, political stability, restructuring of the state, and sustainable peace and development of the state. However, there are many prospects as well as numerous challenges for its proper implementation. Some Madhes based parties (People of Terai) and ethnic minorities have criticized the constitution for being unable to address their pertinent issues fully. However, they have involved in the process of constitution implementation by participating in first local, provincial and federal level election held under new constitution. So the government needs to bring the Madhesh based parties and other groups into a peaceful consensus and should pave a path for implementation of this constitution. At the same time, implementation of federalism, election of local bodies, sustainable peace, political stability and development are among other challenges faced by this constitution. Addressing these issues will mark the full implementation of the constitution as well as open every possibility for peace, stability, progress and economic development of the nation.

Constitution of Nepal and ...

Keywords: Constituent Assembly, economic development, federal republic, rights.

Introduction

Nepal was ruled by different dynasties. Until the time of modern Nepal, it was ruled by Gopal, Kirant (750-001B.C), Lichchhavi (100-800 A.D.) and Malla (800-1768 A.D.) dynasties. From 1768 to 2006, Nepal was ruled by Shah Dynasty (Joshi & Rose, 2004). However, it was ruled by the Ranas from 1846 to 1951. After the democratic movement of 1951, democracy was established in Nepal. During the period between 1951 and 2008, there were different systems of governments: multiparty systems of one decade after the establishment of democracy in 1951, partyless *Panchayat* system of three decades from 1961 to 1990, multiparty system with constitutional monarchy after the restoration of democracy in 1990, direct rule of the then King Gyanendra from 2002 to 2006 and the republican system after the success of peoples' movement in 2006.

The democratic movement was more accelerated after the death sentence to the four great sons of Nepal. The democratic movement was led by Bisheswor Prasad Koirala, Pushpalal, Krishna Prasad Bhattarai, Manmohan Adhikari, Ganeshman Singh and many others. The movement was highly supported by the public and the then King Tribhuvan as well. So the political parties, the public and the king could finally overthrow the Rana rule from Nepal after the successful completion of the democratic movement in 1951. And, the process of constitutional development in Nepal has been supported, stimulated and accelerated by each of these democratic movements.

Objectives

The main objective of this paper is to explore the constitution of Nepal in the background of different phases of political development, its adoption, and challenges of implementation. It has discussed onto the backgrounds of constitutional history of Nepal. Analysis of the constitution, constitutionalism and current issues forms the basis of this study.

Methodology

This paper makes a brief description and analysis of the constitution of Nepal. It makes the best use of data that were collected from secondary sources like different constitutions of Nepal, journals, books, etc. are reference for the purpose of this paper. This paper is basically historical, exploratory and analytical in nature.

Constitutional History

United States of America, after its independence in 1776, made its constitution in 1787 through constitution assembly which was later ratified by two third majorities in 1789. It was the first written – as well as shortest- constitution in the modern constitutional history of the world. The constitution of USA has aspirations to establish justice, to insure domestic tranquility, to provide for common defiance, to promote the general welfare, and to secure the blessings of liberty to its subjects and posterity (USA Constitution, 1971:13). Another important nation in the constitutional history of the world - England- has no written constitution but its constitutional development is based on- and stimulated by- Magnacarta (1215), bill of rights and the principal of constitutionalism (Bhagwan & Bhushan, 1986). The French revolution was established France's first constitution in 1791. Then constitutional development in France was evolved through different stages and finally constitution of fifth republic was established in 1958 which has been provided France with institutional stability (France, 1996:47). In a country like France, which has been experienced all possible form of government in the past two hundred years, the success of the Fifth Republic lies in the fact that it was formed through a succession of compromises, a mixed bag of unharmonious but effective of conventional practices (Meny, 1996:11). Like France, Nepal has practiced and experienced different kinds of constitution in its seven decade long constitutional history. Nepal has practiced more than six constitutions in its short constitutional history. Nepal's neighbor country China declared its first constitution in 1954. After two intervening versions enacted in 1975 and 1978, the current Constitution was declared in 1982.

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The 1982 constitution- in its preamble, states that China held Chinese revolution and the people's democratic dictatorship and promises to follow the socialist road, to steadily improve socialist institutions, to develop socialist democracy, to improve the socialist legal system and to work hard and self-reliantly to modernize industry, agriculture, national defense and science and technology step by step to turn China into a socialist country with a high level of culture and democracy (The Constitution of the People's Republic of China, 1982:7).

