Research Article

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Accessing Labour, Resources and Institutions: Women Laborers in Brick Kiln of Jamune Bhanjyang, Tanahun , Nepal - Prakash Upadhyay

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Common Errors, Illusions and Myths in Statistical Procedures - Vikash Kumar K





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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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Factors Affecting Willingness to Pay for Improved Water Supply System in Rural Tanahu, Nepal

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Abstract

This study aims to analyze the factors associated with willingness to pay for improved water supply system in rural Tanahu, Nepal. For this purpose, one hundred and twenty seven households were proportionately distributed among wards 5, 6, 7 & 8 and selected for data collection. Structured questionnaire was used to collect the data. Chi-square test was used to find the factors associated with willingness to pay for improved water supply system. This study shows that there is no any significant association between willingness to pay for improved water supply system and social, demographic and economic variables. However, water source, dental pain, water quantity, want for change are water fetching time have significant association with willingness to pay for improved water supply system. Cases of Jaundice is significantly associated with willingness to pay for improved water supply system However, there is no significant association between willingness to pay and satisfaction from WUC activities, water purification, diarrhea, dysentery, seasonal flu, and suffering from worm. So, it can be concluded that type of water source, quantity, fetching time, will for change, and prevalence of some disease (Jaundice, Dental Pain) are the major factors influencing willingness to pay for improved water supply system in the study area. **Keywords**: Factor, improved water supply system, social demographic and economic, willingness to pay

Introduction

Water is the most essential element for survival of lives in the planet earth. Without water no life would be possible. Water is usually a locationspecific resource and mostly a non tradable output. However rural areas

Factors Affecting Willingness

in developing countries across the world remain severely underprivileged, with eight out of ten people not having access to safe water supply (WHO and UNICEF, 2006).

Water is not only important for livelihood but also for primary healthcare. Primary healthcare is important for poverty alleviation. Hence water is vital for poverty alleviation. International water policies and management practices have generally considered water to be a free and renewable resource. Governments in developing countries have often subsidized water supplies, typically in an attempt to achieve social and health benefits for low-income households that comprise a large majority of the rural population (Lammerink, 1998; Whittington et al., 1998).

Financing the domestic water supply is important for livelihood of poor. In general, water supply is done publicly under some regulation. In the world, of every 10 people, 2 lack accesses to safe water supply, 5 have inadequate sanitation, and 9 do not have their wastewater treated to any degree (World Bank, 2004).

Briscoe and de Ferranti found that increase in 10% of HH income in Zimbabwe raised consumption of water by 4%. In the same line, Calkins found from the study in Mali that the purchasing power of consumer is positively linked to WTP for water. Briscoe and de Ferranti found that women from Zimbabwe were willing to pay 40% more to water than their husband. They found that these women wanted to invest the surplus time into commercial activities. Briscoe and de Ferranti observed that women with higher level of education in Zimbabwe were to use more clean water and pay more. Similar results were shown by Asthana (1997) in India and Joyasundara et al. (1999) in Bangladesh. Asthana (1997) and Joysundara et al. (1999) reported that higher literacy of women affect the water consumption, source identification, quality and reliability and hence the WTP. In Nepal, Bhandari and Grant (2007) found that amount of consumption of water by the HHs as one of the attributes for WTP. In their study, the analysis showed no significant association between sociodemographic variables and satisfaction of the users. That means gender, age, economic status and education do not affect the one's satisfaction. WTP is affected by the water source point. i.e. WTP differs according to the

distance of water source point from the HH of the respondent.

Gunatilake and Tachiiri (2012) in Khulna of Bangladesh found that the richer people are more willing to pay for both monthly charges and connection charges. For poor people the connection charge is very high and they wish for volumetric pay for monthly charge instead of flat charges. Estimation model showed the statistically significant variables as follows: Household Expenditure, Dummy variable for HH with private wells, Dummy variable for HH with hand-pump tube wells, schooling year of HH head and HH expenditure for electricity. WTP was associated with richness of HH, with no private or use of public tube wells, and more educated HH head positively. Wang et al. (2008) in Chogging of China found a positive relationship between HH income and WTP. That means HH with high income showed more WTP than with low income. Similar result was obtained with male respondents. Female respondents are less willing to pay than male. Reminder about inclusion of sewage fee, education, age, monthly consumption of water, satisfaction with current supply system are those variables with no significant effects on WTP. Pour and Kalashami (2012) found that WTP for improved service was higher in urban area than rural of Iran where educational status is also higher. The income level had positive relation with WTP. Water pressure, quantity and dissection were the major reasons for dissatisfaction and use of alternative sources to fulfill the demand is must.

Adeoye et al. (2013) found that women and children are more associated with fetching of water in North Central Nigeria. The considerable water qualities were found to be color, taste, odor and proximity to the residence. Tarfasa (2013) in a study carried out in Ethiopia found that consumption of water at HH level was found to range from 10 L to 800 L per day. Sex of the HH head, income, the area (zone) of living and HH's aversion behavior are the significant socio-demographic variables. Women prefer improvement in the domestic water supply compared to male HH heads. Higher the income more was WTP for proposed change. People with lowest income and lowest service found to pay up to 60 percent extra for improvement over the current bill for water. The significant effect was found for averting behavior and expenditures.

Factors Affecting Willingness

As cited by Ifibiyi(2011); WBDRT (1993) study also showed that household with more educated member were more willing to pay. In the same vein, Briscoe and de Ferranti observed that women with higher level of education in Zimbabwe were to use more clean water and pay more. Similar results were shown by Asthana (1997) in India and Joyasundara et al. (1999) in Bangladesh. Asthana and Jaysundra et al. reported that higher literacy of women affect the water consumption, source identification, quality and reliability and hence the WTP.

Engel et al. (2005) describe affordability of tariffs, knowledge on health gain from improved WSS, sensitivity to local customs and beliefs, ability of local people to operate and maintain, participation in design and management play important role for rural people to use improved WSS (Brookshire et al. 1993). The empirical studies show that income is not the sole factor for WTP for improved WSS at HH level. The income elasticity of demand has very low value for improved WSS. The characteristics of existing and improved system play significant role for statement of WTP. Studies show that income share of WTP varies from 0.5% to 10%. Educational status and gender also have roles on determining demand and WTP. However the relation between gender and WTP is more contextual and location induced.

Wendimul and Bekele (2011) found the mean WTP for quality water supply is found to be \$0.025 per 20L container which is well above the current tariff rate of \$ 0.005 per 20 L container charged by Oromiya regional government in Ethiopia. Ifabiyi (2011) found that household size had no bearings on the water demand of the study area. People with low educational status and low family size found to have consumed more water. Water consumption was controlled by economic factor and found not serious about environmental factor. Majority of the consumers were found WTP for improved services. Those who lost the confidence in water supply service system were found not willing to pay. It was found that people with regular water supply from public water supply system did not want private sector's involvement while with the opposite case the answer was yes. The first factor, Household Income Factor contributed 64.5% explanation to the variance. The second factor contributed 22.4% explanation to the variance in the equation. It was interesting that, young respondents were to pay more for water in contrast to elder ones. Similarly, females were to pay more than male counter part. He also found that culture and tradition put some influence to these women. The third factor was educational variables with 11.3% contribution to the variance to explain the WTP Higher the educational level higher the WTP for water. He had again put some study works to defend his finding.

Wang et al., (2008) surveyed almost 1,500 HHs in five suburban districts in Chongqing Municipality and explained that significant increase in the water price is feasible as long as the poorest HHs can be properly subsidized and certain public awareness and accountability campaigns could be conducted to make the price increase more acceptable to public.Pour and Kalashami, (2012) found that 40% of urban respondents and 7% of rural respondents were satisfied with current supply system. On the other hand, 93% rural and 60% urban respondents stated their dissatisfaction towards the quality of water. They found that consumers were willing to pay 6877 Rials per cubic meter of water in the study area.

Tarfasa (2013) in a study in Ethiopia found improvements in all the nonmonetary attributes were more likely to bring about a positive utility among the individuals hence more willing for improved system. But, HH demand less drinking water as the bill increases, as expected. Sex of the HH head, income, the area (zone) of living and HH's aversion behavior are the significant socio-demographic variables. Women prefer improvement in the domestic water supply compared to male HH heads. Higher the income more was WTP for proposed change. People with lowest income and lowest service found to pay up to 60 percent extra for improvement over the current bill for water. The significant effect was found for averting behavior and expenditures. Keeping the quality of water constant, it was found that supply of water increment results in the increase in WTP. The WTP was found to be USD 1.36 where no boiling is needed for drinking. In case of boiling needed only for infants WTP increases from 0 to USD 0.66 per month when supply increases per week by one day.

Awad and Hollander (2010) in study in Palestine concluded WTP for use values showed NIS 49.67 per month with standard deviation of 40.02 among the 525 samples. Whereas, mean WTP was 38.23 per month with

standard deviation of NIS 30.71 for non-use values. From mean rank value it was revealed that numbers of respondents who are willing to pay are more than who are not willing to pay for improved WSS. The variable, water consumption, age, the income and the use of water filters and income have significant on WTP while consumption has a negative significant effect on WTP. Respondents from rural area shows not willing to pay for improved WSS while the urban respondents have insignificant impact on WTP. Other variables educational level, time period "how long the respondent has lived in the region?' employment status, gainfully employed "the family members who are gainfully employed" and household size have insignificant impact on WTP. The socioeconomic factors of income, age, gender, location, time period and employment status, are expected to be positive and have significant impact on WTP, which is evidence that the WTP amount is significant.

Engel et. al (2005) found that out-migration and water related disease are significant in terms of probability and education and HH income are explanatory factors for HH water demand and WTP and Volta basin of Ghana. It is assumed that involvement of people in planning decisions will will foster the efficiency and equity in community management of improved water resources.

In Nepal very few studies are carried out to measure the willingness to pay for improved water supply system for household use. No studies has been conducted to assess the factors affecting the willingness to pay for improved water supply system for household consumption in this area.

Data and Methods

It is generally believed that south facing hilly settlements generally have problem with water sources. So, at first Sabhung-Bhagwatipur VDC was selected purposively which lies in the rural part of Tanahu district of Nepal and lies in the southern part of the district. Ward number 5, 6, 7 and 8 are few of the many communities having problem in easier water supply system for drinking and HH consumptions purposes. The majority of water sources lie below the settlement area and hence people have to either go to source by themselves or use power to lift the water up

hill and redistribute. The availability of water also differ according to the season and practice of water collection i.e. whether the source is open or covered or have collection tank with tapes etc. In some cases, water fetching seems to be not hygienic where water source is not covered and free human access to the water source point. Measuring willingness to pay by rural dwellers would provide a valuable reference for water supply policy and procedure. So, these wards were selected for this study. There are 252 HHs in ward five, 273 HHs in ward six, 95HHs in ward seven and 135 HHs in ward eight. So, total study population for this research work is 755 households. From these households, 127 households (at 5 percent margin of error and 5 percent level of significance) were proportionately distributed in wards 15, 6, 7 and 8 as 42, 46, 16 and 23 respectively. Then the information was collected from these households using structured questionnaire using interview technique. For the administration of questionnaire survey, head of the household or any other member was interviewed personally. However, respondent below 16 years of age was not considered for interview. Descriptive as well as inferential statistics have been used for the analysis. Descriptive statistics was used to find the frequency, percentage whereas Chi-square test was used to find the factors associated with willingness to pay for improved water supply system. For analysis of data, SPSS-16 was used.

Results and Discussion

Based on the data collected from 127 households, we have the following results and discussion.

Willingness to pay for improved water supply

Willingness to pay for improved water supply system in relation to individual and household characteristics was examined to find the association. In this context, association of Willingness to pay for improved water supply system in relation to individual and household characteristics (sex of respondent, head of the household, HH size, age, income, literacy status, foreign employment (family receiving remittance), land ownership, ownership of kitchen garden) was examined (table 1).

Table 1

Characteristics	Willingness to Pay		Total	p-value based on
Characteristics	Yes % (n)	No % (n)	% (n)	Chi Square test
Sex of the the respondent				
Male	52(66)	7.9(10)	59.8(76)	
Female	30.7(39)	9.4(12)	40.2(51)	0.130
Age of the respondent (year)				
Below 40	36.2(46)	6.3(8)	42.5(54)	
Above 40	46.5(59)	11(14)	57.5(73)	0.521
Literacy				
Illiterate	18.9(24)	2.4(3)	21.2(27)	
Literate	63.8(81)	15(19)	78.7(100)	0.336
Head of the household				
Male	76.4(97)	14.2(18)	90.6(115)	
Female	6.3(8)	3.1(4)	9.4(12)	0.124
Household income				
Less or equal to Rs. 10,000	30.6(38)	5.6(7)	36.3(45)	
More than Rs. 10,000	52.4(65)	11.3(14)	63.7(79)	0.757
Family size				
Average (less or equal to 5)	55.1(70)	12.6(16)	67.7(86)	
Large (More than 5)	27.6(35)	4.7(6)	32.3(41)	0.580
Land ownership				
Less or equal to 10 Ropani	7.1(9)	1.6(2)	8.7(11)	
More than 10 Ropani	75.6(96)	15.7(20)	91.3(116)	0.937
HH receiving remittance	()		()	
Yes	52.8(67)	12.6(16)	65.4(83)	
No	29.9(38)	4.7(6)	34.6(44)	0.424
Have kitchen garden in HH	(30)			
Yes	73.2(93)	15(19)	88.2(112)	
No	9.4(12)	2.4(3)	11.8(15)	0.770

Association between willingness to pay for improved water supply system and selected background characteristics

Source: Field Survey, 2015

It is found that sex of the respondents, head of the household, HH size, age, income, literacy status, foreign employment (family receiving remittance), land ownership, ownership of kitchen garden do not show any statistically significant relationship with one's WTP for improved WSS. This result is inconsistent with results from Ifabiyi (2011), Wang et al. (2008) and Awad

and Hollander (2011) where it was found that WTP is significantly associated with HH size, HH income, Age & Sex of respondent and educational status. It may be due to the homogeneous characteristics of the households.

Water-related factors associated with willingness to pay for improved water supply system

Here, willingness to pay for improved water supply system in response to water management as well as water-born diseases was examined to find the association. At first, association of WTP for improved water supply system in response to water management(Single/Multiple Water Source, users' satisfaction, want for change, water fetching time, and HH level water purification practices) was examined (table 2). Then association of WTP for improved water supply system in response to water supply system in response to water-born diseases (Suffered from diarrhea, dysentery, seasonal flu, Jaundice, worm and dental pain) was examined (table 3).

Table 2

Association between willingness to pay for improved water supply system and selected water related factors

	Willingness to Pay		Tatal	p-value based	
Characteristics	Yes (%)	No (%)	Iotal	on Chi S quare	
Water source for HH consumption					
Single Source	20.5 (26)	10.2(13)	30.7 (39)		
Multiple Source	62.2 (79)	7.1 (9)	69.3(88)	0.002	
Satisfaction from activities of WUC					
Yes	63.7 (53)	25.3(21)	89.2 (74)		
No	10.8 (9)	0 (0)	10.8 (9)	0.064	
Satisfied by water quantity					
Yes	46.5(59)	17.3(22)	63.8(81)		
No	36.2(46)	0 (0)	36.2(46)	0.001	
Want for change in current WSS					
Want Change	82.7(105)	0.8(1)	83.5(106)		
Its OK	0 (0)	16.5(21)	16.5(21)	0.001	
Time to fetch water (1 Round Trip)					
Equal or less than 15 Minutes	42.5 (54)	17.3 (22)	59.8 (76)		
More than 15 Minutes	40.2(51)	0 (0)	40.2(51)	0.001	
Water purification before drinking					
Yes	59.8(76)	10.2 (13)	70.1 (89)		
No	22.8(29)	7.1(9)	29.9(38)	0.216	

Source: Field Survey, 2015

Table 3

Association between willingness to pay for improved water supply system and incidence of water-borne diseases

Characteristics		Willingn	/illingness to Pay Total		p-value based		
				Yes (%)	No (%)	1	on Chi Square
нн	member	suffered	from			-	·
diar	rhea						
Yes				18.1(23)	7.1 (9)	25.2(32)	
No				64.6(82)	10.2(13)	74.8(95)	0.062
HH	member	suffered	from				
dyse	entery						
Yes				11.8(15)	2.4(3)	14.2(18)	
No				70.9(90)	15(19)	85.8(109)	0.937
HH r	nember su	ffered fron	n flu				
Yes				60.6 (77)	10.2 (13)	70.9 (90)	
No				22(28)	7(9)	29.1(37)	0.181
нн	member	suffered	from				
wor	m						
Yes				17.3(22)	3.9(5)	21.3(27)	
No				65.4(83)	13.4 (17)	78.7(100)	0.853
нн	member	suffered	from				
jaun	dice						
Yes				11(14)	5.5(7)	16.5(21)	
No				71.7(91)	11.8(15)	83.5 (106)	0.034
HH member suffered by dental							
pain							
Yes				35.4 (45)	2.4(3)	37.8(48)	
No				47.2(60)	15(19)	62.2(79)	0.010

Source: Field Survey, 2015.

Water source (p<0.01), dental pain (p<0.01), water quantity (p<0.01), want for change (p<0.01), water fetching time (p<0.01), and cases of Jaundice (p<0.05) are significantly associated with one's willingness to pay for improved water supply system. This result is consistent with the results from Pattanayek et al. (2006), Tarfasa (2013) and Awad and Hollander (2010) where it was found that satisfaction with current WSS, Health consciousness, institutional factor, quantity of water, participatory planning have significant association with WTP for improved WSS.

However, there is no significant association of willingness to pay with satisfaction from WUC activities, water purification, diarrhea, dysentery, seasonal flu, and suffering from worm. So, water source, dental pain, water

quantity, want for change, water fetching time, and cases of Jaundice are the factors affecting willingness to pay for improved water supply system.

Conclusion

This study highlights that there is no significant association between social demographic and economic characteristics (sex of respondent; head of the household, HH size, age, income, literacy status, foreign employment (family receiving remittance), land ownership, ownership of kitchen garden) with one's willingness to pay for improved water supply system, i.e. do not have significant association with willingness to pay. However, water source (p<0.01), dental Pain (p<0.01), water quantity (p<0.01), want for change (p<0.01), water fetching time (p<0.01), and cases of Jaundice (p<0.05) are significantly associated with one's willingness to pay for improved water supply system. However, there is no significant association, diarrhea, dysentery, seasonal flu, and suffering from worm. Hence it is concluded that water source, dental pain, water quantity, want for change, water fetching time, and cases of Jaundice are the factors affecting willingness to pay for improved water supply system.

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Business Development Service Provider Organizations in Micro Entrepreneurship Development in Western Hill, Nepal

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Abstract

Business Development Service Providers Organization (BDSPO) play vital role specially in Micro Entrepreneurship Development (MED) sectors. BDSPO provides various types of services such as skill oriented training, facilitates to establish enterprises, identify sources of raw materials and other equipments, establish market link etc. Major Activities of the BDSPOs includes social mobilization of potential micro entrepreneurs, formation of Micro Enterprise Group (MEG) formation, House-Hold (HH) survey and participants selection, conduct Entrepreneurship Development Training (EDT) programmes, provides skill training and appropriate technology support, help to establish marketing linkage and product promotion, need assessment of entrepreneurs, identify and provide scale up activities, facilitates micro credit accessibilities, facilitates to formation of cooperatives and product association, facilitation of construction of new Common Facility Centers (CFCs) and examine as well as assess the uses of existing technology. The main objective of MEDEP is "improve the socio economic status hardcore poor and non hard core poor people through Micro Enterprise". On the response of the question of how do entrepreneur rate the business supportive policies of the other agencies like BDSPOs, 32.5percent entrepreneurs felt that the business supportive policies of the other agencies supportive. By 35.6 percent respondents felt the supportive policies of the other agencies is less supportive. The researches try to examine of the change in self-confidence before participation in EDP and after EDP. Paired t-test between effectiveness before participation in EDP and after EDP has been conducted. This shows a statistically significant influence of EDP on confidence level.

Key Words: Baglung, BDSPOs, micro entrepreneurship, Parbat

Introduction

Business Development Services (BDS) refers to any non-financial service used by an enterprise to assist its business functioning or growth, provided in a formal or informal manner. BDS, in a true sense, can help enterprises, reduce costs, improve efficiency, access new markets, increase sales, enhance productivity and grow.

Traditionally, donors and governments have intervened in BDS markets at the level of the BDS transaction: directly providing services to Small and Micro Enterprises (SMEs) via public BDS providers, or permanently subsidizing services delivered by other BDS providers. In this approach, donors and governments have tended to substitute for underdeveloped BDS markets, possibly crowding out existing or potential commercial suppliers of services. This traditional approach has failed to achieve high outreach (access to services by a large proportion of the targeted population of SMEs, since the number of SMEs served is limited by the amount of subsidies available. Institutional sustainability has been low, since programmes often cease when public funds are exhausted. Lastly, the services provided have often had limited impact on enterprises because they have been designed and delivered with public and donor funds rather than responding to demand from SMEs.

The direct provision of Business Development Service (BDS) by the Government has been found to be costly and inefficient way to develop the MSE sector. Thus, new channels for the delivery of BDS need to be designed, where the role of the Government is more focused on policy development, programmes design, monitoring and assessment (ILO, 2000).

The needs of the MSE sector are quite diverse and require more basic training and financial support. Greater emphasis should be given to the development of marketing skills, as well as to the skills required for opportunity identification market research, business planning and financial management (ILO, J, 2000).

The best practices experienced in international level now point to a new, more effective approach to providing SMEs with business services: developing commercial markets for BDS. Donors and governments drive by the belief that the objectives of outreach and sustainability can only be achieved in well-developed markets for BDS, and not by direct provision of the BDS market development approach. This shifts the focus of public and donor intervention away from direct provision and subsidies at the level of the BDS transactions, toward the facilitation of a sustained increase in the demand and supply of services. In the market development approach, subsidization of transactions should be replaced by private payment for services. Programmes to develop BDS markets aim to address factors, which are limiting SMEs' purchase of the services they want, and /or endeavour to better exploit market opportunities for improving SMEs' access to, and use of the BDS they want. Considering the weaker state of SMEs and micro-enterprises in Nepal, there is a need for the adaptation of the two approaches for some more years for micro-enterprises and SMEs in Nepal to utilize BDS for enhancing their competitiveness.

Berger and Guillanmen (1996) stated that micro-entrepreneurs not only look access to credit but also to nonfinancial services, including marketing, training in basic business skills such as book-keeping, and technology transfer. The quality of training offered to micro-entrepreneurs is generally low. The provision of these services has so far been heavily dependent on grant resources, limiting their sustainability over time. Moreover, the lack of organization of the microenterprise sector makes it more costly to provide services to these businesses.

There were working number of Non-Government Organizations (NGOs) in both Parbat and Baglung districts and have performed as Business Development Service Providers Organizations (BDSPOs) in micro enterprise development sectors. Among them, Sustainable Enterprise Environment and Women Awareness Society (SEEWA), Parbat and Sustainable Approach on Natural Resource Management and Gender Awareness for Micro Enterprise (SANGAM) have been working for Micro Enterprise Development Programme (MEDEP) and play the role of BDSPO. The SEEWA has focused only one district i.e. Parbat district, but SANGAM has wide working field and extending its field area in other districts such as Myagdi, Baglung, Parbat, and Kaski district. Both organizations are NGO and non-profit organization. In the initial phase of MEDEP programme, the MEDEP itself plays the role of a BDSPO in Parbat district such organizations at the time this programme was started.

SEEWA was established in 2003/09/01 at Kusma, Parbat district (DMEGA Parbat, 2014). SANGAM is one of the BDSPO promoted by the MEDEP, a joint initiative of the United Nations Development Programme (UNDP)/ Nepal and Ministry of Industry. It was registered in 2006 at District Administration Office (DAO) Myagdi under the NGO registration act 1977 (DMEGA Baglung, 2014). BDSPOs are known as non-profitable and non-government organization.

The micro enterprise development program was implemented by SANGAM with financial support of MEDEP/ UNDP. This organization aims to provide support in the poverty reduction through micro enterprise development according to the demand –driven model of MEDEP. The organisation is dedicated to improve socio-economic condition of people through the promotion and development of micro entrepreneurs in Baglung and Parbat district in the creation and upgrading of existing MEs. SANGAM is working as a BDSPO in the field of micro-enterprise development and promotion sector since 2012 with support from MEDEP in Baglung district. SANGAM had been selected as a BDSPO through the bidding process of MEDEP for Myagdi, Baglung, Kaski, and Parbat district.

The overall objective of the BDSPO such as SANGAM is to improve livelihoods of pro-poor, women, disadvantaged people (Dalit and Indigenous nationalities) and youth through micro enterprise creation and development. More specifically the major objectives of the organization are included to identify of local resources for creation and development of micro entrepreneurs in selected VDCs of district, conduction of MEDEP's model orientation and Participatory Rural Appraisal (PRA) in selected VDCs for the creation and development of MEs, to facilitate and conduct Start and Improve Your Business (SIYB) training for potential or new micro entrepreneurs and technical and skill development training and provide technology support for based on their enterprise, to create new micro entrepreneurs at different location, conduction of following training and appropriate technology for existing MEs, continuous follow up the existing and sick entrepreneurs and business counseling, to support market and marketing in new micro entrepreneurs, to facilitate pre-cooperative management training and facilitate registration process, to facilitate and prepare proposal for construction of new common facility center (CFC) in

different VDC or selected areas or Micro Enterprise Groups (MEGs) and Micro Enterprise Group Associations (MEGAs), to facilitate to prepare business plan and revise business plan, to facilitate formation of village enterprise development committee (VEDC), selection of potential VDCs for development of MEs and for creation of MEs through coordination with Board member of District Micro Enterprise Group Association (DMEGA) and District Enterprise Development Committee (DEDC) and stakeholders.

Together with many other constraints, the malfunctioning of BDS markets in developing and underdeveloped economies is hindering the development of the enterprise sector. The low availability and quality of BDS for SMEs is one of the reasons that the outsourcing of 'non-core' business functions is still very limited. This is one of the factors seriously affecting the productivity and competitiveness of SMEs in underdeveloped and developing countries. The SANGAM and SEEWA adopted MEDEP model while implementing programme. According to MEDEP model, first of all it is necessary to do resource analysis and potential market for established resource based

enterprise. The organization had used social map, well being ranking, seasonal calendar, resource map, mobility map, time trade, time line, diagram tools of PRA.

The current challenges is to raise the quality of training and technical assistance programme, the development of marketing schemes that expand micro-entrepreneurs access to more profitable segments of the market, assistance to comply with legal and regulatory procedures, promote sub-contracting arrangements with larger firms, and transfer of appropriate technologies to improve productivity, especially those that are environmentally sound. Main objective of the study is to explore role of business development service provider organizations (BDSPOs) in micro entrepreneurship development in Nepal specially in Parbat and Bagulng district. In addition, this paper tries to identify major activities BDSPOs and examines the effectiveness of BDSPOs in micro entrepreneurship development sectors.

Data and Methods

Micro enterprise development programmes was launched in Parbat and

Baglung districts and BDSPOs were working in both districts effectively to enhance and support of micro enterprise. This is main reasons behinds why this two district are selected for the purpose of study. The study is based on descriptive cum analytical research approach. Data and information are collected through primary and secondary sources. Secondary data and information are obtained specially through annual reports of SEEWA, SANGAM and micro enterprise development programme (MEDEP). Primary data are collected through structured questionnaire, focus group discussion and personal interviews with micro entrepreneurs. Sample size of the study is 350. Out of total sample size, 200 respondents and 150 respondents are taken from Parbat district and Baglung district respectively. Sample sizes are determined appropriate ratio on the basis of total numbers of enterprises existing in these districts. Convenience sample is used for data collection. For analysis of data some statistical tools are used. Percentage and chi-square test are used for data analysis.

Result and Discussion Major Activities of the BDSPOs

In Nepalese context, there is found that BDSPOs have been performed primary or basic functions such as selection of potential entrepreneurs, creation of micro enterprise, provide basic training and skilled, counseling, facilitate to prepare business plan, technical support etc. Therefore, it is seemed that there is a little difference between major activities of BDSPOs in the developing country like Nepal and the activities in the developed country. To achieve objectives, both BDSPOs are involved to implement the following activities specially in micro enterprise development sector (SANGAM, 2014).

i) Social Mobilization

Conduction of various discussions, interaction and meeting for the selection of Village Development committee (VDC) for the creation of MEs against target objectives were conducted for the planning and implementation of program.

Orientation of MEDEP model is very necessary before launching the program in field level. From this program, they have informed all the villagers about the objective of program, model of programme,

potential support, supporting criteria, types of support, resources of local level, potential market, etc. They were also discussed and sharing about the practice of program and kind of support in this area.

ii) Micro Enterprise Group (MEG) formation

Micro enterprise group formation is one of the most important tasks of social mobilization. Its helps to feel ownership, built own their capacity, saving practices, and leadership.

iii) House-Hold (HH) Survey and Participants Selection

BDSP did household survey to find out the per capita income of household and individual. They took many kinds of information such as total family members, livestock, agriculture production, wage earning and other income. If the PCI is less than NP Rs. 21230.00 then the programmes support to him/her. Likewise, they also examined the entrepreneurship character mapping with the help of Form B. In here, they mainly focused on entrepreneur's character like business knowledge, interest, investment, skill, enterprise environment, family support etc. If he/she got 150 or more score, then programme can support them.

They also examine existing micro entrepreneur in their or not, if they have, what type of micro enterprise run their / types of resources / uses of machinery equipments/ skills/ product/ market/problems/ challenges/possibilities, etc via form "C". They examine local market status. They collect information export/ import status, market demand / possible sales product/ views of sellers/ consumers, etc via form "D".

They fill form E "for" collecting information about traditional skill in entire community, groups, used technology, possible enterprise, etc. Form "F" for the analysis of available local resource.

iv) Entrepreneurship Development Training (EDT)

Entrepreneurship training is one of the major components of MEDEP model. It is also known as backbone of MEDEP model. Entrepreneurship training plays catalyst role for enterprise creation. When they found the potential entrepreneurs by PRA, HH survey and participants' selection, and then they conduct the 1st part

of entrepreneurship training i.e. SIYB Package. They conducted training of potential entrepreneurs (ToPE) and training of Starting entrepreneurs (ToSE). Normally, they conducted 1st package (ToPE/ToSE) in 5 days. In this training they mainly focused about enterprise, selection of appropriate enterprise, family support, and business cycle, business plan through picture demonstration, brain storming, game module, practices, discussion and lecture method. After this training, participants are ready to do start the enterprise. Field staff (Enterprise Development Facilitators-EDFs) were mobilized to conduct SIYB training.

v) Skill training and appropriate technology support

In entrepreneurship training, potential entrepreneurs select their enterprise based on available resources, knowledge and skill, interest, potential market, rule and regulation of government, business plans, etc. When entrepreneurs' select their enterprise, they provide them technical skill training according to their needs so that they can easily run their enterprise. SANGAM had conducted different skill development training and provide different kinds of appropriate technology for the start of their enterprise.

vi) Marketing linkage and product promotion

Marketing is a one of the important tasks for the enterprise. They conduct different types of market related program, interaction programme, B to B interaction, exposure visit, and so on for the new micro entrepreneurs. Mostly market related program they conduct before skill development training. It helps them to know about enterprise which helps, it helps them first. SANGAM organized some marketing task, for new micro entrepreneurs who help to know about enterprise relate knowledge, skills, marketing information, experiences from others.

vii) Need assessment

There was found some entrepreneur are inactive and some are sick .They don't work yet due to various problems like lack of availability of raw materials, market related issues, lack of availability of appropriate technology, lack of access to Micro Finance Institutions (MFIs) easily, lack of interest, lack of proper knowledge and skill about own their enterprise, lack of information etc. SANGAM had analyzed and select existing and sick MEs for a scale up support and some MEs were beneficiaries.

viii) Scale up activities

They provide refresher training/ technologies support and other counseling support for active, inactive and sick Micro Enterprises (MEs) in all Rural Market Centers (RMCs). They conduct refresher training, technologies support and market linkage support for existing and sick MEs for expand/restart/continue/upgrade own their enterprise. After this training, they are encouraged to expand and continue their enterprise. They continuously follow them up after training. Business counseling monitoring and follow up activities carried out.

ix. Micro Credit accessibilities

The SANGAM coordinated different micro finance institute worked in both districts for micro credit for new and existing micro finance institute. It helps to micro entrepreneur to start enterprise and upgrade. The amount was provided to various enterprises such as pig-keeping, tailoring, poultry farming, photography, beekeeping, vegetable cultivation, and embroidery etc.

x) Cooperatives and product association formation

Cooperative/product association is a very essential for the micro entrepreneurs for the saving, credit, advocacy for enterprise issues. So, they aware micro enterprise, MEGs, MEGA and so on, they facilitate pre cooperative management training and registration process. Pre-cooperative management training and facilitate registration process were provided to different entrepreneurs such as vegetable cultivation, poultry farming and beekeeping, and Allo processing, Lokta processing and apple processing in various RMC/ VDCs.

xi) Facilitation of Constructing New CFCs

The SANGAM had facilitated to constructing some new Common Facility Center (CFC) in different VDCs and RMCs.

xii) Existing technology

They also collect data about technology which is supported by

MEDEP through direct DMEGA; and SANGAM itself. They collect information about their use of existing technology. If they are not properly used, the reason condition is also collected. In the study area there are adopted various kinds of machine and equipments in micro enterprises to run enterprises smoothly and to increase productivity of the enterprises.

They examine the environmental before they conduct, start and improve your help business training. It helps us to know about status of environment in particular places, screening effect/impact of the particular enterprise.

SANGAM has been working in the area of micro enterprise creation and development since 2007 with the vision of establishing as a main business development support providing organization for development of efficient and self-reliance society by improving the economic and social status of the people through enterprise development.

The organization followed the Demand-driven Model of MEDEP to implement the program in field level. SANGAM had mobilized its Enterprise Development Facilitators (EDFs) in field level for implementing the program effectively. In planning phase, the project team consulted with District Micro Enterprise Group association (DMEGA) staff and board member, District Enterprise Development Committee (DEDC), and other organizations. The organization had coordinated with respective Village Development Committee (VDC) secretaries for effectively implementation, internalization of MEDEP in local level.

BDSPOs provide various kinds of machine, tools and equipments through financial and technical support of MEDEP/UNDEP. BDSPOs provides subsidies to purchase improved technology included such as beehive, gloves, net cap, machine, sewing machine, stamping, die, farma, photo printer, Madani, Sundera processing, stamping machine, cutting board machine, cutting machine (Aaro), weighting machine, drinker, feeder, drum, tunnel, pittal sprayer, seed, Tan, sewing machine, scissor, interlocked machine, plastic tunnel, Tripal, electrical fan, wielding machine, grinding, cutter, Bluwer, Reti, sprayer, Fiita, Dhaka Tan, Charkha, Saugat cupboard, plastic tunnel, steam machine, lee, Bluwar, grander machine, label, kittle, stove, cutter, glasses, solar dryer, chopper, seeler, plastic crate, bitter

machine, crate, pig, feeder, chowmine, Hippu Tan, leg charkha, solar, water Ghatta, grander machine, Balti, Bata, Tripal, Tin, mini tailor machine, oil sprayer machine, etc. Various MEGs have got these types of support in both districts.

SANGAM facilitate and orient micro- entrepreneur, microentrepreneur groups and micro enterprise group association about steps of planning process in different MEG and MEGA. They also facilitate and encourage participating settlement level of planning, ward level of planning, and village development committee level of planning. Some ward level meetings allocated budget for existing micro enterprise and new creation too. The SANGAM also facilitate to formation of Village Enterprise Development Committees (VEDC).

Particulars	N	Percent
Most Supportive	2	2 6.1
Supportive	9	5 26.4
Less Supportive	12	3 35.6
Very Less Supportive	8	3 24.4
Not Supportive	2	7 7.5
Total	36) 100.0

Business Supportive Policies of the Other Agencies like BDSPOs Table 1

Business supportive policies of other agencies like BDSPOs

Sources: Field Survey, 2015

On the response of the question of how do entrepreneur rate the business supportive policies of the other agencies, 6.1 percent entrepreneurs felt that the business supportive policies of the other agencies most supportive and 26.4 percent respondents felt that supportive. By 35.6 percent respondents felt the supportive policies of the other agencies is less supportive. Only 7.5 percent respondents felt that the business supportive policy of the other agencies is not supportive.

Change in Self-confidence

To know the level of self-confidence of entrepreneurs before and after starting the business, a few questions were asked to entrepreneurs. Questions were asked whether entrepreneurs possessed the capacity of

self-confidence before and after starting the enterprise in the following subject: ability to put own interest to family, ability to put own say in family discuss, and ability to put own the center meeting.

Change in Self-confidence				
Paired Samples Test				
	Т	Df		Sig. (2-tailed)
Pair 1	17.632		359	.000

Table 2

Sources: Field Survey

Paired t-test between effectiveness before participation in EDP and after EDP has been conducted. This shows a statistically significant influence of EDP on confidence level. The result revealed that t= 17.632, at=359 with p=0.000.

Conclusion

Micro enterprise development program is implemented in different VDCs of Baglung and Parbat districts where there have been great potentialities of resources and targeted groups are largely situated. Based on availability of natural resources, market potentialities, need and interest of the local people, poverty status and presence of target groups; the different VDCs have been selected. SANGAM and SEEWA are performed their activities as a role of BDSPO. First one has covered broad area rather than second BDSPO. As per the demand-driven model and instructions of MEDEP, both BDSPOs have been involved to conduct various programmes of micro enterprise development. In Nepalese context, BDSPOs have been performed basic or primary functions for creation and development of micro enterprise particularly in rural and semi-urban areas. The study result shows that most of the micro entrepreneurs feel that the supporting programmes of BDSPOs are in satisfactory level. BDSPOs do not support directly to entrepreneurs, however as a member of MEG they felt that financial and technical support from the BDSPO is not significant. There is needed to improve the activities of BDSPOs as well as strengthening of these organizations for regular and effective service providers. Entrepreneurs feel that level of self-confidence

increased after starting their enterprises or after participation in EDP rather than before.

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Claim Settlement of Life Insures in Nepal

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Abstract

Claim management has been vital area of the life insurance business. Life insurance of Nepal seems still in infant stage; however the success of life insurance companies may largely depend upon the claim management. This paper has attempted to state and analyze five years' status of the performance of claim settlement made by life insurers especially on the basis of total claim received; claim paid and claim outstanding aspects. This paper describes the status of current situation of claim settlement in life insurance market. The literature review indentified the lapses and gaps of the claim settlement in Nepalese Life Insurance Companies. The study concludes that present claim settlement status of Nepal has been seen in growing stage of development in terms of total claim. Some of the life insurers have made tremendous improvement in paying claim in the range of 90.96% to 98.49%. Some life insurers established earlier have not demonstrated well performance in settling claim and some newly set companies have made satisfactory growth.

Key Words: Claim settlement, death claim, insurance policy, maturity claim, premium survival benefit

Introduction

Claim settlement is an integral part of the insurance company. Growth of selling insurance policies, strongly depend on the services providing to the people, consumers and customers. Insurance is a contract by which one party called insured pays certain sum of money as premium up to the certain predetermined term and another party called insurer promise to save the other's properties. Insured has the right of receiving amount secured under the policy of insurance contract as promised by insured is called claim. In life insurance policy, claim can be maturity claim, survival benefit, and death claim. Claim is the right of insured under the insurance contract however both insurer and insured should follow the stated policies, prescribed rules and regulations while settling the claims.

Customers can see the real service of insurance companies at the time of claim settlement not only during policy selling, payment of claim notice the main service of insurance companies to community (Disk & Basru, 1994). Claim settlement is like a mirror which reflects the face of insurance companies. Thus, better practice of claim settlement is required for each insurance company. If insurance company fails the valid, fairly and timely claim settlement, the service to the people and protection of life and properties of people from risk and sustainability of the company will be questionable.

Claims may arise because of survival up to the end of the policy term as maturity claim, survival up to the specified period during the term as survival benefit, death of the life assured during the term like death claim. Payment of maturity and survival claim is easiest to manage. But death claim settlement naturally assumes very great importance in the total operation of insurance company.