Present constitution of Nepal is the seventh written constitution of Nepal. It was made by the Constitutional Assembly (CA). It was made on the mandate of the peoples' movement of 2006. The first written constitution of Nepal is the government act 1947 made by Rana Prime Minister Padma Shamsheer. Revolution of 1951 had established democracy in Nepal. and then king Tribhuvan has announced the interim constitution 1951. He also announced that the new constitution would be made by constitutional assembly. But unfortunately king Mahendra himself announced the constitution kingdom of Nepal 1959 which followed Nepal's first general election making Bisheshwar Prasad Koirala as the first elected Prime Minister of Nepal. But king Mahendra banned all political parties and arrested the elected Prime Minister after 18 months and announced party less Panchayat system. He announced the constitution of Nepal in 1961. Later, mass movement of 1990 restored democracy in Nepal and made the constitution of kingdom of Nepal 1990. However, King Gynendra's takeover of power disrupted the multi party democratic practice of Nepal. This caused people's movement in 2006 and as per its mandate, interim constitution 2006 was made declaring people as sovereign body (Dahal, 2014). Then the first constitution assembly election was held in Nepal in 2008. Again, second CA election was held in 2013 which finally made the new constitution of Nepal in 2015. This constitution announced Nepal as the federal democratic republic nation. Nepal became the youngest republic in the world. In this way, Nepal's seven decade long struggle for a constitutional development resulted present constitution of Nepal 2015.

Constituent Assembly and Constitution of Nepal

After the establishment of democracy in Nepal in 1951 through the revolution, the government of Nepal announced those four heroes like Sukraraj Sastri, Gangalal, Dharmabhakta Mathema and Dasrath Chanda as the great martyrs of the nation. It was also declared that new constitution of Nepal would be made through the Constitutional Assembly. But the then king Mahendra announced the Constitution of Kingdom of Nepal 1959 instead of conducting an election of Constitutional Assembly to draft a constitution. The first general election was held and Nepali Congress got two third majorities in the parliament. Bisheswor Prasad Koirala was elected as the first prime minister of Nepal. Unfortunately, after two years, the then king Mahendra abolished all political parties and started partyless *Panchayat* system. This *Panchayat* system lasted for 30 years. The joint mass movement led by Nepali Congress and United Left Front launched against the party less *Panchayat* system and democracy was restored in Nepal in 1990. The Constitution of Kingdom of Nepal 1990 was promulgated with provisions of multiparty democracy with the constitutional monarch (Constitution of the Kingdom of Nepal, 1990). General election was held and Nepali Congress got majority in the parliament. Parliamentary majority party leader Girija Prasad Koirala was elected as prime minister. However, there could neither be stable governments nor the governments could bring forth economic development as per the desire of the people of Nepal. Corruption spread massively. In the meantime, CPN (Maoist) led by Pushpa Kamal Dahal, “Prachanda”, started their armed revolution 1996. Earlier *Samyukt Janmorcha Nepal* (United People’s Front) had submitted forty point demands to the government. The points were related to the national issues and peoples’ rights. The government denied addressing the issues and Maoist insurgency started in the country. They claimed that they were forced to stage the revolution because after the restoration of democracy, political parties forgot people’s mandates, and the society is same to the life of the people.

Later in 2001, the royal massacre took place at the palace that ended the

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lineage of King Birendra. Gyanendra became the king after the massacre and in no time dismissed the government led by Sher Bahadur Deuba as prime minister. The king took the executive power in his hand and started a direct rule. This enraged the political parties of that time. They refused the king's step and began to stage protests against the step taken by the king. They did not take part in the election of municipality conducted by the king. That election with a meager 19% vote casting, it was criticized both nationally and internationally because of the objection of the parties. Everywhere there were voices heard against the autocratic rule of the king. As the political courses developed, the seven parliamentary parties and revolting Communist Party of Nepal Maoist signed a 12 point agreement in Delhi in 2006. In that agreement, they agreed to stage the movement to get democracy in real sense by ending monarchy and to draft a new constitution from Constituent Assembly. On the basis of that agreement, they started a united movement for democracy. At first, they started a public disobedience for four days from 24 *Chaitra* but that movement continued for 19 days and ended successfully in April 2006 after the king restored the parliament that he had dissolved himself.

After that the Comprehensive Peace Accord was signed between the government and Maoists, Interim Constitution was formed and the election of CA was held. Unfortunately, the first CA could not finalize the constitution and it was dissolved. Again the election of second CA was held and this could successfully draft a new constitution of Nepal in September 2015 (Constitution of Nepal, 2015). Constitutional Assembly was the dream of Nepali people since 1951 and this dream was fulfilled with the promulgation of the Constitution of Nepal in 2015. With this constitution, the government and the people of Nepal foresee peace, prosperity, political stability, equality and economic development in the nation.

Adoption and Implications of New Constitution

Nepal is a multicultural, multilingual and multiethnic nation. There are 125 different castes/ethnic groups in Nepal (Central Bureau of Statistics, 2011). Thus, the CA was formed adopting principles of inclusive democracy. This is a most representative body ever formed in Nepal. The CA had 33 percent

women representatives and a good number of Dalits (So-called low caste) and other disadvantaged groups. This level of inclusive representation is unprecedented and thus very significant in the political history of Nepal.

People from many different castes, ethnicity and backward groups are living together in Nepal. Such a communal harmony is often seen as a special feature of Nepali society. In order to maintain and further promote this harmonious situation in Nepal, and there by ensure peace, development and political stability, Nepal needs to address various issues of social inequalities along the line of gender, caste/ethnicity, religion, and so on.

Nepal is a country of diversity with different tribes, ethnicities, religious groups, linguistic groups and cultural communities. More than ever, peace and political stability have become the most necessary things in the contemporary Nepal. But the country could not bring about desired changes in social, economic and others sectors even after the restoration of democracy in 1990. When the King Gyanendra Shah took over the executive power, then eight political parties (with Maoist) reached the 12 points agreement that ultimately ended the autocratic rule. After the success of mass movement of 2006, CA election was held. The first Constitutional Assembly incorporated 25 political parties and there were 30 political parties in the Second CA. There were still several other small parties outside the CA whose supports and agreements were equally necessary in order to complete the new constitution in Nepal.

The new constitution of Nepal has provided for seven provinces and 165 election constituencies. The upper house has provided for 110 representatives. So the parliament will altogether have 275 members. When the CA was in the final process to enact the new constitution, some Madhesh based political parties were against it. But the major political parties - Nepali Congress, Communist Party of Nepal United Marxist – Leninist (CPN UML), United Communist Party of Nepal (CPN) Maoist, Madhesi Jana Adhikar Forum (Democratic) and other small parties - with more than 90 percent (CA members) were convinced to pass new constitution. It is only 10 percent Madhesi political parties who do not

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accept it. The government of Nepal has tried to address their demand through the first amendment of the constitution of Nepal.

The major political parties have changed their position in second CA as compared to the first CA. In first CA election first position was occupied by Maoists but in the second CA, Nepali Congress was in the first position, CPN UML got second position and Moist got third position. In the present context, the CA has been changed into the parliament after making the constitution. But its structure is the same as of second CA. From the time of promulgation of the constitution and just after that, the Madhes based political parties have been in continuous struggle against the constitution and provisions for Madhes. Because of the Madhes movement, Nepal even faced a serious unannounced blockade (transit war) from India and the situation in Nepal was very appalling. The situation has little calmed down ever since the visit to India by then Nepali Prime Minister Khadga Prasad Oli. Political processes are underway to resolve all the issues related to Madhes and other dissatisfied groups. However, large majority of the general public, civil society and various linguistic and other groups has welcomed the constitution and wanted its implementation for peace, stability and economic development in the nation.

In Nepal there are multi-castes, multi-linguals, multi-cultural and diverse geographical specificities. In regard to the economic policy, the preamble of the constitution of Nepal has stated:

By ending discriminations relating to class, caste, region, language, religion and gender discrimination including all forms of racial untouchability, in order to protect and promote unity in diversity, social and cultural solidarity, tolerance and harmonious attitudes, we also express our determination to create an egalitarian society on the basis of the principles of proportional inclusion and participation, to ensure equitable economy, prosperity and social justice. (Constitution of Nepal, 2015)

The constitution of Nepal 2015 has incorporated the popularity will of the people; it has provided more rights than rest of the previous constitution

and has provided duties for the first time in the constitutional history of Nepal. So, it is great achievement in the constitutional history of Nepal.

The constitution expresses commitment to create the bases of socialism by adopting democratic norms and values, including peoples' (Fedrel, 1998) competitive multi-party democratic governance system, civil liberty, fundamental rights, human rights, adult franchise, periodic elections, complete press freedom and an independent, impartial and competent judiciary, and the concept of rule of law (Constitution of Nepal, 2015).

The constitution of Nepal has several provisions for the economic prosperity of the nation, free market and international trade. With the base of this constitution and political stability in the nation, it is certain to provide significant economic changes in the nation. A new dimension is seen in Nepal with the recent promulgation of this constitution. The constitution is signed by more than 90% of the CA members. This is one among the highest proportions in the world to support the constitution. Majority of the political parties, general public, civil society and various groups in the nation have willingly supported the constitutions and provisions set therein for the social, political and economic enhancements of the nation. However, the Madhes based political parties are seen dissatisfied with some provisions in the constitution. The Madhes movement, which started just before the constitutional promulgation and continued thereafter, is still not fully settled down. The government of Nepal has been putting its efforts to resolve all these issues gradually. The constitution has already been amended for the first time. With this amendment, many issues related to the Madhes have resolved and the government is trying to resolve other genuine issues with the public consensus and logical dialogues. Not only the Madhes but there are also some other ethnic groups who have not been fully satisfied with the provisions in the constitution, the government is underway to resolve all the issues with the public mandates. As already discussed, Nepal is a multi-ethnic nation, and the social harmony that has been prevailing among the communities since centuries needs to be maintained for the years to come.