People have agreed that claims is much closer to the heart of the industry than ever before and in many cases is believed to be the biggest trigger to an organizations profits and loss. It is not surprising that in this ever-competitive industry, a claim has a greater presence (Claims Faculty, 2007). Claims processing is designed to allow claims to be recorded within the insurer's records and for a reserve to be set up for the potential liabilities involved in the claims as quickly and as smoothly as possible. A function, which for many years was a purely manual, one or one, which had the assistance of certain accounting machines, has now been taken over to a large extent by computers. The reliance of technology has been given a great boost by the coming into being of technology where there is reliance of telephone and the necessity for giving of service which is both quick and efficient, is of prime importance (Collins, 1997).

More insurers are putting their claims service in the hands of third parties today more than ever before in the developed world. This according to Green (2000) is a revolution in claims handling. Claims management is considered to be one of the most valuable possessions of any insurer and the question to ask is whether he will be ready to trust an outsider with it. It seems many insurers are prepared to do just that, as they allow outside companies to look after their customers.

Yadav (2012) stated that, for every life insurance company, claim settlement is very important part. Premium collection by selling insurance policies is largest source of income of Life Insurance Company. Sales of Polices will be directly affected if claims are not properly settled. LIC India has strong hold in the life insurance market due to its better claim settlement. He again stated in his study that there is positive relationship between sales and claim settlement. Better claim settlement leads good sales and customer relation. Arul & Kumar (2011) stated in his study claim settlement and the customers' service are the more important factors rather than other factors in life insurance.

Yadav and Mohania (2013) conclude in the study that people buy life insurance policy to cover the risk uncertainty. However important focus should be given during the time of claim settlement not only at the time of purchasing policies. Due to the strong management and administrative framework, simple and prompt claim settlement process, employees' good contribution toward claim settlement and quality service providing to the customers, LIC India is able to settle the claim in time which resulted more sales of life insurance policies. Study found that LIC India is able to settle the claim effectively to the entire satisfaction of its customers and customers of LIC are aware regarding the claim settlement and satisfied with the employees too.

Kalani, Salunkhe and Ahirrao (2013) examined claim settlement ratio of LIC with other insurance companies in India. Study observed that there are cases of 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. Authors studied comparison of claim settlement ratio of LIC with other life insurance industry and survey of policy holders and opinion regarding claim settlement.

Development of insurance business in Nepal is still in infant stage. There is no written evidence of ancient history of insurance in Nepal.

But practices to co operate among the people in the community is as old as human civilization. 'Guthi' was a kind of form where all the members generate certain fund and help to the member of the association who will be suffering from natural hazards, death and social function.

Modern history of insurance business in Nepal started since 1947 after the establishment of 'Nepal Insurance and transport Company' as a subsidiary of Nepal Bank Ltd. Many Indian insurance companies were performing insurance business in Nepal.

In the year 1968, Government of Nepal established 'Rastrya Bima Sansthan' (RBS) which operate life and non life insurance business till the date. "Insurance Act 1968" was also enacted in the same year. In the year, Insurance Committee was formed under the Ministry of Finance to regulate and supervise the insurance market. In the year 1992, Insurance Board was established under the Insurance Act 1992 as a regulatory body of Insurance companies.

After the restoration of democracy, government implemented the liberalization policy in the economic sector which resulted establishment of many insurance companies in the countries. During this period more 20 insurance companies established. Altogether 27 insurance companies are performing insurance business. Out of them 17 companies are none life insurance, 9 companies are life insurance and 1 company is re-insurance. (Insurance Board, 2014).

.Now 9 life insurance companies are performing life insurance business and providing life insurance service to the people all over the country. All the insurance companies in Nepal are under the supervision and regulation of insurance Board, the regulatory body of insurance industry in Nepal.

The major objective of present study is to analyze the status of claim settlement performance of life insurers working in Nepal.

Data and Methods

The study is an attempt to analyze the status of claim settlement performance of life insurance companies of Nepal. The present study observes the changing status of claim settlement in view of the changing scenario of insurance sector. Janapriya Journal of Interdsciplinary Studies, Vol. 5 (December 2016)

The study is based on the secondary data collected from books, journals, annual reports, internal records and website information. Data relating to claim settlement operation of all nine life insurance companies has been collected. Data includes subjects like name of company, date of registration, total claim received, claim paid, and claim outstanding. Data from 2010 up to 2014 has been taken for the study. Simple percentage method is used as a tools of analyzing total claim received, claim paid and claim outstanding of all life insurance companies during the year 2014.

Results and Discussion

Total nine life insurance companies have been registered in Nepal till the date. Out of them, one company is fully government owned, two companies are joint venture, one company is as foreign branch and five companies are private ownership. Table 1 illustrates the total life insurance companies established in Nepal in the different year.

Table 1 Life Insurance Companies of Nepal

SN	Name of Insurance company	Date of Establishment	Ownership
1	Rastriya Beema Sansthan (RBS)	1968/12/15	Government
2	National Life Insurance Company Ltd.	1988/06/07	Joint venture
3	Nepal Life Insurance Company Ltd.	2001/04/17	Domestic Private
4	Life Insurance Corporation (Nepal) Ltd. (LIC)	2001/08/07	Joint venture
5	Met life Insurance Company ALICO	2001/08/02	Foreign Branch
6	Asian Life Insurance Company Ltd.	2008/02/17	Domestic Private
7	Surya Life Insurance Company Ltd.	2008/03/19	Domestic Private
8	Gurans Life Insurance Company Ltd.	2008/03/31	Domestic Private
9	Prime Life Insurance Company Ltd.	2008/05/06	Domestic Private

Source: Insurance Board, 2012

Table 1 shows Rastriya Beema Sansthan was established in 1968 with the government ownership as a first life insurance company in Nepal. After a
long gap of twenty years, National Life Insurance Company was established in 1988. In 2001, three life insurance companies were established named Nepal life, LIC, Met life Alico. Similarly in the year 2008, other four life insurance companies were established with the private ownership.

Status of claim settlement of Life insurers

Claim settlement has been considered as an important service and responsibility of life insurance companies. Status of death claim, maturity claim, and survival benefit of nine life insurers has been discussed individually as below.

Status of Death Claim

Death claim is a type of claim in life insurance. Death claim is settled by the life insurance companies as a major service and liability to the customers. Table 2 shows the existing status of death claim received in nine life insurance companies in the past five years starting from 2010.

insurance Company	2009/10	2010/11	2011/12	2012/13	2013/14
RBS	104.34	92.48	97.69	141.69	83.53
National Life	61.61	101.43	69.89	222.12	278.41
Nepal Life	54.65	85.33	121.84	196.47	262.46
LIC	27.16	34.28	44.38	57.50	77.14
Met Life Alico	36.1,7	45.86	39.13	40.8,9	50.68
Asian Life	49.39	61.87	44.25	27.6,8	18.47
Prime Life.	52.70	79.15	96.99	157.39	203.82
Gurans Life	4.56	6.19	4.79	11.44	10.82
Surya Life .	0.80	1.65	3.00	3.52	5.44

Table 2 Death Claim (Rs. in million)

Source: Record of Life insurance Company, 2014

Table 2 has shown the total death claim received in all nine life insurance companies in different years starting from 2010 to 2014. Table shows that

RBS has received more death claim i.e. Rs.104.34 million in the year 2010 and Surya life has received least death claim i.e. Rs.0.80. In 2014 National life has received more death claim ie. Rs.278.41million and Surya life has received least death claim ie. Rs. 54.4 million than other companies.

Status of Death Claim Paid

Death claim is a type of claim in life insurance. Death claim is settled by the life insurance companies as a major service and liability to the customers. Table 3 shows the existing status of death claim paid by all nine life insurance companies in the past five years starting from 2010.

Death claim r ald (KS: In minor)							
Isurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14		
RBS	58.65	76.90	78.40	86.30	67.30		
National Life	44.90	84.17	128.61	189.14	243.14		
Nepal Life	42.17	68.44	103.79	188.78	252.97		
LIC	25.52	32.21	41.38	53.86	72.33		
MetLife Alico	41.17	49.46	39.53	45.08	50.77		
Asian Life	49.39	61.87	44.25	27.68	18.47		
Prime Life	51.29	78.00	93.61	151.24	199.91		
Gurans Life	3.00	4.60	2.76	6.10	3.93		
Surya Life	0.50	1.15	1.66	2.21	4.40		

Table 3 Death Claim Paid (Rs. in million)

Source: Record of Life insurance Company, 2014

Table 3 has shown that all nine life insurance companies have paid death claim in different years starting from 2010 to 2014. Table shows that RBS has paid more death claim ie.Rs.58.65million and Surya life has paid the minimum death claim i.e. Rs.0.50 million in the year 2010. Similarly in the year 2014 Nepal life has paid more death claim Rs.252.97 million and Gurans life has paid least death claim Rs.3.93 million.

Status of Death Claim Outstanding

Due to various causes death claim received in the insurance company may be remained unpaid as outstanding claim. Table 4 shows the status of claim unpaid of the nine life insurance companies in past five years starting from 2010.

Table 4

Name of Life insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14
RBS	45.69	15.58	19.29	55.39	16.23
National Life	16.71	17.26	24.98	32.98	35.26
Nepal Life	12.48	16.88	18.05	7.69	9.49
LIC	1.63	2.07	3.00	3.63	4.81
Met Life Alico	50.20	61.29	63.33	62.20	64.09
Asian Life	1.16	2.90	8.62	0.39	3.42
Prime Life	1.41	1.14	3.37	6.14	3.90
Gurans Life	1.55	1.5	2.03	5.34	6.88
Surya Life	0.30	0.50	1.34	1.30	1.04

Outstanding Death Claim (Rs. in million)

Source: Record of Life insurance Company, 2014

Table 4 has illustrated the death claim outstanding in the nine life insurance companies in different years starting from 2010 to 2014. Table shows that Met life Alico has more death claim outstanding in both 2010 and 2014 i.e. Rs.50.20 million and Rs.64.09 million respectively. Similarly Surya life has least death claim outstanding in years 2010 and 2014 as Rs.0.30 million and Rs. 1.04 million respectively.

Status of Maturity Claim

Like as death claim, life insurance companies pay maturity claim to the insured after expiration of the term period. Table 5 shows the existing status of maturity claim in all nine life insurance companies in the past five years starting from 2010.

Life insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14	
RBS	1847.12	1845.61	2107.88	3433.43	2596.93	
National Life	157.50	219.61	316.90	416.21	465.56	
Nepal Life.	8.77	26.28	120.43	148.58	212.32	
LIC	9.48	7.17	44.36	60.88	130.06	
MetLife Alico	-	-	-	21.81	142.24	
Asian Life.	-	-	-	0.44	8.68	
Prime Life.	-	-	-	-	3.92	
Gurans Life	-	-	-	-	1.63	
Surya Life .	-	-	-	-	-	

Total Maturity Claim Amount (Rs. in million)

Source: Record of Life insurance Company, 2014

Table 5 has shown the maturity claim amount of all nine life insurance companies in different years from 2010 to 2014. Table shows RBS has more amount of maturity claim then other companies in all the years 2010 to 2014. Table shows Surya life does not have maturity claim till 2014 and Gurans life has least maturity claim amount in 2014.

Status of Maturity Claim Paid

Like as death claim, life insurance companies pay maturity claim to the insured after expiration of the term period. Table 6 shows the existing status of maturity claim paid by all nine life insurance companies in the past five years starting from 2010.

Insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14		
RBS	1230.00	1272.40	1540.00	2380.00	1990.00		
National Life.	149.71	186.12	306.69	406.78	444.55		
Nepal Life.	6.44	16.31	105.48	131.78	177.00		
LIC	9.48	7.17	44.36	60.88	130.06		
MetLife Alico	-	-	-	14.18	106.31		
Asian Life	-	-	-	0.44	7.64		
Prime Life.	-	-	-	-	3.92		
Gurans Life.	-	-	-	-	1.63		
Surya Life.	-	-	-	-			

Table 6

Table 5

Maturity Claim Paid (Rs.in million)

Source: Record of Life insurance Company, 2014

Table 6 has shown the maturity claim amount paid by all nine life insurance companies in different years from 2010 to 2014. Table shows RBS paid more maturity claim amount then other companies in different five years. Table shows that Surya life has no maturity claim till 2014 and Gurans life has paid least amount of maturity claim in all the years.

Status of Maturity Claim Outstanding

Maturity claim amount may remain unpaid as outstanding due to various causes. Table 7 shows the status of maturity claim unpaid by nine life insurance companies in the different five years from 2010 to 2014.

Table 7

SN	Insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14
1	RBS	617.12	573.21	567.88	1053.43	606.93
2	National Life	7.79	33.48	10.21	9.43	21.00
3	Nepal Life	2.33	9.97	14.94	16.79	35.32
4	LIC	-	-	-	-	-
5	MetLife Alico	-	-	-	7.62	35.93
6	Asian Life	-	-	-	-	1.04
7	Prime Life	-	-	-	-	-
8	Gurans Life	-	-	-	-	-
9	Surya Life	-	-	-	-	-

Source: Record of Life insurance Company, 2014

Table 7 has shown the maturity claim outstanding in all nine life insurance companies in the past five years from 2010 to 2014. Table shows RBS has more outstanding maturity claim than other companies in whole five years and LIC, Prime life and Gurans life have no outstanding maturity claim in whole five years and these three companies have been found good maturity claim paying performer in case of the maturity claim outstanding.

Status of Survival Benefit

Survival benefit has been considered as the installment payment to the policy holders up to the maturity period. Table 8 illustrates the existing

status of survival benefit amount in all nine life insurance companies in the past five years starting from 2010.

Insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14
RBS				0.45	0.58
National Life	49.34	57.32	76.00	97.96	87.32
Nepal Life	70.42	56.46	88.70	99.31	120.26
LIC	54.49	57.63	73.10	83.36	111.46
MetLife Alico	1.94	2.83	3.83	3.11	5.85
Asian Life	-	-	1.34	1.78	18.77
Prime Life	-	-	-	10.18	22.94
Gurans Life	-	-	-	.07	5.09
Surya Life	-	-	-	-	4.43

Table 8 Survival Benefit (Rs. in million)

Source: Record of Life insurance Company, 2014

** Rastriya Beema Sansthan (RBS) is old fully government owned Life Insurance Company. Only in 2008 and 2009 it sold few nominal numbers of money back anticipated endowment policy. Since the year 2010 it is not selling these types of policies.

*Asian life, Prime life, Gurans life and Surya life insurance companies are newly established companies then others. They started to sell money back policy after 2008/2009. Since in money back plan, survival benefit will be given only after the completion of 4 years or 5 years period.

Table 8 shows that RBS has survival benefit only in 2013 and 2014. However, the company was established earlier than other companies. As per the records found, RBS sold only few money back policies in 2008 and 2009 but not selling money back policies now a days. Table shows that new companies established in 2008 started to pay survival benefit only after 2012 in which Asian life insurance co. has survival benefit in 2012, 2013, and 2014. Prime life and Gurans Life has survival benefit only in 2013 and 2014, and Surya Life has survival benefit only in 2014.

Status of Survival Benefit Paid

Survival benefit has been considered as the installment payment to the policy holder up to the maturity period. Table 9 illustrates the existing

status of survival benefit amount paid by all nine life insurance companies in the past five years starting from 2010.

Insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14		
RBS				.040	.050		
National Life	45.20	46.67	49.67	67.67	63.34		
Nepal Life	46.91	41.26	72.57	77.98	96.91		
LIC	54.49	57.63	73.10	83.36	111.46		
MetLife Alico	0,79	0.87	1.39	1.25	2.20		
Asian Life	-	-	1.34	1.78	18.77		
Prime Life	-	-	-	10.18	20.85		
Gurans Life	-	-	-	.07	5.09		
Surya Life	-	-	-	-	4.43		

Table 9 Survival Benefit Paid (Rs.in million)

Source: Record of Life insurance Company, 2014.

Table 9 illustrates that RBS paid survival benefit to policy holders only in 2013 and 2014. However, the company was established earlier than other companies. As per the records found, RBS sold only few money back policies in 2008 and 2009 but not selling money back policies now a days. Table further shows that National life, Nepal life, LIC, and Met life paid survival benefit in whole five years. The new companies established in 2008 started to pay survival benefit only after 2012 in which Asian life started paying survival benefit since 2012, Prime life and, Gurans life since 2013, and Surya life since 2014.

Status of Survival Benefit Outstanding

Survival benefit to be given to the policyholders by the life insurance companies may remain unpaid. Table 10 has stated the survival benefit amount of nine life insurance companies remained unpaid in the past five years starting from 2010.

Survivar Dener	Sarvival Denent Outstanding (Asim minori)							
Insurance Co.	2009/10	2010/11	2011/12	2012/13	2013/14			
RBS				.05	.08			
National Life	4.14	10.65	26.33	30.29	23.98			
Nepal Life	23.50	15.20	16.13	21.33	23.34			
LIC	NA	NA	NA	NA	NA (All Paid)			
MetLife Alico	1.15	1.08	1.11	2.19	2.70			
Asian Life	-	-	NA	NA	NA			
Prime Life	-	-	-	-	2.08			
Gurans Life	-		-	NA	NA			
Surya Life	-	-	-	-	NA			

Survival Benefit Outstanding (Rs.in million)

Table 10

Source: Record of Life Insurance Company, 2014

Table10 shows that LIC, Asian life, Gurans life and Surya life insurance companies have no outstanding survival benefit at all. National life, Nepal life and Met life Alico have outstanding of survival benefit amount to be paid to the policyholders in whole year 2010 to 2014. Similarly RBS has due survival benefit in the year 2013 and 2014 and Prime life has outstanding survival benefit to be paid to the policyholders in 2014 only.

Life insurance claims may be of different types but this study analyze only three types of claims like as Death claim, Maturity claim and Survival benefit. Above tables 2 to 10 illustrate individually under maturity claim, death claim and survival benefit as total claim, paid claim and outstanding claim of nine life insurance companies in the past five years starting from 2010 to2014.

Present Status of Aggregate Claim Received, Claim Paid and Claim Outstanding

Total claim received is the sum of death claim, maturity claim and survival benefit received and total claim paid is the sum of death claim paid, maturity claim paid and survival benefit paid to the beneficiary. Similarly total claim outstanding is the sum unpaid of death claim, maturity claim and survival benefit. Table 11 has illustrated the total claim received, total claim paid and total claim outstanding of nine life insurance companies in the year 2013/2014.

Insurance Companies	Claim Received (Rs.in million)	Claim Paid (Rs. in million)	%	Claim Outstanding (Rs. in million)	%
RBS	2681.05*	2057.80*	76.75	623.25*	23.25
National Life	807.33	751.05	93.02	56.27	6.98
Nepal Life	571.70	526.88	92.16	44.81	7.84
LIC	318.67	313.86	98.49	4.81	1.51
Met life Alico.	198.78**	159.29**	80.13	39.48**	19.87
Asian Life	49.36	44.90	90.96	4.46	9.04
Prime Life	230.68**	224.69**	97.40	5.98**	2.60
Gurans Life	17.56	10.67	60.70	6.88	39.30
Surya Life	9.88**	8.84**	89.44	1.04**	10.56
a	~ · _				

Table 11

Total claim receiv	ed, claim paid	and claim	outstanding	(2013/2014)
				(

Source: All Life Insurance Companies Record, 2014; *Provisional Data, **Unaudited Data

Table 11 shows the total claim received, claim paid by the all nine life insurers and claim outstanding. Table shows that Gurans life paid 60.7% claim and it has 39.3% outstanding claim in 2013/2014.Similarly LIC paid 98.49% claim and it has only 1.51% claim outstanding in 2013/2014. RBS is government owned life insurance company but paid claim only 76.75% and it has outstanding claim 23.25% in 2013/2014 which is higher than other companies. Table shows that LIC has made good claim performance in 2013/2014 among the life insurers in Nepal.

Present Claim Status of Nepalese Life Insurers

Figure 1 has stated the current status of claims paid by nine life insurers in the year 2013/2014 and claim remained unpaid by life insurers. Figure shows claim paid and claim outstanding of life insurers in the percentage.



Figure 1: Present Claim Status

Source: Record of life insurance company, 2014

Figure 1 states that the heighest claim paid percent is 98.49% and lowest claim paid percent is 60.7%. Likewise heighest claim outstanding percent is 39.3% and lowest claim outstanding percent is 1.51%. Figure shows that five life insurers have paid the total claim more than 90% in the range of 90.96% to 98.49% and have remained claim unpaid below 10% in the range of 1.51% to 9.04% which seems better claim settlement performance. Similarly figure shows four life insurers have paid total claim in the range of 60.7% to 89.44% and have remained claim unpaid in the range of 10.56% to 39.3% which seems need to improve in claim settlement performance.