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This is the specialty as well as an immense need for a country like Nepal. The social harmony can only promote the economic prosperity and socio-cultural diversities in the nation.

So, the government of Nepal has adapted a policy to solve every socio-cultural issues, that has been seen now or those that could arise in the future with the public consensus and mandates expressed by the citizens of the nation through election. This is how, the federal republic democracy can be institutionalized, peace process can be completed and the nation can march forward for political stability and economic development. However, there are different drawbacks in the constitution which need to be amended in the time being.

Conclusion

Nepal has entered into the new political era with the promulgation of the constitution of Nepal in 2015. Ultimately, the dream of Nepali people to draft their constitution through the CA has become a reality. It has now formally ended feudalistic, autocratic, centralized and unitary system of governance, and established a people centered democratic republic federal state. People of Nepal have become the ultimate sovereign power of the nation. The constitution has paved a path for many prospects ahead of the people of Nepal. However, many challenges remain ahead of this constitution. All the unresolved issues should be solved through political consensus and take the country ahead for developmental works. Nepalese need to develop democratic culture and develop leadership who are responsible for the welfare of the state and its entire people. That is what the spirit of the several democratic movements conducted by people in the political history of Nepal and it is the demands of the time as well. This study recommends that long lasting solution of the problem of the Madhes, efficiency in the functioning of elected bodies at all three levels of government, implementation of federalism and republic, proportionate development all around the nation and continuity of the existing social harmony are the major challenges of the government and constitution of Nepal.

Now local election has already been held in Nepal. Provincial and federal elections are in the process of being held on the announced election date. Thus, Nepal has started second political dimension in the political and constitutional history of Nepal from the announcement to its implication. In the beginning of 21th century, Nepal has established as federal democratic republic nation of the world and ended the feudal system. It's a federal republic democratic nation and now it is upon the political parties, its leaders and people of Nepal to properly implement the constitution of Nepal, resolve the challenges and move ahead for everlasting peace, stability and economic development.

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Review Article

Phytochemical Studies of Taxus Species and Their Uses in Cancer Treatment

Thaneshwar Subedi

Tribhuvan University

P.N. Campus, Pokhara, Nepal

E-mail: thaneshworsubedi@gmail.com

Abstract

Cancer occurs when cell division runs amok. Cancer is a mass of abnormal, unhealthy cells that are dividing and growing in an uncontrolled way. Cancerous cells with oncogene and damaged deoxyribo nucleic acid (DNA) neither repair nor die. Chemical carcinogens, ionizing radiations, viral or bacterial infection, hormonal change, heredity etc are the main cancer causing agents. In this article, treatment of cancer by plant alkaloid, Taxol, is studied by using secondary sources. Cancer can be treated by plant alkaloids; Taxol, vica rosea, colchicine known as anticancer drugs. Paclitaxel binds the protein tubulin in mitotic spindle, suppresses the tubulin-microtubule dynamic equilibrium, kills the DNA damaged defective cells to control abnormal rapid cell division. Paclitaxel ($C_{47}H_{51}NO_{14}$) has a large number of common, infrequent and rare side effects. Its structure was elucidated and published on the basis of H^1 -NMR spectrum.

Keywords: Cancer, DNA, microtubule, oncogenes, taxol, taxus species, tubulin

Introduction

The body is made up of trillions of living cells. Under normal conditions, the cells in our body grow, divide and die in an ordinary controlled way. This process is tightly regulated and is controlled by DNA machinery within the cell. In our body normal cells divide rapidly to allow growth.

After the person becomes an adult, most cells divide only to replace worn-out or dying cells or to repair injured cells. Cancer cells are different from normal cells because they are not able to control their own growth. When cells of the body of particular site start to grow out of control, they may become cancerous. Instead of dying, cancer cells continue to grow and form new abnormal cells. These cells (tumor) can also invade surrounding healthy body tissue. Such type of tumor is known as malignant tumor. A malignant tumor can spread from its original site to other parts of the body if not found and treated early. This is the property that normal cells do not possess. Cancer is originated from normal cells when their DNA or blue prints within a cell nucleus is damaged. DNA is present in every cell & it directs all the cells' action, growth, death, protein synthesis etc. When DNA is damaged in a normal cell, the cell either repairs the damage or it dies. In cancer cells, the damaged DNA is neither repaired nor dies. Instead, it gives rise to more such abnormal cells which have the same defective DNA of the original cancer cell.