Conclusion

The study has concluded that the growth of insurance business largely seemed dependant on claim settlement. Claim settlement has been found most important service of insurance company to the policyholders and yardstick of measuring quality in Nepal too. Life insurance practice of Nepal has not so long. Nine life insurance companies have been performing life insurance business till the date. Rastriya Beema Sansthan, the first life

insurance company owned by government and started life insurance business earlier than other companies in Nepal. Naturally its total claim and paid claims seemed higher than other companies in different years. Trend of claim and claim paid seemed increasing ratio in every year. The present status has indicated that out of nine life insurers, five companies have paid higher above 90% claim in the range of 90.96% to 98.49% having less than 10% outstanding claim in the range of 1.51% to 9.04% and four companies have paid below 90% claim in the range of 60.7% to 89.44% having claim outstanding in the range of 10.6% up to 39.3%. This study has confirmed that claim settlement and the customers' service are the more important factors rather than other factors in life insurance. Due to the strong management and administrative framework, simple and prompt claim settlement process, employees' good contribution toward claim settlement and quality service providing to the customers, insurance company may be able to settle the claim in time which result more sales of life insurance policies.

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Employee Commitment toward Organization and their Career during the Merger of Bishwa Bikas Bank and Fewa Finance

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Abstract

Change is indispensible for the survival of the firm. Managing change become more challenging when it includes massive human involvement. This research paper aims to investigate employee commitment towards organization and own career during the merger. For this 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 there is no effect of age factor in the determination of employee commitment towards the organization. Moreover the employee commitment towards their career has relative influence to employee commitment towards organization.

Key Words

Career, change, commitment, employee(s), organization

Introduction

Commitment is defined as one's motivation to work in a particular vocation or as an act of commitment to trust or pledge to something or someone (Hall, 1976). The concept of commitment has widely been used to find out individual attitudes and behaviors in the workplace. Over the past three decades commitment has been dominated in the literature as behavior and used in terms of careers, organizations, norms, identification, morals, work, jobs, and job involvement (Reilly and Orsak, 1991). In organization and social fields the term is recognized as a predictor of much behavior including absenteeism, turnover, job satisfaction, employee readiness and organizational citizenship behavior. From a behavioral aspect the main focus is on employee turnover (Bartol, 1979; 1991; Park and Kim, 2009), absenteeism (Gellatly, 1995; Sagie, 1998) and organizational citizenship behavior (Mathiew and Zajak, 1990).

It is important to note that commitment and organizational change became antecedents of each other thus further research in the area is warranted (Coleman, Irving & Cooper, 1999; Madsen, Miller & John, 2005). In organizational change, employee of an organization can create new sets of expectations to meet changing situations, attitudes and behaviors that are outcomes of a process in which individual compare realities and expectations. Employee commitment is attitudes and behaviors to the organization because of privileges like fringe benefits, salary, tenure, promotion, employee identity. Employees who receive encouragement and rewards for change are more likely to act voluntarily in support of organizational change goals contributing to overall organizational effectiveness (Organ, 1988; Vanyperen& Vandenberg, 1999).

Employee Commitment toward Organization

Organizational commitment is widely described as a key factor in the relationship between individuals and organizations (Sharma & Bajpai, 2010). Mowday et al. (1982) conceive commitment as an attitude reflecting the nature and quality of the linkage between an employee and an organization. It is an individual's identification with a particular organization and its goals to maintain membership in order to attain these goals.

There are three factors of organizational commitment: (1) a strong belief in an organization's goals and values, (2) a willingness to exert considerable effort for the organization, and (3) a strong desire to maintain membership in the organization (Porter, Steers, Mowday&Boulian, 1974). Organizational commitment is the relative strength of an individual's identification and involvement in a particular organization (Porter, Crampon & Smith, 1976; Steer, 1977)

It is multidimensional in nature, involving an employee's loyalty to the organization, willingness to exert effort on behalf of the organization, degree of goal and value congruency with the organization, and desire to

maintain membership. It refers to an employee's willingness to exert extra effort within the organization (Batemen&Strasser, 1984). It is a feeling of dedication to one's employing organization, willingness to work hard for that employer, and the intent to remain with that organization (Meyer & Allen, 1988).

Employee Commitment towards Career

A career is an evolving sequence of a person's work experiences over time. It relates to the individual's perceived sequence of vocation, occupation or profession that person occupies over time (Hall, 1976; Solomon, Bishop & Dresser, 1986). It can be characterized by the development of personal career goals and the individual's attachment to, identification with and involvement in those goals (Colarelli and Bishop, 1990).

A career involves tradeoffs between security and risk and between individual success and family, and peoples' career behavior may interact with culture. The literature shows that employee attachment, identification and involvement depend upon extrinsic and intrinsic outcomes such as pay, promotion, appraisal, and satisfaction that can refer to one's motivation to work in a chosen vocation (Hall, 1971). According to Poon (2004) career commitment is predicated on objective career success in form of salary level and subjective career success in the form of career satisfaction. Most of the research has focused on individual factors that influence career commitment such as job involvement and organizational commitment (Blau, 1985; McGinnis and Morrow, 1990); situational factors (organizational uncertainty, fear of job loss and job fit) used by Goulet and Singh (2002) along with organizational commitment, job satisfaction and involvement because the economic and organizational situation (downsizing and restructuring) may have an impact on career commitment (Hall and Associates, 1986). Thus career commitment is reflected by individual and situational factors which affect career motivation or construct behavior (London, 1983). These two factors examined by Goulet and Singh (2002) consist of job involvement, organizational commitment, need for achievement, work ethic and job satisfaction for the individual and fear of losing the job and job fit as the situational factor.

Nepalese Banking sector is facing a huge problem and is in critical juncture. So, in order to cope with this problem NRB has directed the banking institutions to go in the process of mergers and acquisitions (Kafle, 2013). With the direction of NRB many banks and FIs have merged together and most of them are in pipeline for this process. The major objective of this research work is to identify the level of employee commitment toward organization and their own career. The research paper tries to acquire the answer of the following questions:

• What is the relationship between the age group of employee and commitment towards the organization?

• What is the significance of educational level to the employee commitment towards career?

The hypothesis of the study was;

H1: There is no significant difference between age group and employee commitment towards organization.

H2: There is no correlation between employee commitment towards career and employee commitment towards organization.

Data and Methods

This study was conducted in FewaBikas Bank 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 there head office is located in Pokhara. For this empirical study, a random sampling has been done from the staffs of FewaBikas Bank (formed after the merger of BBBank and FFinance Co. Ltd). The targeted participants of the main survey were the staff of the FewaBikas 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.

Survey research design was used for collecting the first hand data. The procedure adopted for this research 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 primary sources. The data are collected through survey questionnaire method. Meanwhile, the secondary data have been obtained through the related websites, report, journals, articles, magazines and others.

Data are collected through survey questionnaire. 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. 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 (demographics) and general results. 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 (ECO, ECC, SRW, EA and JI) 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.

Characteristics	Categories	Frequency	Percentage
	BishwaBikas Bank	25	50
Previous Organization			
	Fewa Finance Co. Ltd	25	50
Gender	Male	37	74
Gender	Female	13	26
	Below 21	1	2
Age	Below40	45	90
	40 +	4	8
	Married	33	66
Marital Status	Unmarried	17	34
Number of Dependent in	1-2	10	20.4
Family			
	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
Number of Years Worked in	Less than 1 year	10	20
Previous Post			
	1-5 years	30	60
	6 vears and above	10	20
Number of Years Worked	Less than 1 year	7	14
with Previous Employer			
	1-5 years	30	60
	6 years and above	13	26
Present Position at	Managerial Level	4	8.5
Organization	-		
	Officer Level	18	38.3
	Assistant Level	23	48.9
	Supportive Level	2	4.3

Selected characteristics of the respondent

Table 1

Position in Previo Organization	Previous	Managerial Level	4	8.5	
		Officer Level	14	29.8	
			Assistant Level	26	55.3
Number of Times Exposed to Organizational Changes	Supportive Level First time	3 37	6.4 78.7		
	enunges	Second time	9	19.1	
		More than second time	1	2.1	

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.

Employee Commitment towards the Organization:

Employee commitment towards the organization (ECO) is an individual identification, loyalty or involvement which is characterized by beliefs,

willingness, and membership with the organization. ECO scale is used for examining employee reaction to change. The scale was based on instruments developed by John Meyer and Nataile Allen. There were 18 items for measuring the Employee commitment towards the organization.

Employee Commitment towards Career

Employee commitment towards career scale helps to measure the employee attitude and behaviors regarding his or her organization or work. Employee develops positive attitudes and behaviors towards organization or work through a supportive organizational environment and psychological and financial satisfaction. The scales were based on the instrument used by Naimatulla Shah in his research. It contains 14 items.

Association between age and CEO

We sampled fifty employee, and evaluated whether ECO of the number of employee who is up to 30 yrs old (f=31) was equal ECO of the number of employee above 30 yrs old (f=19). The data was analyzed using chi square goodness of fit test. The null hypothesis was accepted, $\chi^2(1) = 1.919$, ρ >.05. Extendedly, since the ρ -value (0.166) is greater than the significance level (0.05), we can accept the null hypothesis. Hence, there is lack of evidence of difference between age and employee commitment towards organization.

Percentage of respondents classified by age according to ECO				
٨٥٥	Observed Value	EC	Total	
Age	Observed value	1	2	IUtal
A	Count	16	15	31
	Percentage	51.61	48.39	100
В	Count	6	13	19
	Percentage	31.58	68.42	100
	Count	22	28	50
Total	Percentage	44	56	100

Table 2
Percentage of respondents classified by age according to ECO

Note: A= age group less than 30 yrs, B= age group from 31 and aboveECO1= 2.39-3.17, ECO2=3.18-4.25 (mean value) (Source: field survey, 2016)

Association between the education level and ECC

Research sampled fifty employee, and evaluated whether ECC of Highest education level holder employee (f=25) was equal ECC of the Bachelor and Intermediate Degree holder employee (f=23). The data was analyzed using chi square goodness of fit test. The null hypothesis was accepted, χ^2 (1) = 0.715, ρ *p*>.05. Extendedly, since the ρ -value (0.398) is greater than the significance level (0.05), we can accept the null hypothesis. Hence,there is lack of evidence of difference between educational level and Employee commitment towards career.

Table 3

Observed Value and Expected Value of ECC and Highest Education Level				
Highest Education	Observed and	ECC	;	Total
Level	Expected Value	1	2	Total
A	Count	10	15	25
	Percentage	40	60	100
В	Count	12	11	23
	Percentage	52.17	47.83	100
Total	Count	22	26	48
	Expected Count	45.83	54.17	100
	6 – – – – – – – – – – – – – – – – – – –		/	

Note: The mean value of ECC is categorized into 1=2.50-3.62 and 2= 3.63-4.50

Highest Educational Level: A=PhD and Masters' Degree and B=Bachelor and Intermediate Degree

Conclusion

There is no significant difference between age group and employee commitment towards organization, so Null hypothesis is accepted. The analysis showed that there is lack of evidence of difference between age and employee commitment towards organization. It means that there is no effect of age factor in determining the employee commitment towards the organization.

There is lack of evidence of difference between educational level and Employee commitment towards career. It means there is no effect of highest education level of the employee in determining the employee commitment towards career.

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Accessing Labour, Resources and Institutions: Women Laborers in Brick Kiln of Jamune Bhanjyang, Tanahun , Nepal

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Abstract

The key argument of this paper is that the changing nature of women's involvement in non-agricultural labor force has added a critical dimension in the development process of Nepal. This relationship between involvement and development has been affected by nature of women's employment, education, family responsibility and state policy. The major objective of this paper is to analyze critical issues, condition, tribulations and options associated with the livelihoods of women labourers working in brick kiln. For meeting the objectives, qualitative and quantitative data from both primary and secondary sources were used. Primary data were collected via self administered questionnaire, interview, observation and case study. The study findings reveal that due to poverty, low education and skills, many rural women are concentrated in low-skilled and low-paid employment in urban brick kilns where they suffer from gender discriminations, exploitations and male chauvinism in salary, working hours, promotion and facilities. Gender relation has been foremost in determining control over and access to labour, resources, institutions and services. Hence, understanding the different role of women and men is critical to understanding how that system affects women labour, reward, punishment, productivity and sustainability in brick kilns. Policies should consider women labourers easy access to education and information on their rights, as well as supportive institutions and legal measures to ensure their safety, gender rights and encourage private sector development in rural areas that can increase job opportunities for rural women hence reducing their brisk migration to urban areas for job. Key words: Bigotry, brick molding , gender equality, kiln, labour laws, patriarchy,

Introduction

Amid the fast population growth and urbanization in Nepal, construction work ranked as the third largest economic sector in the country, persists to grow. The towering demand for building materials has fueled a stipulation for cheap labor and a lack of incentives for clean or socially responsible brick production. According to Good Weave International Report (2015) although work conditions are inhumane, the brick industries in Nepal, provides jobs to thousands of unskilled labourers where over 175,000 women and child workers labor in unhealthy and unsafe conditions. Brick workers are some of the most marginalized of unskilled workers, often bonded by debt to exploitive labor brokers, and working at wages insufficient to pay off recruiter advances. The informal nature of kiln industry that operates on the periphery of communities and with modest government regulation has served to ensconce exploitive labor practices such as bonded, child and women labor. The sector is dominated by migrant and seasonal labourers who live on the kilns during the brick season and have almost no link to local government, community organizations, or representation by workers trade associations. Unrepresented, unfettered, and for the most part superfluous, brick kiln workers have seen little advancement on social, economic, or human rights issues; but with few doable income alternatives they lack the power to perk up their working conditions or pay as fixed by government regulations and International Labour Organization.

Over the past two and half decades Nepalese women's participation in economic activities has moved beyond agriculture into the local market economy. In search for wage employment, women are moving into small business and self employment ventures there by creating many formal and informal opportunities for work. Also, women are ever more migrating to urban or semi-urban areas for employment in industries as brick kilns, cottage and food kilns etc. However, the recognition and accounting of their contribution differs from region to region. Despite the economic necessity impelling many women into the labour force, their work is often considered secondary and frivolous. Women face gender discrimination in pay, fringe benefits, and opportunities for advancement and access to interesting jobs. Additionally, women are still expected to perform the majority of household and child securing task, regardless of their work status. The result is that women's work is really never done (Akhter et.al 2014). The recognition and accounting as such also differs in accordance with the nature of work manifested in the modern formal sectors in comparison to traditional informal as well as agricultural sectors. In addition, rural–urban differences of treatment at work place also create differences in the degree of recognition and accounting of the work.

Hunzai (2010) argues that women in Nepal are vital and productive contributors to the national economy but their access to knowledge; skills, resources, opportunities and power still remain rather low. Although women constitute a little over one half of Nepal's population, they rank lower than men in almost every social indicator in the country. Within the tides of poverty, women are the poorest of the poor, a relatively more deprived segment even from among the poor. Gender based discriminations at work place, in addition, is a serious problem. Although legal provisions prohibit discrimination on the ground of gender, institutional exclusion of, discrimination against women is pervasive. Discrimination in employment is one of the most important areas of discrimination. In neoclassical economics theory, labor market discrimination is defined as the different treatment of two equally qualified individuals on account of their gender, race, disability, religion etc. Blau et al (2010) argues that discrimination is harmful since it affects the economic outcomes of equally productive workers directly and indirectly through feedback effects. Darity and Mason (1998) squabble that the standard approach used in identifying employment discrimination is to isolate group productivity differences (education, work experience). Differences in outcomes (such as earnings, job placement) that cannot be attributed to worker qualifications are attributed to discriminatory treatment.

A good place to position the start of theoretical debates about women, class and work is in the intersection with Marxism and feminism. Such debates is shaped not only by academic inquiries but as questions about the relation between women's oppression and liberation and the class politics of the left, trade union and feminist movements. Early development approaches by assuming the wholesale adoption of Western technology, institutions, and beliefs, largely ignored women (Moser, 1993). Boserup's

(1970) study seriously challenged the argument that benefits from development projects would automatically *trickle down* to women and other disadvantaged groups in less developed countries. Women working in the different sectors challenged the assumption that modernization would automatically increase gender equality. They began to use the term Women in Development (WID) in their efforts to influence the policies with emphasis on equal opportunity for women, providing basic human needs for all, targeting poor women and their basic human needs, access to development, accurate measurements of women's lived experiences and for improvements in women's access to education, property and better employment. To achieve these goals, they maintained that women must be integrated into development projects and plans and have a say in policy design and implementation (Moser, 1993). However, the WID approach tended to preoccupy itself with women's roles as producers and ignored their domestic labour. It rarely addressed fundamental questions about women's subordination (Overholt et al. 1984).

In the 1970s, radical and orthodox development thinkers and planners agreed on the centrality of poverty alleviation, although they differed on how to bring it about (Jaquette, 1982). At the same time, attempts were made to seek answers for women's development issues in Marxism, which had developed the most thorough critique of modernization theory. However, this approach has little to say about women and fails to question the importance of modernization and economic development. Marxist scholars have generally accepted Friedrich Engels' argument that women's subordination is a consequence of the development of private property and capitalism and that a successful class struggle is necessary (Sargent, 1981).

The radical-feminist critique of Liberal and Marxist feminism, argued that, patriarchy exists in all societies and is the fundamental source of inequality. Anthropologically, this suggests the need to create alternative social institutions, separate from men, within which women can fulfill their needs. Parpart (1989) argues that during the 1970s, this approach has been referred to as *Women and Development* (WAD) that stresses the distinctiveness of women's knowledge, women's work, and women's goals and responsibilities. It argues for recognition of this distinctiveness and for

acknowledgment of the special roles that women have always played in the development process (Rathgeber, 1990).

Since the mid-1980s, the emphasis has been on increasing women's economic contribution to increase overall economic efficiency and bring about equity for women (Moser, 1989; Elson, 1992). Some feminists and development theorists dissatisfied with WID and the WAD approaches turned to the Gender and Development (GAD) perspective which emerged in the 1980s as an alternative to WID and WAD. Also called empowerment approach or gender-aware planning (Young et al. 1981; Moser, 1989; Elson, 1992 and Sen and Grown, 1987), it argues that women's status in society is affected by their material conditions of life and by their position in the national, regional, and global economies. It recognizes that women are affected by the nature of patriarchal power in their societies at the national, community, and household levels (Sen and Grown, 1987) and focuses on women's material conditions and class position as well as patriarchal structures and ideas that define and maintain women's subordination. The focus is on relationships between women and men, not on women alone. Gunatilaka (2013) squabble that in South Asia, female participation in labour rates range from around 20% in Pakistan to almost 80% in Nepal, which can be explained by differences in social and economic factors. Women in Nepal are less constrained by social norms, though they work mostly in subsistence agriculture, which is driven more by poverty than by choice. In spite of limited education and gender biases, women have been using their skills to create products and to improve economic condition. According to Nepal Labour Force Survey report (2008), there is wide variation between male and female labour force participation as paid employee. It is 26.6 percent for males compared to only 8.3 percent for females, resulting in very low participation rate in paid employment compared to other countries.

Nepalese society is strictly based on patriarchal norms and values. The elemental features of patriarchal culture are the patrilineal inheritance system, controls over women's sexuality and bodies and restraint over women's mobility. On the basis of this cultural practice, women are subordinate in all levels (economic control, body, movement and family lineage). Such practice negatively affects women's esteem, enthusiasm

and decision making ability in both direct and indirect ways. The gender division of labour has added more work to women with longer working hour for women that might be reflected in health hazards among laboring women.

Though, Nepal's Constitution 2015 has made the provisions for ending the discriminatory legal provisions, ending the gender, cultural and religious discrimination, but in practice, discriminations in different forms persist between men and women in terms of work opportunity and treatment at the organized/unorganized sectors. Acharya (2000) argues that the lack of education, training opportunities, and employer biases and limited mobility due to social responsibilities combine to keep women at lower echelons of the industrial hierarchy. Working women ubiquitously suffer from discrimination typically in pay, promotion and facilities. There are around 700 brick kilns in Nepal and the number is highest in Kathmandu valley (GEFONT/ASI, 2007). Among the kilns workers, majority are women belonging to the socially marginalized castes/ethnicities and economic migrants from different districts. As there is no precise need for skill and education, just a well-built back and the ability to work from morning to evening, the concentration of illiterate/less educated rural poor women is higher in this sector. However, different forces and prohibitions prevent women labour seeking equal opportunities in work with their male counterparts with little recognition and accounting of female labour. Keeping this in view, the prime objective of this study is to study and analyze the critical issues, conditions, tribulations, and options associated with the livelihoods of women labourers in brick kiln.