History of Cancer

Cancer begins when cells on a part of the body start to grow out of control. All types of cancer start because of uncontrolled growth of abnormal cells. The cancer was discovered in Egypt (although the word cancer was not used) and dates back to about 3000 BC. Greek physician Hippocrates, (460-370 BC) who is considered as the "Father of medicine", used the words Carcinos and carcinoma to describe non-ulcer forming and ulcer forming tumors. In Greek, these words refer to a Carb (finger like spreading projections) whose meaning is cancer in Latin word given by Celsius (28-50 BC). For this, Galen (130-200 AD) used the word oncos (Greek: swelling). Several theories such as Homoral Theory, Lymph Theory, Blastema Theory, and Infectious Disease Theory were developed up to 1779 to explain cancer. In 1968 Peyton Rous was awarded by Nobel Prize for his description of a type of cancer (sarcoma) in chickens in 1911 at the Rockefeller Institute, New York. In 1960 American Cancer society (ACS) was established to study it. In the early in the 20th century, *Adjuvant*

Therapy (chemo after surgery) was developed. Until 1990s chemotherapy drugs were used to cure cancer. These drugs kill the normal cells but have a greater effect on cancer cells. Now a days, "*Targeted Therapy*" process is used which controls growth, division and spread of cancer cells, as well as the signals that cause cancer cells to die naturally.

History of Taxol Cancer Treatment

The first known compound which binds to tubulin was colchicines, *Colchicum autumnale*, but it has not been used in cancer treatment. The first anticancer drugs approved for clinical use were Vinca alkaloids, *Vinblastine* and *Vincristine*, in the 1960s. They were isolated from leaves of the *cantharanthus roseus* (*Vinca rosea*) plants in the University of Western Ontario in 1958. In 1962, sample of Pacific yew's bark were first collected by the researchers from US department of Agriculture (USDA) to find natural product that might cure cancer. In 1964 and 1965, additional samples of bark were collected to isolate paclitaxol and its biological action. First drug, along the taxanes and paclitaxel, was discovered in extracts from the bark of the Yew tree, *Taxus brevifolia*, in 1967 by Monrie Wall and Mansukh Wani but its tubulin (tumor) inhibition activity was not known until 1979. Yews are poor source of active agents which limited the development of taxanes for over 20 years until discover of the way of synthesis (Jordan, 2012). In 1977, the trade name of paclitaxel was also known by "Taxol". In December 1992, paclitaxel was approved to be used in chemotherapy (Gordoliza, 2008).

In 1984, and 1994 the FDA (Food and Drug Administrated) approved taxol for use against ovarian cancer and breast cancer respectively. In 1992 USDA isolated pachitaxel from *Taxus brevifolia* and structure was reported. In 2003 antitumor and antiangiogenic activity of paclitaxel was reported by Schmidt-Sody.

Paclitaxel

Paclitaxel (trade name: Taxol) is an anticancer/antitumor chemotherapy drug. It acts as an antineoplastic or cytotoxic drug. It is used for treating

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various types of cancer including ovarian cancer, breast cancer, non-small cell lung cancer, head and neck, bladder, esophagus cancers, AIDS related Kaposi sarcoma cancer of uterus, prostate, testes (Rowinsky, 1997). Sometimes, it is combined with other anticancer drugs to form a drug Abraxane or nab-paclitaxel used to treat spread breast cancer and pancreatic cancer.

Tubulin

Tubulin is a "heterodimer" protein in living cell and made from α - and β -tubulin. Tubulin polymerizes into microtubules which may be long chains, filament, hollow' fibers (Microtubule is a polymer of tubulin). Microtubules are one of the major components of the cytoskeleton and function in many processes including structural support, intercellular transport and DNA segregation. The tubulin super family contain six families of tubulins; α , β , γ , δ , ϵ (epsilon) and ξ (Zeta) tubulin (Scholey, 2003).

Data and Methods

In this study, the cancer and paclitaxel related materials, books, research articles, research reports available in library, related research organization, and information from electronic media were collected. These documents which were related to present topic were selected and then studied in detail. Related consultants and patients were also visited to include their suggestions and experience and then these were systematized in the research article.

Results and Discussion

Mechanism of Formation of Cancer and Treatment by Taxol

Cancer is a mass of unhealthy cells that are dividing and growing fast and in an uncontrolled way. Oncogenes are formed by changes or mutations of certain normal genes of the cell. These genes cause cells to grow out of control and become cancer cells. These cancerous cells with oncogene or damaged DNA neither repair nor die. Instead they form more abnormal cells with damaged abnormal DNA. All these new cells have the same

defective DNA of the original cancer cell. The rate of growth of cancer cell increases with increasing dynamics of tubulin and microtubule.