Data and Methods

Jamune Bhanjyang, a Village Development Committee (VDC) in Tanahun district, is located in the eastern part of the district. This VDC has a population of 9838 (male population of 4416 and female 5422) living in 2408 individual households. Topographically, this region is having sub tropical climate rich in abundant plain area and the fine clay mud which is quite lush for making bricks. Hence, Jamune Bhanjyang Village Development Committee is known for its brick kilns and production. Bricks produced here are supplied to different parts of Nepal as a vital construction material.

Among the brick kilns (currently eight brick kilns are functioning in Tanahun district), Machhapuchchhre Brick Kiln located at Jamune Bhanjyang ward no. 8 Kaflethok selected for this study, is the one of the largest and well-established brick kiln in terms of productivity and size of employees. As one of the leading and well-established brick kiln of the region, along with male labourers, this kiln represents the women labourers from diverse social-cultural-economic and caste/ethnic backgrounds of the region that has provided an important basis for anthropological studies for generating an important insight in anthropological analysis of women labourers.

The study adopts descriptive research design based on descriptive analytic method of analysis for evaluating the status, conditions and livelihood related tribulations of women labourers in brick kiln. The total number of labourers employed in Machhapuchchhre Brick Kiln is 120; out of these 66 were women labourers working as low-skilled workers. Using the census method, all the 66 women labourers in the kiln at the time of study were selected for the study. Since the entire population is very small, it was reasonable to include the entire population and data has been gathered on every member of the women population. The study has incorporated both primary and secondary data. For validation and comparison of the findings, secondary data were collected from articles, books, published and unpublicized online journals and reports. Primary data were collected from the field via Self Administered Questionnaire, Interview, Observation and Case study. Data was collected using anonymous self-administered questionnaires. Questions were raised to labourers using an unstructured interview schedule. An in-depth observation was made on the labouring pattern of female labourers. The measure of reliability was obtained by administering the same test twice over a period of time to the women labourers. The scores from Time 1 and Time 2 were correlated in order to evaluate the test for stability over time. Validity was ensured that the measure is actually measured what is intended to measure. Few case studies of women labourers were prepared carefully investigating their life histories and experiences. It helped to supplement information on the past and present situation of the women labourers and also to find out their feelings and attitude towards the brick kiln.

Results and Discussion

The caste and ethnic identities of total 66 women labourers employed

in Machhapuchchhre brick can be categorized into three broad caste/ ethnic groups; such as Brahmin/Chhetri, Janajati and *Dalit*. Janajati denotes Gurung, Magar, Tharu and Newar women labourers. The highest proportion of the female labourers i.e. 47 percent is Janajati followed by *Dalit* whose percentage is around 39. Brahmin/Chhetri women labourers' percent was 14 percent. Most women labourers were middle aged (i.e. 23 to 34) which indicates that middle aged women have soaring burden to earn to support their families. Both married and unmarried women were employed though the percentage of unmarried female was very low. More than 95 percent of women were married whereas only less than 5 percent were unmarried.

The family size of women labourers varies from 2 to 7 with average family size of 4.2. Compared to the national figure of 4.9, the average family size of women labourers in this brick kiln is smaller. Around 74 percent women labourers were living in nuclear family and the rest were from joint family. Around 14 percent of women labourers were illiterate compared to around 86 percent literate. Of the literate labourers, 51 percent of labourers have primary level of education, followed by secondary and informal education: 18.3 percent and 16.7 percent respectively. It reveals that women with low level of education were involved in this kiln as low-skilled labour force.

The work-season of this brick kiln starts by and large from the last week of October and arrangement of seasonal (temporary) labourers in the kiln is done earlier to ensure smooth kiln operation. The temporary labourers of the kiln are mostly from agricultural sector and are contacted before to agriculture season. In other brick kilns located in terai, Kathmandu and other regions, labourers are generally hired through dealers/agents or *Naikes* (also known as *sardar* or meth) prior to production season (GEFONT/ASI, 2007). But, self-approached labourers are unbridled in Machhapuchchhre brick kiln. Women labourers have come to this kiln for work without any connection either with owner or any dealer. The involvement of the labourers in this brick kiln is on both temporary (seasonal) and permanent basis.

As brick production engrosses various activities, diverse types of works have to be performed in a single brick kiln. In such condition it is not viable to provide supervision inputs to each and every activity by the owner himself. Hence, the overall responsibility of all activities is given to respective *Naikes* so that owner does not have any burden of monitoring and supervision of labourers. Four types of works are important in brick kiln hence there are four types of *Naikes* as well. Technician head (b) Brick Moulding *Naike* (c) Unbaked Brick Carrying *Naike*, and (d) Baked Brick Carrying *Naike*. In Machhapuchchhre brick kiln, all the *Naikes* are males who control their respective sectors including women labourers from respective sectors who have different reasons to work.

Reasons for Working as Labourers in Brick Kiln, Income and Facilities

Various reasons were spelled out by women labourers for working in brick kiln. Of all reasons, the highest response is poor economic condition (78.7%). It was for those who have larger families, who do not have any other income sources or if having not sufficient other income sources to support their families. The other main two reasons were: to increase earning capacities (15.2%) and to be self dependent (6.1%).

The monthly salary of the permanent women labourers in Machhapuchchhre brick kiln, without overtime, ranges from Rs. 10,000 to Rs. 12,000 depending on the type of work. Compared to seasonal (temporary) workers, salary of permanent workers is high. Temporary workers were usually paid daily wages ranging between Rs. 300 to 400 depending on types and hours of work. Depending on the types of work Rs. 40 to 70 was paid to both permanent and seasonal labourers for each hour of overtime.

Without overtime, majority female (80.3%) workers had monthly income ranging between Rs. 10,000-12,000 which was followed by less than 10,000 (13.6%) and more than 12,000 (6.1%) respectively. Including the overtime income, around 68 percent had monthly income between Rs. 10000-12000. Around 31 percent of the female workers had monthly income more than Rs. 12,000. However, still just about 2 percent had monthly income less than Rs. 10,000 after including the overtime income. Around 83 percent were the beneficiaries of overtime facilities occasionally, whereas around 18 percent have not found any overtime facilities. Those who have overtime facilities have earned from extra hours work.

Similarly, the kiln has provided facilities such as snack, tea, Dashain

allowance and the residence facilities to the permanent workers. However, all women labourers are not the beneficiaries of such facilities. Of the 66 women labourers, around 39 percent has got tea and snack facilities during the working period. Likewise, 40.9 percent have not got any such facilities. Around 3 percent got *Dashain* allowance (1 month salary) and 22.7 percent have residence facilities. These facilities were provided to permanent staffs working continuously for the last five years. However, the residence facility has been provided to limited permanent staffs. Likewise, the kiln has provided other facilities to permanent workers such as; yearly grade to all the workers (one day salary), yearly leaves (11 days casual leave and 15 days sick leaves), 35 days maternity leave. In case of any kind of accidents and hazards inside the kiln, medical treatment was rendered by the kiln and in emergency conditions loans were provided by the kiln to the worker, which was deducted regularly from their monthly salary.

Work Types and Working Conditions

The daily normal working hour was 8 hours per day. However, including overtime work, most of the workers worked more than 8 hours per day. Most of the women labourers (56.1%) were involved with medium types of works, whereas 39.4 percent are involved with easy types of work and the only 4.5 percent have hard works. The medium and easy type of work was filling and packing of the materials, brick molding which also include mud digging, mud preparation, sand carrying, brick carrying and piling of bricks etc. Hard types of works were baking clay and bricks, carrying heavy loads, loading and unloading weighty materials, wood/coal breaking, wood stacking, wood/coal carrying etc. Hard types of works were mainly done by male workers. Male labourers were involved in vital skilful works as *naikes*, *mistri*, sub-technician, supervisor, firemen, and water management.

The Quality of Job Matters: Job Satisfaction, Tribulations and Exploitations

Labourers could not quit the job during the operation period of the kiln. Labourers once entered in the kiln work for a fix period of time with verbal or written bond, could not quit until the seasonal kiln work is accomplished. It is the case of seasonal (temporary) labourers. For the permanent labourers, it was virtually impossible to quit the job because of their provision of provident fund and other legal obligations. It was construed that preponderance of women labourers (59.1) were contented with their job. However, around 41 percent of the labourers informed that they were not satisfied with their job.

Joh Catiofaction	Female Labourers		
	Frequency	Percent	
Satisfaction	39	59.1	
Not satisfied	27	40.9	
Total	66	100.0	
Reasons for Dissatisfaction			
Low salary	12	44.4	
No job security	8	29.6	
Low wages for low quality hard work	7	25.9	
Total	27	100	

Table 1 Women Labourers' Job Satisfaction

Source: Field Survey, 2015

Of the labourers dissatisfied with their job, 44 percent reported that their salary was low. Likewise, 29.6 percent of the labourers were discounted due to job insecurity. Around 25.9 percent were disgruntled due to low salaries for difficult and tiresome less quality works. The job satisfaction status of women labourers has been elaborated in these cases.

Case I: Mero Bhagya Jageko Cha: A Story of Brick Molding Labourer Sonu Magar

My name is Sonu Magar (name changed). I am 29 years old born in poor family in a remote village of Lamjung district. I approached to this kiln myself and have been working here as brick molding labourer since the last 6 years. I am married, and my husband has been working as a labourer in India. But he has not sent any amount of money. Me and my family lives in rented house with two rooms. I must say that I have been discriminated in getting official residence. My family is nuclear family. My family size is only 4 which include two sons. I am the head of the households due to the absence of my husband. I had attained secondary education and my husband has also secondary level of education. I know the importance of education in human life and hence providing a good education to my son in a boarding school. I am turned as permanent worker, last year. My monthly salary is Rs. 12,000 per month. However, I earn Rs. 14,000 per months including overtime works. The monthly expenditure of my family is around Rs. 14,000. I also get Dashain allowance and other facilities as snacks and tea. So, I am satisfied with this job and salary. I am happy to earn and contribute to my family. But there is no labour union in this brick kiln to raise labourers' legitimate rights, which I think is necessary. The behaviour of the management and administration is good towards all the workers and there is good recognition and accounting of our labour in this kiln. So, I take the kiln as my own home and all the staff as my own family members. After employing here, mero bhaqya Jageko cha (My fortune has risen). The socio-economic status of my household has improved over the years.

Case II: An Anecdote of Heavy Load Carrying Labourer: Rita Nepali I am Rita Nepali (name changed) 39 years old married women. I have been working in this kiln since the last 7 years. Few years back my husband died in public vehicle accident. I am living with my two children in rented rooms. The official residence has been provided more to the male workers than female workers. I am the head of the household and responsible to manage all the households' cost including children's education. My children are in public school in grade 8 and 5. I am thinking to send younger son to boarding school but will not be able to manage the expenses. I am a permanent worker. My monthly salary is Rs. 16,000 per month with overtime. I am involved with hard and complicated types of works such as carrying heavy loads, loading and unloading the materials hence my salary is comparatively high. The monthly expenditure of my family is around Rs. 14,000. I also get Dashain allowance and other facilities. So, I am satisfied with this job and salary. Because of this Job I am immune to poverty and can hold household expenses. If I do not have this employment, it would have been impossible
for me to manage expenses. I have not faced any problems from co-workers as well as management and administration.

Owing to stiff labour depending on types of work, the brick kiln has provided economic opportunities to less educated, poverty-stricken women of remote rural areas. But the quality of employment and the facilities provided matters in which socially constructed gender roles and prejudice play a vital role. Heyzer and Hashim (1991) argue that gender is the socially constructed roles ascribed to men and women. These social constructed roles often take the form of sexual division of labour that allocates to women the most tedious and labour intensive work and limits women's access to and control over resources. Another construction is the social structures and attitudes of patriarchy and culture that ascribe subordinate position to women with regard to economic and social rewards and involvement. Practical gender needs relate to women's daily needs in caring for themselves and their children, whereas strategic gender interests relate to the task of changing gender relations and challenging women's subordinate position (Molyneux 1985; Moser, 1989). Gender based discrimination and exploitative activities either by management and other co-workers determine the level of involvement of women in the economic activities in kiln. As most of the women involved in kiln are less educated they suffer from problems entrenched to gender bias such as; wage discrimination and working environment. Of the total women labourers, 71 percent reported that they have not suffered from any kinds of discrimination. However, 29 percent labourers testified that they suffered from discriminations and are facing different tribulations. The major types of discrimination against women were gender based discrimination on work and in getting official residence (68%), long working hours (15.78%) and different salary for the same work (15.78%). The cases of exploitations were also reported.

Of the total 66 labourers, around 49 percent reported that they were exploited on one or other occasions. The major types of exploitation were labour exploitation (82.4%) and wage exploitation (17.6%). Occasionally they were exploited by male workers (44.1%), kiln owner/manager (38.2%) and kiln administrators (17.6%). But, no any cases of sexual harassment

were reported by women labourers. Because of exploitations and heavy work burden, most of these women labourers are having health hazards such as backache, hand/leg related pain, headache, ear pain, eye pain and fever. The under mentioned case elaborates the stipulation.

Table 2

Cases of Ex	ploitations	Once or	Occasionally
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Exploitation	Frequency	Percent
Yes	34	49.3
No	32	50.7
Total	66	100.0
Types of Exploitation		
Labor exploitation	28	82.4
Wages exploitation	6	17.6
Total	34	100.0
Exploiting Agency		
Male workers	15	44.1
Owner/manager	13	38.2
Kiln administrators	6	17.6
Total	34	100.0

Source: Field Survey, 2015

Case III: Ke Garne, Aimai Ko Janma Hareko Ko Karma: Tale of Gender Discrimination and Exploitation on Brick Carrying Labourer: Rama G.C.

I am Rama G.C. (name changed) 38-year-old married woman born in remote village of Tanahun district. I have been working in this kiln for about 12 years. I am a permanent worker. I live with my family in a rented house nearby kiln. I have been discriminated in getting official residence. My family includes husband, three children: two sons and one daughter. I have primary level of education. I have positive attitudes towards the importance of education. I am providing education to my children possible only through my hard labour in brick kiln. My husband is a labourer in a construction company and his income is not enough to accomplish my goal to provide education to my children in private boarding school. Hence, I am compelled to work in brick kiln. The monthly expenditure of my family is around Rs. 18,000.

Accessing Labour, Resources

My salary is Rs. 11,000 per month and I manage my household expenses with my husbands' income which is 8,000. I am involved with the work of brick carrying. I am deprived of overtime facility. Actually, I am not satisfied with my salary.. Male workers are getting more salary compared to women labourers. Sometimes, I have faced problems from co-workers as well as management and administration. There are gender based discriminations in types of work, salary, working hours and other facilities. Different salaries are provided to male and women labourers for the same work. As most of the women are less educated but straight away need money to survive, they suffer from different kinds of gender bias such as; humiliation from senior employee and male administrators, wage discrimination. I and most women labourers do low quality hard works, face major health hazards as hand and leg related pain, backache, headache, ear pain, eye pain and fever. I and my family need job for survival. Also, I am a permanent worker with the provision of provident fund and other facilities, hence, cannot quit the job without any alternative job. I need to think about my family and struggle for them 'Ke Garne, aimai ko janma hareko ko karma' (To be born as a woman is a doomed fate).

The cases of exploitations are invasive where there is a presence of labourers. In Machhapuchchhre brick kiln, there is large involvement of labourers both women and man, but there is no labour union in this brick kiln to raise the issue of labourers legitimate rights. As brick kiln is a labour intensive industry, arrangements of labourers in brick kiln is one of the crucial factors and is a challenging job. The women labourers of the kiln are mostly from agricultural sector, less educated, involved with difficult low quality works and in the case of temporary workers who are contacted prior to agriculture season; there are high chances of gender bigotry, mistreatment and less recognition and accounting of their labour. The radical-feminist and Marxist feminism argument that patriarchy exists in all societies and is the fundamental source of inequality is intricately linked with the cases of brick kiln women labourers involved with low quality hard works which demands for to create alternative social institutions, separate from men, within which women can accomplish their needs that hassle the exclusivity of women's knowledge, women's work, and women's goals and responsibilities. This also calls for acknowledgment and recognition of the distinctiveness and the special roles that women have played in the economic development of kiln and upliftment of their family through their labour. Brick kilns are registered with the government, and thus are obliged to abide by the regulations especially labour laws and regulations, but in reality, they are outside the government regulations especially on laborer's fundamental rights, health, sanitation and safety that are vital for kiln workers physical and mental fitness.

Conclusion and Policy Recommendations

The trends of gender development in Nepal suggest that the situation is improving over the years since the political change of 1990 with the changing nature of women's involvement in non-agricultural labor force that has been a critical dimension of the development process. However, this relationship between involvement and economic development is far from straightforward because women's employment is determined by a range of multifaceted factors, including education, family size and responsibility, type of job and state policy. Due to poverty, low level of education and skills, poverty-stricken rural women are concentrated in low-skilled, low quality and low-paid jobs in kiln where they are tormented by gender based discriminations and exploitations in salary, promotion and other facilities.

Gender equality and economic development go together. Gender is the socially assembled roles ascribed to men and women that often take the form of sexual division of labor that allocates to women the most tedious and labour intensive work and limits women's access to and control over development resources. It is the key dimension of social difference that affects people's experiences, concerns and capabilities in managing the available resources. As seen from this study, gender is an important factor determining control over and access to labour, resources, institutions and services. Despite reporting of bigotry, the attitude of the kiln owner was satisfactory but there were instances of male chauvinism and gender based discriminations by male co-workers. The facilities provided to them were reasonable, but many women were discontented with their jobs and salary. Lack of skill and low level of education was the main reason behind the lower status of women causing their involvement in low-paid and low-skilled works in brick kiln. Higher and vocational education can increase women's participation and empowerment in managerial and administrative works of kiln.

Comprehending different roles and responsibilities of women and men is critical to understanding how changes to that system will affect women labour, reward and punishment and, hence, productivity and sustainability. At the policy level, government need to be strict on enforcement of legal arrangements to ensure rights of workers at recruitment, salary, facilities, safety, and health/sanitation and should actively support formation of kiln laborer's trade unions so that workers in the kilns gather under the union umbrella for collective bargaining and protection of their rights. Policies can be made on exploitation free gender labeling to the brick kilns and the brick buyers can be made aware leading to social pressure among brick kilns for decent gender based labour practices.

Policymakers should be demure with whether women can have entrance to better jobs and take advantage of new labor market opportunities that arise as new economic opportunities are created, in so doing, can contribute to the family and the development process itself. Hence, policies should mull over both supply- and demand-side dimensions, including access to better education and training programs and access to informative materials on women labourers rights, as well as other supportive institutions and legal measures to alleviate the burden of domestic responsibilities, enhance workplace safety conditions, discourage workplace gender discrimination and encourage private sector development in industries in rural areas that can increase job opportunities for women in their own region. This will disrupt the fast migration of poverty-stricken rural women to urban areas for employment in brick kilns.

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Neonatal Hyperbilirubinemia: Hospital Based Study in Western Region, Nepal

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Abstract

Hyperbilirubinemia is the common cause of neonatal morbidity and mortality. The aim of this study is to identify neonatal hyperbilirubinemia and its early outcome. Retrospective data review was carried out in the Neonatal Care Unit and medical record section of Western Regional Hospital (WRH)for the year 2013. The data were analyzed and interpreted by using descriptive and inferential statistics through the computer program SPSS 20 version and presented in tables. Findings revealed that out of 815, 17.8 percent were the hyperbilirubinemia, 60 percent were male, mean age = 6.61(SD=4.55), 47.6 percent were Brahmin/ Chhetry ethnicity, 55.2 percent were from rural residence and 69.6 percent were admitted from emergency/OPD of WRH. Regarding the duration of stay mean = 3.75(SD=2.02), 86.2 percent neonates were improved at discharge and 0.7 percent expired. There is statistically significant relationship between residence, and source of admission with early outcome of neonates at discharge (p<0.05). The majority of the neonates admitted in the hospital were improved at discharge. Therefore early recognition of neonatal hyperbilirubinemia is an important public health concern.