Figure 1

Formation of tubulin and Tubulin microtubule equilibrium

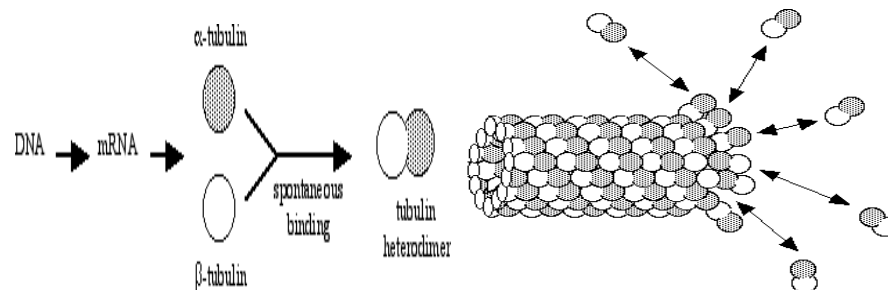
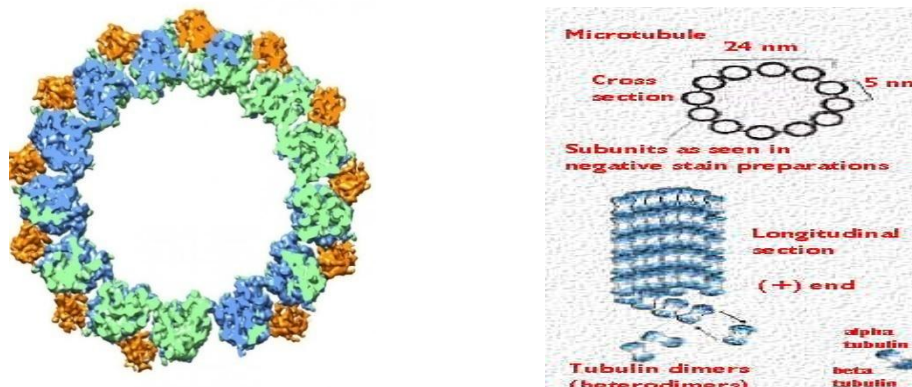


Figure 2: Structure of microtubule



Source: Adapted from Caprette (2012)

Causes of Cancer

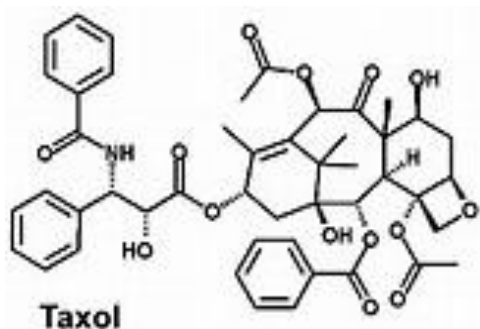
There may be a large number of factors that may cause cancer and it is difficult to pin point an exact cause. Cancer causing agents include: Chemical carcinogens (chemicals and environmental toxins), ionizing radiations (uv-rays), viral and bacterial infections [HIV, HBV (Hepatitis B Virus), HCV, HPV (Human Papillomavirus)], genetic or inherited causes, hormonal change and immune system dysfunction (Stewart, 2017).

Structure and Anticancer Action of Taxol

Taxol, a plant alkaloid, is an anti-cancer chemotherapy drug. Chemical name of Taxol (trade name) is paclitaxel, a natural product with anti tumor activity. Paclitaxel is obtained via semisynthetic process from *Taxus contorta*, *Taxus wallichiana*, *Taxus baccata*, *Taxus brevifolia*. Paclitaxel is white to off-white crystalline powder with the empirical formula $C_{47}H_{51}NO_{14}$ and molecular weight 853.9. It is highly lipophilic, insoluble in water and melt at around 216-217 °C. The chemical name for paclitaxel is 5 β , 20-Epoxy-1, 2 α , 4, 7 β , 10 β , 13 α -hexahydroxy tax-11-en-9-one 4, 10 - diacetate 2-benzoate 13-ester with (2R,3S)-N-benzoyl-3-phenylisoserine (<http://www.drugs.com/pro/taxo.html>). Paclitaxel has the following structural formula. The structure was reported by USDA in 1992.