Key words: Hospital based study, hyperbilirubinemia, neonatal, Nepal

Introduction

Hyperbilirubinemia is one of the most common problems encountered worldwide in newborns requiring evaluation and treatment. The clinical manifestation of hyperbilirubinemia (jaundices) occurs in 60% of normal newborns and 80% of preterm infants (Dutta,2009;Kliegman etal., 2012).

Hyperbilirubinemia is an important cause of morbidity in the neonatal period, especially in the 1st week of life (Nepal, 2009). Incidence varies with ethnicity and geography and is higher in East Asians and American Indians and lower in Africans. The Incidence is higher in populations living at high altitudes (Moore etal., 1984). In some developing countries, the incidence of severe neonatal jaundice may be as much as 100 times higher than in more developed countries (Slusher, 2012). A study done among 293 neonates admitted at neonatal intensive care unit in BP Koirala Institute of Health Sciences (BPKIHS) revealed that the prevalence of neonatal hyperbilirubinemia was 42 percent (Kaini, Chaudhary, Adhikari, Bhattacharya & Lamsal (2006). Similarly findings of the retrospective study done in 73 cases in Kanti Children Hospital, nearly 50 percent cases had neonatal jaundice (Nepal, 2009) and it was the second cause of admission at neonatal intensive care unit of Kanti Children Hospital (Subedi, 2009). Neonatal hyperbilirubinemia may lead various complications such as kernicterus, deafness, neurological deficit, mental retardation and even death (Kliegman etal., 2012). Early detection and treatment of neonatal

death (Kliegman etal., 2012). Early detection and treatment of neonatal hyperbilirubinemia is important in the prevention of bilirubin-induced encephalopathy. Compared with conditions that require advanced pharmacologic and technologic treatment strategies, hyperbilirubinemia seems to be overshadowed and may lose the attention it deserves as a condition that has potentially devastating effects. Nurses must be vigilant when caring for babies with "just jaundice" by monitoring bilirubin levels, identifying infants at risk for developing severe hyperbilirubinemia, and implementing prescribed treatment effectively when indicated (Robin, 2009).

Therefore, the primary focus of this article is to identify the neonatal hyperbilirubinemia and its early outcome evidenced in western regional hospital Pokhara in the year 2013.

Data and Methods

Western Regional Hospital (WRH) is the 350 bedded hospital in the western region of Nepal.The hospital provides service as a referral centre throughout patients department as well as the different in patients wards including hemodylysis, maternity, operation theatre, post- operative,

geriatric, medical, surgical, emergency units, ICU and neonatal care unit. Retrospective data review was carried out through the admission and discharge register in the Neonatal Care Unit (NCU) and medical record section of WRH for the year 2013. Sample of this study was neonates with diagnosis of neonatal hyperbilirubinemia taken through purposive sampling technique. Before collecting data approval was obtained from the hospital authority where the study was conducted. Permission was obtained from ward in-charge and explained about the study purpose.

The data were classified according to the objective of the study then analyzed and interpreted by using descriptive (frequency, percentage, mean, standard deviation) and inferential statistics (chi-squared test) to determine the relationship between early outcomes of neonatal hyperbilirubinemia with background characteristics through the computer program SPSS 20 version (Statistical Package for Social Science) and presented in tables.

Ethical considerations

Before collecting data approval was obtained from the hospital authority where the study was conducted. Permission was obtained from ward incharge and explained about the study purpose. The collected data was used only for the research purpose.

Results

In Western Regional Hospital Pokhara, Neonatal care unit was established in January 2001 with 5 beds, 1 incubator and one phototherapy machine. The unit has now 16 NCU beds, one ventilator, 4 Phototherapy machine, one incubator; non- functioning. Total patient admitted in the year 2013 January to December in NCU were 815. Among them,145(17.8%) neonates were admitted as hyperbilirubinemia. Hyperbilirubinemia is the second most common problem encountered in neonatal unit of WRH in 2013.

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		n =145
Characteristics	Number	Percentage
Age at the time of admission		
< 24 hrs	11	7.6
24- 72 hrs	5	3.4
>72 hrs to 1week	84	57.9
> 1 week	45	31.0
Mean (SD) = 6.61(4.55)		
Sex		
Male	87	60.0
Female	58	40.0
Residence		
Urban	65	44.8
Rural	80	55.2
Ethnicity		
Brahmin/Chhetry	69	
47.6		
Janajati (Gurung, Magar, Newar)	59	40.6
Others (Kami damai, sarki, Muslim, kumal)	17	11.7
Source of admission		
OPD/ Emergency	101	
69.6		
Maternity/ wards of WRH	44	
30.4		
Length of stay in hospital		
Up to 4 days	98	
67.6		
>4 days	47	
32.4		
Mean (SD) = 3.75(2.02)		

Table 1 Background Characteristics

Source: Admission, Discharge Register 2013; Neonatal Care Unit, WRH

Table 1 reveals that 60 percent were male, 7.6 percent were less than one day of age, mean age = 6.61(SD=4.55) minimum age 1 day and maximum 25 days, 47.6 percent were Brahmin/Chhetry ethnicity, 55.2 percent were from rural residence and 69.6 percent were admitted from OPD/emergency of WRH. Regarding the duration of stay mean = 3.75(SD=2.02) minimum 1 day and maximum 10 days.

Table 2Outcome according to Background Characteristics

Characteristic	Early O	utcome	at Discha	arge			
	·	Impi	roved	*Not In	nproved		
	n(%)	n(%)	n(%)		χ^2	p-value	
Age							
< 24 hrs	11(7.6)	9(81.8)	2(18.2)	0.193	0.661		
25hrs to 25 days	134	(92.3) 11	6(86.5)	18(13.4)		
Sex							
Male	87(6	0.0) 76	6 (87.4)	11(12	2.6) 0.24	0.623	
Female	58(40	0.0) 49	(84.5)		9(15.5)		
Residence							
Urban	65(44	.8) 61	(93.8)	4	(6.2)	5.78	0.016
Rural	80(5:	5.2) 64	(80)	1	6(20)		
Source of admis	ssion						
From OPD/Eme	rgency 101	(69.6)	91(90.1)	10(9.9) 4.24	0.039	
Wards of WRH	44(3	0.4) 34	(77.3)	10(22.7)			
Length of stay i	in hospital	l					
Up to 4 days	98(67	7.6) 82	(83.7)	16	(13.2)	1.63	0.201
>4 days	47(32	2.4)		43(91		4(8.5)	

n=145

* ForOutcome Not Improved; Referral, Leave against Medical Advice, Absconded, Discharge on Request, and Expired cases.

Source: Admission, Discharge Register 2013; Neonatal Care Unit, WRH Table 2 presents the relationship between early outcomes of neonatal hyperbilirubinemia with background characteristics. There is statistically significant relationship between residence and source of admission with early outcome at discharge (p<0.05) but there is no significant relationship between age, sex and length of stay in hospital of neonates with early outcome (p>0.05).

Discussion

This study identified the prevalence and outcome of the neonatal hyperbilirubinemia in the neonates admitted in the neonatal care unit of Western Regional Hospital, Pokhara. Hyperbilirubinemia is the second most common problem encountered in neonatal unit of WRH.Similar findings reported in the retrospective study done at neonatal intensive care unit of Kanti Children Hospital (Subedi etal., 2009). Total neonates

admitted in the year 2013 January to December in NCU of WRH were 815. Among them 145 (17.8%)were diagnosed as neonatal jaundice / hyperbilirubinemia. Neonatal hyperbilirubinemia is extremely common because almost every newborn develops an unconjugated serum bilirubin level of more than 1.8 mg/dL during the first week of life. Incidence figures are difficult to compare because authors of different studies do not use the same definitions for significant neonatal hyperbilirubinemia or jaundice. In addition, identification of infants to be tested depends on visual recognition of jaundice by health care providers, which varies widely and depends both on observer attention and on infant characteristics such as race and gestational age (Bryon &Nancy, 2011).

Risk of developing significant neonatal jaundice is higher in male infants (Kliegman, 2012; Porter, 2002; Scrafford, 2013). This does not appear to be related to bilirubin production rates, which are similar to those in female infants. In this study Among 145 neonates, 60 percent diagnosed with hyperbilirubinemia were male. Similarly, findings of the retrospective study done in 73 cases in Kanti Children Hospital, 72.6 percent were male (Nepal, 2009).

The infant's age in hours is used when evaluating and managing bilirubin concentrations. Visual assessment of jaundice does not assess the total serum bilirubin reliably. Based on research, jaundice with in the first 24 hours after birth is not physiologic jaundice and needs further evaluation (Dutta, 2009). In this study 7.6 percent neonates were within the 24 hrs of age at the time of admission. Similar findings reported in the previous studies(Nepal, 2009). Likewise 57.9 percent developed hyperbilirubinemia in the age >72 hrs to 1week. Consistent with the study, similar findings reported in the earlier study done in Kanti Children Hospital (Nepal, 2009). The study revealed that 47.6 percent were Brahmin/Chhetry ethnicity, 55.2 percent were from rural residence and 42.8 percent were admitted from emergency of WRH. Regarding the duration of hospital stay mean = 3.75(SD=2.02) range from 1 to 10 days in the neonatal unit.

All newborns should undergo a risk assessment for hyperbilirubinemia before discharge from the newborn nursery and have appropriate follow-up evaluation after discharge.Serum bilirubin > 15mg/dl was

taken significant as this is a routine practice in this hospital to admit and investigate all newborn with serum bilirubin >15 mg/dl. All the neonates having significant hyperbilirubinaemia were treated with phototherapy. Early outcomes were studied in the form of improved at discharge, referral to better center and death. The study revealed that 86.2 percent neonates were discharged after recovery, and 6.2 percent were referred to better center. Likewise death from kernicterus may occur, particularly in countries with less developed medical care systems (Slusher, 2012). Among all the neonates diagnosed with hyperbilirubinemia death was observed in only 0.7 percent neonates in this study. It might be because of limitted neonates are admitted in the hospital; although NDHS, 2011 reported neonatal death is 33/1000 in Nepal. In contrast with the above findingsdeath is quite higher in the small study conducted in rural Nigeria (Slusher, etal., 2013). At the time of discharge various background characteristics of hyperbilirubinemic babies such as age, sex, etc were analyzed in terms of early outcomes (Table 2). There is statistically significant association between residence, and source of admission with early outcome at discharge (p < 0.05) but there is no significant association between age, sex and length of stay in hospital of neonates with early outcome (p>0.05). In contrast with this finding, none of the variables were found to be significantly associated with mortality in the previous study done in Kanti Children Hospital (Nepal, 2009). Retrospective design and small sample size are the main drawbacks of this study.

Conclusion

Neonatal hyperbilirubinemia is one of the most common problems in the neonates with male predominance. There is statistically significant association between residence, and source of admission with early outcome of neonate at discharge. The majority of the neonates admitted in the hospital were improved at discharge. Therefore, early recognition of neonatal hyperbilirubinemia is an important public health concern.

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Volatility Spillover Effect in Indian Stock Market Surya Bahadur G. C.

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Abstract

The study aims to empirically examine the transmission of volatility from global stock markets to Indian stock market. The study is based on time series data comprising of daily closing stock market indices from National Stock Exchange (NSE), India and major foreign stock exchange of the three countries one each from America, Europe and Asia making the highest portfolio investment in Indian stock market. The study period covers 11 years from 1st January, 2005 to 31st December, 2015 comprising a total of 2731 observations. The Indian stock index used is CNX Nifty 50 and the foreign indices are S & P 500 from USA, FTSE 100 from UK, and Nikkei 225 from Japan. The results reveal that the Indian stock market return is co-integrated with market returns of US, UK and Japanese stock markets. Therefore, the return and hence volatility of Indian stock market is associated with global markets which depicts that it is getting integrated with global financial markets. The results provide empirical evidence for volatility transmission or volatility spillover in the Indian stock market from global markets. There exists inbound volatility transmission from US market to Indian stock market. The Indian and UK stock market have bi-directional volatility transmission. However, there exists presence of only outbound volatility transmission from Indian stock market to Japanese stock market. The volatility transmission from global markets to India is rapid with the spillover effect existing for up to three days only.

Keywords: Contagion, financial integration, Indian stock market, volatility spillover, volatility transmission.

Introduction

Stock prices volatility has received great attention from both academics and practitioners over the last two decades because it is a measure of risk in financial markets. Over recent years, there has been a growth in interest in the study of stock market volatility. The phenomenon of volatility spillover refers to the transmission or contagion of stock market shocks across a country or regions. Internationalization of stock markets, liberalized capital flows, huge foreign portfolio investment in Indian stock markets has led Indian and foreign stock markets to be increasingly integrated. In addition to various domestic factors, volatility of major foreign trading partners is one of the important determinants of stock return volatility in a domestic market (Mukherjee, 2005). An understanding of the inter-market volatility transmission is important for the portfolio diversification and asset allocation across the markets, for trading and devising hedging strategies. Indian stock market has emerged as one of the favorite destination of Foreign Institutional Investments (FIIs). In particular, deregulation and market liberalization measures, rapid development in communication technology and computerized trading systems, and increasing activities of multinational corporations have accelerated the growth of Indian capital market, which is now slowly moving towards global financial integration (Kumar and Mukhopadhyay, 2002). In order to understand volatility of Indian stock markets, study of volatility spillover is also required.

The empirical literature on volatility spillover effect concentrates mostly on well-developed equity markets in the US, Japan and Europe. Wang (2005) have examined the return and volatility spillover from US and Japan to three Asian capital market viz. India, Pakistan and Sri Lanka. Though they have found a return spillover from US and Japan to all the three markets, there is a significant volatility spillover from US to India and Sri Lanka and from Japan to Pakistan. Bhar and Nikolova (2007) analyze the degree of integration of the BRIC countries on a regional and global basis, achieved by using daily equity index level data. The paper concludes that a high degree of integration exists between the BRIC countries and their respective regions,

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and to a lesser extent, the rest of the world. Similarly, Lee (2009) conducted study on volatility spillover in Asian markets and found that there are statistically significant volatility spillover effects within the stock markets of these countries. Wang and Shih (2010) investigate the dynamic nature and determinants of volatility spillovers from European region and world to the five emerging European equity markets that are not members of the European Monetary Union. Their results show significant world and regional effects on volatility. Azzam (2010) provide evidence of asymmetric market responses to shocks in all markets. The effects of negative shocks are much more pronounced than positive shocks. Li and Giles (2013) examine the linkages of stock markets across the U.S., Japan and Asian developing countries over the period January 1, 1993 to December 31, 2012. The study finds significant unidirectional shock and volatility spillovers from the U.S. market to both the Japanese and the Asian emerging markets. Further, in recent periods the linkages between the Japanese market and the Asian emerging markets have become more apparent.

Few prior studies on volatility spillover in India exist. Rao and Naik (1990) examined linkages between developed markets and Indian stock market before liberalization and concluded that the Indian market is not integrated with global stock markets. Given the present state of Indian stock markets, these studies lose their relevance. With active liberalization and rapid growth of information technology in the recent past, (Kumar and Mukhopadhyay, 2002) have examined the response of the Indian Stock Market to world markets viz., US, Japan and other East Asian Stock Markets. They find evidence of volatility spillover from US to Indian stock market. Similarly, by carrying a comprehensive analysis from correlation to Granger causality and then to application of GARCH models to examine the comovement and volatility transmission between US and Indian stock markets, Kumar (2012) have found significant return and volatility spillover from US to India. The review of extant literature on volatility transmission reveals that most prior studies are undertaken on context of developed markets. Given the growth of stock market of emerging nations and growing integration

with global financial markets in recent periods, more studies focusing in the markets are essential. Hence, the study aims to investigate the volatility transmission from major American, European and Asian markets to India.

Financial Integration and Volatility Transmission

The recent decade is characterized by strong evolution of financial markets and financial globalization. Globalization and financial markets have now become so closely linked that they seem inseparable. On the one hand, capital movements intensify cross-border each year more, while on the other hand, national economies are more and more open to foreign capital flows. The internationalization of financial markets is the result of double phenomena. First, the accelerated deregulation of national money and financial markets, and second, the direct national markets interconnection, particularly by the formation of large external capital markets like Euromarkets (Achert and Deaver, 2010). In terms of economic efficiency, the integration of international financial markets leads to better allocation of productive resources and capital. Caprio (2012) argue that although, it promotes economic efficiency and financial strength, international financial integration has some drawbacks. The volatility and instability of financial markets are the major disadvantages of financial integration. The relationship between financial integration and volatility is complex. It depends on the stage of development of the markets. As financial integration is usually accompanied by an increasing openness of markets and increased private capital flows, it coincides in most of the time with an excess of volatility and a strong dependence on other countries (Ng, 2000; Karmakar, 2007).

According to Yang et al. (2012), the last two to three decades have witnessed increasing levels of financial integration among the world economies, as restrictions on capital mobility across countries have gradually weakened. The consequential increase in cross-border financial flows, along with the increasing regionalization of economic activity, has resulted in greater interdependence of major financial markets all over the world. The world financial markets have experienced increasing integration, resulting in transmission of financial shocks across connected markets. While this is not a surprising outcome of economic and financial integration, the dynamics, the mode, and channels of contagion and shock transmission continue to be subjects of interest and investigation (Caprio, 2012). Researchers have gone to great lengths to investigate the channels of contagion, shock transmission, and volatility spillovers among world major markets, in emerging markets, and between them. There are some obvious ramifications of the findings of such research. For instance, evidence of volatility spillovers and dynamics would offer an understanding on the degree of openness and economic co-dependence of global economies (Badhani, 2009). As a result of such linkages, news released in one country may affect not only local market returns, but the returns of foreign markets as well. The newly arrived information may be reflected either instantly in the foreign market returns, or with a lag, depending on informational asymmetries, market liquidity and other local market factors. The more financially open a stock market is, the more synchronized its returns are with the returns of foreign markets, and the greater the scope for return spillovers ((Arouri and Nguyen, 2009; Caprio, 2012).

During the past two decades, the contagious effect of financial crises has been of great concern because of its important consequences for the global economy in relation to optimal asset allocation and monetary policy (Welfens and Ryan, 2011). The volatility spillover effect observed after the recent global financial crisis of 2008 and Eurozone sovereign debt crisis has made this issue more prominent. National and international regulators and central bankers need information and insight into these issues in order to be able to cope with spillovers of volatility, especially during the periods of financial crises. In particular, world's central bankers and other financial policy makers would benefit from this line of research findings may become better equipped to cope with contagious effects of shocks among markets (Harrison and Moore, 2009).

Data and Methods

The study is based on time series data of comprising of daily closing stock market indices from National Stock Exchange (NSE), India and major foreign stock exchange of the three countries one each from America, Europe and Asia making the highest portfolio investment in Indian stock market from 1st January, 2005 to 31st December, 2015 covering a period of 11 years comprising a total of 2731 observations. The time period covers periods of relatively greater volatility in Indian stock market. The Indian stock market index used is CNX Nifty 50 NSE. The exchange is selected as it has the highest turnover and number of trades in equity and derivatives segment in India. The Nifty 50 is blue chip index of NSE which is most popular and widely used stock market indicator of the country. It consists of diversified 50 stocks index accounting for 22 sectors of the economy. Nifty 50 accounts for about 65% percent of total market capitalization of capital market segment of NSE as on December, 30th 2015. The foreign indices are S & P 500 from USA, FTSE 100 from UK, and Nikkei 225 from Japan which are the benchmark indices. The data of stock indices series used in the study are collected from the databases of the respective stock exchanges publicly available in their official websites.

The daily market returns (R_t) are calculated as the logarithmic first differences of the stock market indices. The reasons to take logarithm returns are justified both theoretically and empirically. Theoretically, logarithmic returns are analytically more tractable when linking returns over longer intervals. Empirically, logarithmic returns are more likely to be normally distributed which is a prior condition of standard statistical techniques. Market return is a simple measure of fluctuations in stock prices. Higher the fluctuations, higher are the market returns and volatility. The daily market returns of the stock market indices used in the study is computed as logarithmic difference as follows:

$$R_t = \log\left[\frac{I_t}{I_{t-1}}\right] \times 100$$

Where, R_t is return in time t. I_t is the value of stock market index in time t and I_{t-1} is one period lagged value of stock market index.