Figure 2

Structure of Taxol



Source: Adapted from Farjon, 2017

Agents which act as inhibitors of tubulin also act as inhibitor of cell division as well as anticancer drug. Microtubule exists in a continuous dynamic state of growing (polymerization) and shortening (depolymerisation) by reversible association and dissociation of α/β -tubulin heterodimers at both the ends. Tubulin inhibitors act by interfering with the dynamics of microtubule. Paclitaxel is depolymerisation inhibitor (inhibit the depolymerisation of microtubule into tubulin) or microtubule stabilizing agent. Vinca alkaloids (*Vinblastine* and *vincristine*) and colchicines analogues are polymerization inhibitor (inhibit the

polymerization of tubule into microtubules) or microtubule destabilizing agent. Microtubule polymerized in presence of paclitaxel is extremely stable and it reduces the critical tubulin sub-unit concentration. This process controls the division of abnormal cell with defective DNA. If the cells are unable to divide, they die causing the tumor to shrink. Thus the suppression of microtubule dynamics is the main cause of the inhibition of cell division and the tumor cell death in paclitaxel treated cells. Paclitaxel attack the cells during various phases of division.

Colchicine binds to the β -subunit of soluble-tubulin complex. This complex polymerises with normal tubulin to form microtubule with T-C complex which prevents the further polymerization of microtubule. Vinca alkaloids bind to β -subunit of tubulin rapidly with low affinity and microtubule with high affinity and prevent the further polymerization of microtubule (Jordan, 2012).

Side Effects of Taxol

Chemotherapy is most effective for killing tumor cells that are rapidly dividing . Unfortunately, chemotherapy does not know the difference between the cancerous cells and the normal cells. The normal cells will grow back and become healthy but in the meantime, side effect occurs. The normal cells most commonly affected by chemotherapy are blood cells, cells in the mouth, stomach & bowel and hair follicles.

Paclitaxel has interaction with a large number of medicines. A total of 353 drugs (1172 brand and generic names) are known to interact with paclitaxel. Of them 48 are major, 298 are moderate and 7 are minor drug interactions. Using paclitaxel and Daltopristin, Epirubicin, Fosphenytoin, Lapatinilo, phenytoin, Quinupristin may increase risk of certain side effects. It has interactions with certain type of foods, tobacco and alcohols.

The presence of medical problems like Bradycardia (slow heart rate), Heart Rhythm Problem, Hypertension (high blood pressure), Hypotension (low blood pressure), Peripheral Neuropathy may affect the use of this medicine. Paclitaxel may cause unwanted side effects that require medical attention.

Table 1**Side Effects of Taxol Intravenous**

Common	Infrequent	Rare
- Anemia, Hair loss	- Abnormal liver	- Ascites
- Decreased blood	- function tests	- Dead skin
- pressure	- Abnormally low	- Extreme loss of body
- Joint pain	- blood pressure	- water
- Decreased neutrophils	- Allergic reaction	- High blood pressure
- Muscle pain	- caused by a drug	- Hole in the intestine
- Decreased white blood	- Giant hives	- Inflammation of a vein
- cells Numbness &	- Hives	- Insufficient blood supply
- Tingling	- Life threatening	- to the colon
- Rash	- allergic reaction	- Painful, red or swollen
- Pain of hands & feet	- Severely decreased	- mouth
- Redness of skin	- level of neutrophils in	- Pancreatitis
- Throwing up	- the blood	- Paralysis of the intestine
- Breathing trouble	- Slow heart beat.	- Stomach and intestine
- Visible water retention		- blockage
- Diarrhea		- Cellulites
		- weakness
		- Fibrous thickening of
		- skin
		- Incomplete or infrequent
		- bowel movements,
		- Itching

Source: www.drugs.com/sfx/taxol-side-effects.html (Assessed on August 12, 2017)

The main taxus species from which paclitaxel is extracted are *Taxus contorta*, *Taxus baccata*, *Taxus brevifolia* and *Taxus Wallichiana*. Taxonomy of these species is given below.

Figure 3: Figure showing the different species of taxus



Taxus Contorta

Taxus
Wallichiana

Taxus baccata

Taxus Brevifolia

Table 2

Table showing the detail information on different types of species of taxus

Taxus Contorta	Taxus Wallichiana	Taxus baccata	Taxus Brevifoli
Kingdom:Plantae,	Kingdom: Plantae	Kingdom : Planta	Kingdom : Plantae,
Phylum:	Phylum	Phylum:	Phylum:
Tracheophyta	Tracheophyta	Tracheophyta	Tracheophyta
Class: Pinopsida,	Class: Pinopsida	Class: Pinopsida	Class : Pinopsida,
Order: Pinales	Order: Pinales	Order : Pinales	Order: Pinales
Family:Taxaceae,	Family:Taxaceae	Family: Taxacea	Family: Taxaceae
Genus: Taxus	Genus : Taxus	Genus : Taxus	Genus: Taxus
Species: T.	Species: T.	Species : T. baccata	Species : T.
contorta,	Wallichiana	Scientific name:	Brevifolia
Scientific name:	Scientific name:	Taxus baccata	Scientific name:
Taxus contorta	Taxus Wallichiana	Common name:	Taxus Brevifolia
Common name:	Common name :	Common yew,	Common name:
West Himalayan	East Himalayan yew,	European yew,	Pacific Yew,
Yew	Himalayan yew	English yew	Canadian Yew