Model Specification

This study investigates the volatility spillover from foreign stock market to India employing different time series econometric models. The estimation of the models is undertaken employing econometric package Eviews 7.0. The time series models are discussed below:

Unit Root Test

The stock market indices series that are used in this study may possess unit roots as indicated by the substantial evidence in literature in time series analysis. Since, the presence of non-stationary variables in the estimation process may yield spurious result, the study begins with the unit root test for the variables under study using Augmented Dickey Fuller (ADF) test. The study tests all market indices for presence of unit root in their levels and in their first difference form. The popular ADF unit root test of the null hypothesis of non-stationary is expressed as:

$$\Delta R_{kt} = \alpha_0 + \alpha_1 t + \rho_0 R_{kt-1} + \sum_{k=1}^q \rho_i \Delta R_{kt-k} + \varepsilon_{kt}$$

Where, R_{kt} denotes the return for the kth market index at time t and $\Delta R_{kt} = \rho$ $R_{kt} - R_{kt-1}$, are coefficients to be estimated, q is the number of lagged terms, t is the trend term, α_1 is the estimated coefficient for the trend, α_0 is the constant, and ε is white noise. MacKinnon's critical values are used in order to determine the significance of the test statistic associated with ρ_0 . The unit root tests the null hypothesis H_0 : $\rho = 1$ against the one-sided alternative H_1 : ρ . The null hypothesis of a unit root is rejected in favor of the stationary alternative in each case if the test statistic is more negative than the critical value.

Cointegration Test

The cointegration test could be used to discover the existence of the long-run relationship between the Indian and foreign stock market returns volatility. Many financial time series are non-stationary but "move together

over time" (i.e., there exist some influences on the series, which imply that the two series are bound by some relationship in the long run). If the result in unit root test shows that two or more time series are non-stationary in their levels but integrated of the same order, the cointegration test would be conducted to test whether their linear combination is stationary at I(0) implying that they are cointegrated. The two or more time series are said to be cointegrated when the residual of their cointegrating regression is stationary. Statistically, the long-term relationship implies that the variables move together in the long-run, therefore the short-run deviations from the trend in long-run would be corrected (Dickey, Jansen, and Thornton, 1991).

The Engle and Granger (1987) proposed the single equation based method by the two-step procedure in order to model the relationship between cointegrated variables. First, estimating the long-run relationship cointegrating regression by OLS regression:

$$R_{dt} = \beta_1 + \beta_2 R_{ft} + \varepsilon_t$$

t and tWhere, R_d , R_f represent the time series of domestic and foreign stock market returns respectively and represent the residuals. Second, retaining the residuals from cointegrating regression in first step:

$$\varepsilon_t = R_{dt} - \beta_1 - \beta_2 R_{ft}$$

Then applying the ADF tests to these residuals as in the equation below:

$$\Delta \hat{\varepsilon}_t = \gamma \, \hat{\varepsilon}_{t-1} + \sum_{i=1}^p \alpha_i \, \Delta \hat{\varepsilon}_{t-1} + \, u_t$$

The values are estimated residuals. The test statistic is the estimated 't' statistic on γ , denoted by . The null hypothesis, $H_0: \gamma = 0$, i.e. the two time series are non-cointegrating. If the null hypothesis is rejected, it means that domestic market returns (R_{dt}) and foreign market returns (R_{ft}) are

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cointegrated and the residual is a I(0) process or stationary. On the other hand, if R_{dt} and R_{ft} are not cointegrated, the residual is a unit root process (non-stationary).

Granger's Causality Test

The Granger's causality test is also be employed analyze volatility spillover effect from global stock markets to Indian stock market. The model is specified as two equation system given below:

$$\Delta R_{dt} = \alpha_0 + \sum_{i=1}^{k} \alpha_i \Delta R_{d,t-i} + \sum_{i=1}^{k} \beta_i \Delta R_{f,t-i} + \delta_1 ECT_{t-1} + \varepsilon_t$$
$$\Delta R_{ft} = \gamma_0 + \sum_{i=1}^{k} \gamma_i \Delta R_{f,t-i} + \sum_{i=1}^{k} \theta_i \Delta R_{d,t-i} + \delta_2 ECT_{t-1} + v_t$$

Where, R_{dt} is domestic stock market index, ECT is error correction term, R_{ft} is foreign stock market index, i is a positive integer, i = 0, 1,.....,k, Δ is the first difference operator and ε_t and v_t are white noise residual that follows the stationary process when two variables are integrated of order one. ECT_{t-1}s are the lagged residuals obtained from the long-run cointegrating relationship between the R_{dt} and R_{ft} and δ_1 and δ_2 denote speeds of adjustment. Existence of the cointegration indicates causality among a set of financial variables. Accepting the null hypothesis Ho: $\beta_1 = \beta_2 = = \beta_k = 0$ and $\delta_1 = 0$, indicates that the change in stock market volatility in foreign stock market (R_{ft}) does not 'Granger cause' Indian stock market volatility (R_{dt}) and accepting the null hypothesis Ho: $\theta_1 = \theta_2 = = \theta_k = 0$ and $\delta_2 = 0$, indicates that changes in domestic stock market volatility not 'Granger cause' volatility in foreign stock market. However, if R_{dt} and R_{ft} are not cointegrated, then the error correction term would be absent from the above equations.

ARDL Model

Finally, Autoregressive distributed lag (ADRL) model is employed to examine the volatility transmission between the Indian and foreign stock markets.

The ADRL contains lagged values of the dependent and independent variables. The model has been specified as given below:

$$R_{d,t} = \alpha_0 + \sum_{i=1}^{k} \alpha_i R_{d,t-i} + \sum_{i=1}^{k} \beta_i R_{f,t-i} + \varepsilon_t$$

The number of lags (k) used is 1 to 5 days.

Results and Discussion

Table I exhibits the results of the Augmented Dickey Fuller (ADF) unit root test. In case of ADF, the null hypothesis of a unit root (non-stationarity) is tested against the alternative of no unit root (stationarity). The unit root test rejects the null hypothesis if the ADF test statistics value in absolute form is higher than the MacKinnon critical values given in the last section of the following table. Most time series models used in later sections require that the data series to be stationary in order to avoid problem of spurious relationship. The stationarity test is applied both in level and first differenced values.

Table 1

		Integration order				
	Level	Result	1 st Differenc	Result		
			е			
Indian Indices						
NIFTY 50	-	Unit Root	-48.73632	Stationar	l(1)	
	1.22602			у		
	0					
BSE Sensex	-	Unit Root	-48.28141	Stationar	I(1)	
	1.33078			у		
	4					
Foreign Stock Market Indices						
S&P500	-	Unit Root	-57.64926	Stationar	l(1)	
	0.40603			у		

Test of Stationarity in Stock Market Indices: Output of Unit Root Test

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	5				
FTSE100	-	Unit Root	-39.81476	Stationar	l(1)
	2.53076			у	
	9				
NIKKEI225	-	Unit Root	-53.22747	Stationar	l(1)
	0.94114			у	
	8				
MacKinnon c	ritical value	es for rejectio	on of hypothe	esis of a unit	t root:
	ĺ	1 %	Critical Va	lue	- 3.4382
2		2 %	Critical Value		- 2.8642
	ŝ	3 %	Critical Va	lue	- 2.5682

The results in the Table I show that all the markets indices both domestic and foreign are non-stationary in level form. The ADF test statistics in absolute form for the series is not greater than the critical values, hence the null hypothesis of presence of unit root is accepted. Hence, the market return series contain unit-root and are non-stationary. First differencing time series data is a method to remove unit root form the series. Hence, all the non-stationary indices series are first differenced and unit root test applied again. The ADF test statistics of all the first differenced return series are larger than the critical values, and hence the series are found to be stationary in first differenced form. So, all the series are found to be integrated in order of one as first differencing them once converts the nonstationary series to stationary.

Table II presents output of the co-integration test to investigate the presence of long term equilibrium relationship between returns of major global stock market's return with Nifty 50 returns. The co-integration of Indian market is examined with three foreign global stock markets of the countries that have largest foreign portfolio investment in Indian stock market, viz., USA, UK and Japan. The foreign market index used are S&P 500, FTSE 100, and Nikkei 225 for USA, UK and Japanese stock market respectively. Moreover, the stock indices are representative of American, European and Asian markets.

Pair	Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	5% Critical Value	1% Critical Value
India –	None*	0.1218	25.094265	15.49471	19.93711
USA	At most 1	.0001	0.153994	3.841466	6.634897
India-	None [*]	0.112464	27.981848	15.49471	19.93711
UK	At most 1	0.000341	0.115027	3.841466	6.634897
India-	None*	0.12881	23.110794	15.49471	19.93711
Japan	At most 1	0.000260	0.708404	3.841466	6.634897

Table 2Results of Co-integration Test

The test for co-integration between Indian and US stock market show rejection for the null hypothesis of no cointegrating relationship between the two stock markets since the test (trace) statistic of 25.09 is greater than the critical value for both 5 and 1 percent of 15.49 and 19.93 respectively. Moving on to test the null of at most 1 cointegrating vectors, the trace statistics is now well below the 5 percent and 1 percent critical values suggesting that the null should not be rejected. It shows that there exists at most one co-integrating relationship between US and Indian stock market. In simple words, the US and Indian stock market are co-integrated and hence, long-term equilibrium relationship between the Indian and US is present. For UK and Indian stock market the null hypothesis of no co-integration between the UK and Indian stock market is rejected as the trace statistics is again larger than the critical values at both 5 and 1 percent significance level. The next null hypothesis of at most 1 cointegrating relationship is accepted as the trace statistic is now lower than the critical values. Hence, the results reveal that the Indian stock market returns and the UK stock market returns are cointegrated.

Similar results have been achieved for Japanese stock markets. The Nikkei 225 index returns and Nifty 50 index returns are found to be co-integrated. Hence, it is found that the daily return series of Indian stock market is co-integrated with US, UK and Japanese stock market returns. In order words,

the return and hence volatility of Indian stock market is associated with global markets. It reveals that financial integration of Indian stock market with global markets is present. As the Indian stock market return is found to have long-term relationship with the global financial markets, further examination of the direction and causality of the relationship is required.

Table III presents the output of Granger's causality test to examine the causal relationship between Indian and foreign stock market. The causality test has been undertaken using three lags, which are 2, 5, and 10. Panel A presents the results for S&P 500 and Nifty 50 daily returns. The null hypothesis of India does not Granger causes USA is accepted for all the three lags as revealed by the insignificant prob value. However, the null hypothesis of USA does not Granger causes India is rejected for all the three lags. Hence, the results reveal that Indian stock market has no effect on US market while US stock market is seen in India upto 10 days. Hence, there is volatility transmission from US stock market to India. The F-statistic value is highest for lag 2 as compared to lag 5 and lag 10, it implies that the recent volatility in US has higher impact on volatility of Indian stock market.

Null Hypothesis	Lag	Observation	F –Statistics	Prob			
Panel A: India –USA							
India does not Granger cause USA	2	2728	2.11337	0.1210			
USA does not Granger cause India			90.7051	0.00001			
India does not Granger Cause USA	5	2725	1.4454	0.3344			
USA does not Granger cause India			39.0928	0.00000			
India does not Granger cause USA	10	2720	1.07081	0.3811			
USA does not Granger cause India			22.4843	0.0000			
Panel B: India-UK							
India does not Granger cause UK	2	2728	5.12179	0.0060			
UK does not Granger cause India			25.5302	0.00000			

Table 3

Granger's Causality Test Results

Volatility Spillover Effect

India does not Granger cause UK	5	2725	3.03155	0.0098		
UK does not Granger cause India			13.0296	0.00000		
India does not Granger cause UK	10	2720	1.68944	0.0774		
UK does not Granger cause India			8.38666	0.0000		
Panel C: India- Japan						
India does not Granger cause Japan	2	2728	66.7634	0.0000		
Japan does not Granger cause India			0.54803	0.5782		
India does not Granger cause Japan	5	2725	26.6954	0.0000		
Japan does not Granger cause India			0.67939	0.6391		
India does not Granger cause Japan	10	2720	14.1678	0.00000		
Japan does not Granger cause India			2.13053	0.1904		

Similarly, Panel B shows the results of Granger's causality test between stock market returns of Indian and UK. The null hypothesis of India doesn't Granger cause UK stock market is rejected for all three lags (i.e 2, 5 and 10 days). Hence, the results reveal that volatility in Indian stock market effects volatility of UK stock markets. Moreover, the null hypothesis of UK stock market returns doesn't Granger cause Indian stock market return is also rejected for all the three lags. Hence, it is found that the UK stock market volatility has impact on Indian stock market volatility. The results show that two way or bi-directional causality exists between Indian and UK stock market as both the null hypotheses India does not Granger cause UK and UK does not Granger cause India are rejected for all lags. Hence, volatility in UK stock market affects Indian markets and vice-versa. Moreover, the Fstatistics is the largest for lag 2 which indicates recent volatility has more effect on other market.

Finally, the Granger's causality test results for India-Japan presented in Panel C show that Indian stock market causes Japan but Japanese stock market does not cause India. The null hypothesis of Indian stock market return doesn't Granger cause Japanese stock market return is rejected for all the three lags which reveals that volatility in Indian stock market affects volatility in Japanese stock market. However, the null hypothesis that Japanese stock market returns doesn't Granger cause Indian stock market market.

returns is accepted for all the three lags. The results show that there is no impact of Japanese stock market volatility in India. In other words, volatility transmission from Japanese stock market to Indian stock market doesn't take place. Combining the results, it is seen that there is uni-directional volatility transmission or spillover between Indian and Japanese stock market. The Japanese stock market volatility is affected by Indian stock market volatility while Indian stock market volatility is not affected by Japanese stock market volatility. Overall, the results reveal that volatility in Indian stock market is affected by volatility of US and UK stock market.

Table IV presents the output of Autoregressive Distributed Lag (ARDL) model to further examine the volatility spillover effect in Indian stock market. The ARDL model regresses Nifty 50 returns on its own lagged values and lagged value of the explanatory variables which are in this case the foreign market return (FMR). The first model shows the output of ARDL model with Nifty 50 return dependent and lagged values (from lag 1 to 5) of Nifty fifty and foreign market return (USA) as explanatory variables. The beta coefficients associated with AR (-1), AR(-2), FMR(-1), FMR (-2) and FMR (-3) are significant. The results show that current nifty return is affected by its past 2 lags and past three days lags of the S & P 500. Hence, volatility in Indian stock market is influenced by it recent past (two days) volatility and recent volatility of US markets (upto 3 days). The beta coefficients associated with FMR (-4), and FMR (-5) are found to be insignificant. It shows that volatility transmission from US market to India takes place fast. US volatility of more than three days doesn't impact Indian stock market volatility. The magnitude of the beta coefficients for the three significant lags of the foreign stock market (FMR) shows that FMR(-1) has the highest beta coefficient followed by FMR (-2). It shows that the recent volatility in US market has the largest influence in the volatility of Indian stock market.

Table 4

Output of Autoregressive Distributed Lag Model

Dependent	Nifty 50	Nifty 50	Nifty 50	Nikkei225
FMR	S&P500	FTSE100	Nikkei225	Nifty50
(Exogenous)	(USA)	(UK)	(Japan)	(India)

Volatility Spillover Effect

C	0.047745 [*]	0.054604 [*]	0.051479 [*]	0.007869
C	(0.02831)	(0.02898)	(0.0293)	(0.028897)
AD (1)	-0.052092**	-0.01408	0.056915 ^{***}	-0.0888***
AR (-1)	(0.02043)	(0.021509)	(0.020627)	(0.020633)
AD (2)	-0.071922****	-0.06168 ^{***}	-0.020416	-0.0361*
AR (-2)	(0.0204)	(0.021552)	(0.021126)	(0.020712)
AD (2)	-0.032242	-0.04463**	-0.017027	-0.07588 ^{***}
AR (-5)	(0.0204)	(0.021542)	(0.021116)	(0.020658)
	-0.016551	-0.0006	-0.018043	0.026483
AK (-4)	(0.0202)	(0.021407)	(0.021095)	(0.020712)
	-0.008724	-0.02185	-0.008837	-0.03299
AK (-5)	(0.01936)	(0.02107)	(0.021074)	(0.020248)
	0.316383***	0.191594 ^{***}	0.015165	0.234161***
FIVIR (-1)	(0.023791)	(0.02682)	(0.02092)	(0.020343)
	0.170222***	0.089895***	-0.013896	0.013267
	(0.025157)	(0.027266)	(0.021)	(0.020836)
	0.095458 ^{***}	0.095586 ^{***}	0.010029	0.021328
	(0.025483)	(0.027537)	(0.020946)	(0.020826)
	0.029531	-0.02399	0.007341	0.007235
	(0.025381)	(0.027332)	(0.021)	(0.020806)
	-0.008104	0.010344	-0.029505	0.017817
FIVIR (-5)	(0.024603)	(0.027103)	(0.02053)	(0.020784)
F-Statistics	21.0495	17.95058 ^{***}	13.743583***	15.50255****
DW	2.001189	2.002509	1.998593	2.001647
No of Obs.	2725	2725	2725	2725

*, **, and *** means that the coefficient is significant at 10%, 5%, and 1% level of significance respectively. The values in the parentheses are standard errors.

The second model shows the effect of UK stock market on India. The results are similar to that of US markets and reveal that volatility in UK market affect Nifty 50 volatility. The beta coefficients associated with FMR (-1), FMR (-2) and FMR (-3) are found to be significant and positive. Moreover, the

magnitude of the beta coefficient is largest for lag 1 followed by lag 2. It depicts that the volatility in UK stock market up to past three days effects volatility of Indian stock market. Additionally, the recent day volatility has higher impact as compared to higher lag days. In corroboration to above results, it is found that the volatility transmission from UK to Indian stock market is also short. Only the past three days volatility in UK market spills over to India as shown by significant coefficients of FMR for three lags only. The third model shows that Japanese market volatility doesn't have any impact on volatility of Indian market as all the beta coefficients associated with FMR from lag 1 to 5 are found to be insignificant. The Granger's causality test revealed that Indian stock market causes Japanese market. So, the fourth model uses Nikkei 225 index returns as dependent variable in the ARDL model. In corroboration to the results of Granger's causality, the Indian stock market volatility is found to affect Japanese stock market volatility. However, only the coefficient of lag 1 is found to be significant. It indicates that volatility transmission from Indian to Japanese stock market is quick and lasts for only a single day.

Conclusions

The Indian stock market return is found to have long term relationship with market returns of US, UK and Japanese stock markets. In order words, the return and hence volatility of Indian stock market is associated with global markets. It reveals that Indian stock market is getting integrated with global financial markets. The results provide empirical evidence for volatility transmission or volatility spillover in the Indian stock market from global markets. There exists inbound volatility transmission from US market to Indian stock market. The Indian and UK stock market have bi-directional volatility transmission. However, there exists presence of only outbound volatility transmission from Indian stock market to Japanese stock market. The volatility transmission from global markets to India takes place fast with the spillover effect existing for up to three days only. Moreover, the results show that the past one day's volatility in foreign market. As foreign portfolio

investment and volatility transmission from global markets are found to have major impact on volatility in the Indian stock market, policymakers should initiate efforts and devise policies to reduce the adverse impact of foreign portfolio investment while maintaining balance for the promotion of foreign portfolio investment in India and facilitating further financial integration of the Indian stock market with global markets.

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General Article

Migration and HIV in Nepal

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Abstract

Nepal has been experiencing an increasing volume of internal and international migration as well as an increasing incidence of the reported statistics of Human Immuno-deficiency Virus (HIV). There was a well established migration stream from western to eastern along the hills before 1950s. Thereafter, the migration stream changed from the highlands to the lowlands after 1950s with a success of malaria eradication programme in tarai (lowlands) region. In contrast, the recent migration stream seems a reverse direction from the lowlands to the highlands in accordance with the census figure of 2011. The flow of migration direction (south-north) is generally figured out to political disorder/strike in the tarai region, however, further research is needed to find out reasons of directional change in inter-regional migration. Likewise, proportion of people emigrating to India has remarkably declined to 37 percent in the 2011 census while comparing the former 2001 census in which more than 75 percent of emigrants had made their destination to India. Nepalese emigrants are more likely to have greater economic opportunities in other countries rather than in India these days. Prevalence of HIV and AIDS [Acquired Immunodeficiency Syndrome] has been increasing over the years, irrespective of migration direction and destination at both internal and international levels.