Sources:http://www.worldbotanical.com/images/ARS%20NCI%20Active%20Plants/21_Spjut_TaxonomyTaxus_203-289Web.pdf.

http://www.worldbotanical.com/images/ARS%20NCI%20Active%20Plants/21_Spjut_TaxonomyTaxus_203-289Web.pdf

http://www.worldbotanical.com/images/ARS%20NCI%20Active%20Plants/21_Spjut_TaxonomyTaxus_203-289Web.pdf

Geographic range: Himalayan yew occurs in Afghanistan, Pakistan, Northwestern India and Central & Western Nepal. Its lower elevation limit is 1700 metres and higher elevation limit 3100 meters. Its generation length is 30 years.

Medical uses: Bark, leaves and twigs have a traditional medical uses and are also used for commercial production of ‘Taxol’, an anti-cancer drug.

Geographic range: This species is found in China (Tibe), East Nepal, Bhutan, India, Myanmar, Vietnam, Malaysia, Philippines, and North east Thailand. Its lower and higher elevation limit is 900 metres and 3700 metres. Its generation length is 30 years.

Medical uses: It has medical uses in Ayurveda and Tibetan medicine. *Taxus Wallichina* is used for making Tea by the Bhotya tribal community in the Garhwal Himalaya. The alkaloid compound of the bark and leaves (in low concentration) are the source of anticancer drug paclitaxel (Taxol) (Medical, 2009). Young shoots, leaves, inner bark are also used for traditional medicine. Inner bark is also used as red dye in religious ceremonies by Brahmins of Nepal (Thomas, 2011).

Geographic range: This species is found in southwest Asia, western, central and southern Europe, Northwest Africa, and Northern Iran. This small to medium-sized evergreen slow growing tree is poisonous. Its lower elevation limit is 1 meters and upper elevation limit is 2500 meters.

Medical uses: The taxol obtained from the bark of this tree is used for treatment of breast and ovarian cancer in the central Himalayas (IUCN, 2006).

Geographic range: It occurs in Southeast Alaska (California), eastern Washington and Oregon, Pacific Coast of northern California. This Shrub variety tree grows from 1000-1219 meters.

Medical uses: The bark of the tree held the compound 'Taxol' that inhibits the growth of various cancerous tumors.

Conclusion

Tumor, a group of cancerous cell, is formed due to increasing dynamic equilibrium of tubulin-microtubulin within a cell with damaged DNA. The main factors that may cause cancer are chemical carcinogenes, ionizing radiations, viral or bacterial infection, hormonal change and genetic causes. Paclitaxel (Taxol), a plant alkaloid, extracted from *taxus* species : '*Taxus contorta*', '*Taxus wallichiana*', '*Taxus brevifolia*' and '*Taxus baccata*', is used as anticancer drug for treating various cancer. Paclitaxel is whitish crystalline powder with the empirical formula $C_{47}H_{51}NO_{14}$ and molecular weight 853.9. It melts around 216-217°C. Paclitaxel suppresses the dynamic equilibrium of tubulin and microtubule to halt the rapid cell division by binding mitotic spindle within a cell. It attacks the cell with damaged DNA in various stages of cell division and causes death of DNA

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damaged abnormal detective cells. Although, paclitaxel is used as most effective anticancer drug, its use causes large number of unwanted common, infrequent and rare side effects.

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Chitra Bahadur Budhathoki, Ph. D. Professor, Faculty of Education, Tribhuvan University, Kirtipur, Kathmandu, Nepal.

Govinda Subedi, Ph. D. Professor, Central Department of Population Studies (CDPS), Tribhuvan University, Kirtipur, Kathmandu.

Lekhnath Bhattarai, Ph.D. Professor, Department of Economics, Tribhuvan University, PN Campus, Pokhara, Nepal.

Keshar Jung Baral, Ph.D. Professor, Faculty of Management, Tribhuvan University, PN Campus, Pokhara, Nepal.

Prakash Sahoo, Ph. D. Research Scientist, Indian Institute of Mass Communication, New Delhi, India.

Rabindra Ghimire, Ph. D. Assistant Professor, School of Management, Pokhara University, Pokhara, Nepal

Surya Bahadur G.C., Ph.D. Assistant Professor, School of Management, Pokhara University, Pokhara, Nepal.

Umanath Baral, Ph.D. Associate Professor, Department of Political Science, Tribhuvan University, PN Campus, Pokhara, Nepal.