Keywords: Emigration; HIV; immigration; interregional migration

Introduction

Nepal has been experiencing an increasing volume of internal migration after the control of endemic malaria in the tarai and inner tarai valleys since late 1950s (Gurung, 1989; Subedi 1988). Similarly, the government of Nepal emphasized on emigration after the introduction of democracy in the country in 1990 to lessen the burden of late adolescents and youths

in the country with reference to their job demands (KC, 2004). Migrant population both inside and outside the country is also highly vulnerable to HIV and AIDS (KC 2004; Nepal, 2007). With an increasing volume of internal and international migration, there is accelerating HIV and AIDS incidence in Nepal over the years. The registered statistics of Nepal depicts that there are more than 25 thousands people living with HIV in Nepal (NCASC, 2015). The figure of people living with HIV (PLHIV) in the country is expected to be higher than the registered statistics as there are still such PLHIV who do not want to disclose their HIV status in Nepal (Neupane & Mishra, 2014). The purpose of this paper is to analyse internal and international migration for the last few decades as well as HIV situation of the country. First, this paper reviews historical phenomena of internal migration and directions of migration streams within the country before 1950s as well as after the success of malaria eradication programme in the tarai areas. Secondly, this paper focuses on international movement of people throughout the history of Nepal in general, and an attempt will be made to analyse both immigration and emigration after 1950s. Finally, this paper analyses epidemiologic data of HIV and AIDS in Nepal in the changing context of migration implications.

Data and Methods

This paper has followed various data sources from Nepalese migration history to population censuses and organizational information, especially with regard to internal and international migration as well as information on HIV. This paper focuses on general patterns of internal and international migration and the epidemic of HIV and AIDS in Nepal. In the context of dearth of literature dealing with migration and the epidemic of HIV, this is expected to provide some general and broad picture of internal and international migration in Nepal before 1950s based on the historical manuscript. This paper focuses on volumes and patterns of internal and international migration from 1950s onwards based on the various censuses data, and their implications on increasing trends of HIV in Nepal from the late 1980s onwards with HIV discovery (diagnosis). A matrix form is used to analyse internal migration data at the regional level. The epidemic of HIV is classified by age and sex, to some extent from the data obtained in
the government department, namely, National Centre for HIV and AIDS (NCASC). This paper is mainly based on the descriptive analysis in view of absolute dearth of required data for depth analysis of migration and the epidemic of HIV and AIDS.

Results and Discussion

Internal Migration

Migration in Nepal is not a new phenomenon. It has occurred throughout history. Early migration flows in Nepal were mainly from west to east along the hills. The attraction was the wet fertile lands in the eastern hills of the country (Subedi 1988; Gurung, 1989). Since the 1950s, the direction of the flow has changed and the dominant direction has remained towards southern part of Nepal, from highlands to the lowlands. In contrast to the direction (highlands-lowlands), the first time in Nepal in the 2011 census, migration direction changed from the lowlands to highlands (See Table 1).

Heavy rainfall together with flood in 1954 made the hilly people's lives extremely miserable. The natural calamities compelled the then Nepal Government think of resettlement programme with a view to migrate the hilly people into the lowlands. The heavy flood of 1954 also made the life difficult in the hills (Gurung, 1989). The then Government realized that it would be prudent to encourage the hill people to settle in other parts of the country, especially in the tarai region. The malaria infested tarai region seemed to be only the place to settle the hill people. In its first economic development plan of 1956-61, the Government launched a programme to eradicate malaria and settle the people in Chitwan, one of the inner tarai areas (Gurung 1989). The dense forests of the other tarai areas were also gradually cleared and combined with the malaria eradication program and the government settled the hill people there. Nepal has experienced an increasing volume of internal migration since the introduction of first development plan.

The direction of heavy migration flow had been from the hills and mountains to the tarai till the 2001 census and the 2011 census showed the reverse direction from the lowlands to the highlands. A visible reason behind the reverse direction of interregional migration may be disorder in the tarai region, however, further research is needed to investigate the main reasons of the reverse direction in contrast to the earlier flow of the highlands to the lowlands. Table 1 provides data on the volume and netmigration of inter-regional migration during the period 1971-2011. The number of the inter-regional migrants increased from 445,128 in 1971 to 2088,170 persons in 2011.

Diago of Origin	Place of D	estination		Tatal	Out-migration	Net-
Place of Origin	Mountain	Hill	Tarai	lotal	(%)	migration
				1971		
Mountain	-	15667	33990	49657	11.1	-39959
Hill	9258	-	376074	385332	86.6	-359966
Tarai	440	9699	-	10139	2.3	+399925
Total	9698	25366	410064	445128	100.0	
In-migration (%)	2.2	5.7	92.1	100.0		
				1981		
Mountain	-	134254	162832	297086	31.9	-261467
Hill	33423	-	561211	594634	64.0	-424711
Tarai	2196	35669	-	37865	4.1	+686178
Total	35619	169923	724043	929585	100.0	
In-migration (%)	3.8	18.3	77.9	100.0		
				1991		
Mountain	-	76,503	121,826	198,329	16.1	- 161655
Hill	32,003	-	895,888	927,891	75.5	- 753923
Tarai	4,671	97,465	-	102,136	8.3	+ 915578
Total	36,674	173,968	1,017,714	1,228,356	100.0	
In-migration (%)	3.0	14.2	82.9	100		
				2001		
Mountain	-	125,597	169,825	295,422	17.1	- 255103
Hill	33,896	-	1,157,035	1,190,930	68.9	- 830759
Tarai	6,424	234,574	-	240,998	14.0	+ 1085862
Total	40,319	360,171	1,326,860	1,727,350	100.0	
In-migration (%)	2.3	20.9	76.8	100.0		
				2011		
Mountain	-	37,672	7,497	45,169	2.2	+349132
Hill	213,714	-	375,101	588,815	28.2	+722456
Tarai	180,587	1273,599	-	1454,186	69.6	-1071588
Total	394,301	1311,271	382,598	2088,170	100.0	
In-migration (%)	18.9	62.8	18.3	100.0		

Table 1Inter-regional Migrants by Ecological Regions, 1971-2011

Note: Inter-zonal migration refers to migration occurring between ecological zones namely Mountain (16 districts), Hill (39 districts) and Tarai (20 districts).

Source: Respective Population Censuses

Note: - indicates number of persons migrated to the same region. International Migration

Observing the history of population movement in Nepal, the gradual increase in the population size in Nepal could be attributed to immigration from India, Tibet, China, and Mongolia (Subedi, 1988). The present ethnic groups located in the mountains and the hills indicate that the ancestors of many ethnic groups such as Magars, Gurungs, Tamangs and other Mongoloid groups came from Tibet, China and Mongolia, north of Nepal in different times in history (Table 2). Other ethnic groups like the Pahadi people, the high class Hindus as Brahman, Malla, and Shah pushed by a Muslim invasion in north India, entered western Nepal and moved towards the east along the hills (Subedi, 1988). Frequent invasions in the neighbouring countries have given rise to immigration and increased population size in the country. The people belonging to Kirats and Newars who were destined to Kathmandu Valley are still not clear of their place of origin (See Table 2). To some extent, emigration to Tibet and China from Nepal is also evident in the history of Nepal, particularly of Nepali professionals and artists. The spread of Buddhism in Tibet was associated with emigration from Nepal.

Table 2

Historic	Population	Movement	in	Nepal	with	Reference	to	Selected
Commu	nities and/or	[.] Ethnic Grou	ips					

	Immigration to	Nepal		
Communities or Ethnic	Approximate Period of	Place of Origin	Doctination	
Groups	Movement	Place of Origin	Destination	
First Settlers of			Kathmandu	
Kathmandu Vallev	1500 B.C 1000 B. C.	Tibet/China	Katimanaa	
Kirats and Newars ?			Valley	
Mongoloid People	7 th and 11 th Century	Mongolia	Mountains/Hills	
Sherpas	Around 1550	Mongolia		
Tibetans	1700s	Tibet	Central Hills	
Licchavis	2 nd Century	Vaisali (India)		
Pahadi People		Kumaon, Garhwal		
	1000 B. C. – A. D. 1850	() () () () () () () () () () () () () (Western Hills	
(Hill People)		(India)		
Llich Class Llisdus	11th and 12th Contum	Northwestern Hills	Western Hills	
High Class Hindus	11" and 12" Century	of India		

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Malla Group Shah Group	12 th Century 14 th Century	South India Chittor (India)	Kathmandu Valley Kathmandu Valley				
Emigration from Nepal							
Nepali Professionals	7 th Century	Kathmandu Valley	Lhasa (Tibet)				
Nepali Artists	13 th Century	Kathmandu Valley	Tibet and China				
Source: Subedi 1988, p. 33							

Since early 1950s, the Nepal China border became restricted with the requirement of visa for the people of the two countries to travel (Kansakar, 2003). As Nepal-India border is bounded by the plain area of the tarai in the south, travel between the two countries can be made easily from all directions and from almost all locations in the south. Historically Nepal-India border had and has remained as open and free border for both the people of Nepal and India. Table 3 presents number of absentee population from Nepal in the different censuses from 1952/54 to the latest census 2011. There is constant increase in the number of absentees from Nepal to other countries from the 1952/54 census to the 2011 census. The absentees from Nepal were 198,120 in 1952/54. This increased to 192,1429 in 2011. The overwhelming majority of absentees were males, more than 80 percent in each census.

Year	Male	Percent	Female	Percent	Total
1952/54	173,619	87.6	24,501	12.4	198,120
1981	328,448	81.5	74,529	18.5	402,977
1991	548,002	83.2	118,288	18.0	658,290
2001	679,489	89.2	82,712	10.9	762,181
2011	168,4029	87.6	237,400	12.4	192,1429*

Table 3

Absentee Population by Sex, Nepal, 1952/54 -2011

Source: Central Bureau of Statistics, 1987; Kansakar, 2003; and the respective censuses

Note: *the figure obtained reduced not stated figure of 65 absentees from Nepal.

Overwhelming majority of emigrants used to go to India till the 2001 census. In 1981, 93.1 percent of the total emigrants had gone to India (Table 4). In 1991, this proportion decreased to 89.2 percent although the absolute number increased. Although there seems further decrease in the

proportional share of emigrants in India, there is still evident that India has been as prime destination of Nepalese emigrants till 2001. Of all the emigrants, 77.3 percent were destined to India according to population census 2001. But the proportion of people migrating to India declined remarkably in the 2011 census (37.6 percent) though the absolute figure has been continually increasing in the latest census as well. The reason behind the sharp decline in the relative figure in emigrating towards India is the overwhelming majority of people who emigrate to other Asian countries, including more developed countries (i.e. Australia, New Zealand, United Kingdom, United States of America etc.) these days for better economic opportunities.

The net migrants at the international level seem negative sign indicating that there are more emigrants than immigrants in Nepal. This is important to note that the significant number of absentees are also moving to other countries. Therefore, this proportion of absentees has been decreasing towards India over the previous years. More importantly, this proportional decrease has taken place despite increase in the absolute number of Nepalese emigrants moving to India. This change is partly explained by increase in the number of people going to West Asia, i. e. Gulf countries, and other regions of the world, especially in United States of America, Canada, Australia and New Zealand.

Taking into consideration of past experiences, latest census, and the flow of people for contemporary foreign labor migration from Nepal shows the following general characteristics of migrants and migration regions. Largest proportion of labor migrants was destined to India as the 2001 census and the former censuses. This figure decreased to 37 percent in the 2011 census. High level of seasonality is apparent especially in agricultural work in India (Nepal, 2007). A significant number of migrants are destined to Saudi Arabia, Qatar, United Arab Emirates, Hong Kong, South Korea, Malaysia, Singapore, Brunei, and Japan. Migration largely takes place through the manpower companies and individual efforts. Emigrants moving to other countries except Asian countries are normally selective by higher education and class. They are often accompanied by their families. Their destinations are often United Kingdom, United States of America, Canada, New Zealand and Australia. Janapriya Journal of Interdsciplinary Studies, Vol. 5 (December 2016)

8,								
Description	19	81	19	91	20	01	201	.1
Emigrants	Total	Percent	Total	Percent	Total	Percent	Total	Percent
to India	375,196	93.1	587,243	89.2	589,050	77.3	722255	37.6
to Other	27,781	6.9	71.047	10.8	173.131	22.7	1178926	61.3
countries	_,,,,,,	010	,	2010	_/0/_0_		11/0010	01.0
Not stated	-		-		-	-	20312	1.1
Total	402,977	100	658,290	100.0	762,181	100.0	1921493	100.0
Immigrants	Total	Percent	Total	Percent	Total	Percent	Total	Percent
from India	222,278	95.0	418,982	95.3	583,600	96	449149	95.6
from Other Countries	11,761	5.0	20,506	4.7	24,492	4	20430	4.4
Total Immigrants	234039	100	439,488	100	608,092	100	469,579	100.0
Total Net Migrants	-168938		-218802		-154089		-1451,914	

Emigration, Immigration, and Net-migration of Nepal, 1981-2011

Source: Respective Population Censuses

HIV in Nepal

Table 4

The history of HIV in Nepal can be traced back to 1988. Since then, reported statistics show that the number of PLHIV has been increasing significantly, especially from 1996 (Joshi et al., 2004). As of July 2015, there were 26,702 reported cases across the country (National Centre for AIDS and STD [Sexually Transmitted Disease] Control, 2015). Among the total reported cases of PLHIV, there were 16,705 males, 9,938 females and 59 transgendered people. However, the estimated number of PLHIV across the country is considered to be nearly forty thousands in 2015 (National Centre for AIDS and STD Control, 2015). The difference in the figures of reported and estimated cases of HIV and AIDS is that a significant number of PLHIV conceal their HIV status in family and society (Beine, 2002; Neupane & Mishra, 2014). HIV prevalence in Nepal is a gendered phenomenon, with more than three-fifths of the total reported PLHIV being male. This is probably due to both the dominant volume of temporary labour male migration in the country and poor investigation of HIV and AIDS among females (National Centre for AIDS and STD Control, 2015; New Era, 2009). The epidemic of HIV and AIDS in Nepal is attributed mostly to heterosexual transmission, although there is also evidence of males having sex with

males (MSM) contributing to the epidemic (National Centre for AIDS and STD Control, 2013; Nepal, 2007). HIV is spreading rapidly, especially in the adult young age group and middle aged people 20-49 years, around 85 percent of the total reported cases. AIDS is now one of the major causes of death within this age group. In Nepal, as in most Asian countries, the epidemic of HIV and AIDS is centred around particular high-risk groups, seasonal labour migrants, sex workers and their partners, MSM and injecting drug users (Ministry of Health and Population, 2007; National Centre for AIDS and STD Control, 2015).

The cumulative HIV and AIDS cases from 1991 and onwards are given below (Table 5). By 1996, the proportion of males and females remained almost same though number of females living with HIV was somewhat higher compared with males. After 1996, the number of males with HIV/ AIDS increased tremendously, more than doubled in the survey years of 2001 and 2006. As of July 2015, among the people with cumulative HIV and AIDS reported cases, more than three-fifths of PLHIV are males, and 29 percent females. From 2001 onwards, relative figure of females living with HIV also increased remarkably and reached 37 percent among the total PLHIV. The reason behind this is more likely to happen that many females were HIV infected by their husband with family reunion, especially from those emigrants who were HIV infected in their abroad stay (Aryal, Tiwari, Thapa & Pandey, 2011). Migration, irrespective of internal and international migration, contributes to share of HIV cases in a greater extent than any other figures while grouping PLHIV into various categories including labour migration (National Centre for AIDS and STD Control, 2012).

Table 5
Distribution of Population Living with HIV/AIDS, Nepal, 1991-2015

Description	19	91	19	96	20	01	20	06	20	15
Gender	Number	Percent								
Male	17	45.9	236	49.2	1535	72.0	5431	70.9	16705	62.6
Female	20	54.1	244	50.8	596	28.0	2232	29.1	9938	37.2
Transgender	-		-		-		-		59	2.2
Total	37	100.0	480	100.0	2131	100.0	7663	100.0	26643	100.0
-		-				1				-

Source: Department of Health (DOH), 2004/2005, and National Centre for AIDS/STD Control, 2006 & 2015.

Table 6 shows that most of PLHIV, both males and females, were HIV infected

in the age group 20-39 years than any other age groups. It is well known that migration is selective process with age as it occurs mostly at young adult and middle 20-39 years aged people, even in Nepalese migration for both internal and international labor migration (New Era, 2009).

Condon	2006								
Genuer	Age Group	0-9	10-19	20-29	30-39	40-49	50+	Total	
Mala	Number	163	229	2219	2169	547	104	5431	
wale	Percent	3.0	4.2	40.9	39.9	10.1	1.9	100.0	
Famala	Number	95	220	1029	676	179	33	2232	
remale	Percent	4.3	9.9	46.1	30.3	8.0	1.5	100.0	
Tatal	Number	258	449	3248	2845	726	137	7663	
IOLAI	Percent	3.4	5.9	42.4	37.1	9.5	1.8	100.0	
	2015								
Gender	Age Group	0-9	10-19	20-29	30-39	40-49	50+	Total	
Malo	Number	930	627	4949	6583	2723	893	16705	
wale	Percent	5.6	3.8	29.6	39.4	16.3	5.3	100.0	
Fomalo	Number	608	596	3496	3507	1313	418	9938	
remale	Percent	6.1	6.0	35.2	35.3	13.2	4.2	100.0	
Third	Number	-	5	25	18	8	3	59	
Gender	Percent	-	8.4	42.3	30.5	13.6	5.1	100.0	
Total	Number	1538	1228	8470	10108	4044	1314	26702	
lotal	Percent	5.8	4.6	31.7	37.9	15.1	4.9	100.0	

Table 6 Cumulative HIV and AIDS Cases by Age Groups, 2006 and 2015

Conclusion

Nepal has been experiencing a continuous increase in the volumes of internal and international migration since the last fifty years. The analysis of international migration demonstrates that the number of emigrants is significantly larger than the immigrants. From the 1988 onwards, number of people living with HIV has been increasing tremendously, and this increase seems significantly higher in the recent years than in the past. Although this paper is not concentrated on the direct relationship between migration and the epidemic of HIV in Nepal due to an extreme dearth of data, it is clear that epidemic of HIV and AIDS is also increasing rapidly with an increasing volume of both internal and international migration in Nepal. As stated above in the analysis of this study, there is need for further research on investigating reasons behind the reverse direction of the lowland to the highlands so that issues of internal migrants can be addressed in time. Furthermore, it would be important to conduct research on patterns of internal and international migration as well as their relation on HIV and AIDS in Nepal at regional level. There is also an urgent need for research so as to get an in-depth understanding of the relation between migration and the epidemic of HIV and AIDS.

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General Article

Application of differential equation in L-R and C-R circuit analysis by classical method.

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Abstract

The paper deals with the analysis of L-R and C-R circuit by using linear differential equation of first order. A circuit containing an inductance L or a capacitor C and resistor R with current and voltage variable given by differential equation. The general solution of differential equation have two parts complementary function (C.F) and particular integral(P.I) in which C.F. represent transient response and P.I. represent steady response. The general solution of differential equation of differential equation steady response of network .In this connection, this paper includes L-R, C-R circuit and ordinary differential equation of first order and its solution,.

Key words: circuit analysis, classical method, L-R and C-R circuit, ordinary differential equation, ,.

Introduction

An equation which involves differential coefficient is called differential equation. A differential equation involving derivatives with respect to single independent variable is called ordinary differential equation and involving partial derivatives with respect to more than one independent variable is called partial differential equation. The inter-connection of simple electric device in which there is at least one closed path for current to flow is called electric circuit. The circuit is switch from one condition to another by change in the applied source or a change in the circuit elements there is a transition period during which the branch current and voltage changes from their former values to new ones. This period is called transient. After the transient has passed the circuit is said to be steady state. The linear differential equation that describes the circuit will have two parts to its solution the complementary function corresponds to the transient and the particular solution corresponds to steady state.

The *v-i* relation for an inductor or capacitor is a differential. A circuit containing an inductance L or a capacitor C and resistor R with current and voltage variable given by differential equation of the same form. It is a linear first order differential equation with constant coefficient when the value of R,L,C are constant. L and C are storage elements. Circuit has two storage elements like one L and one C are referred to as second order circuit.

Therefore, the series or parallel combination of R and L or R and C are first order circuit and RLC in series or parallel are second order circuit.

The circuit changes are assumed to occur at time t=0 and represented by a switch. The switch may be supposed to closed (on) and open (off) at t=0.

The order of differential equation represent derivatives involve and is equal to the number of energy storing elements and differential equation considered as ordinary. the differential equation that formed for transient analysis will be linear ordinary differential equation with constant coefficient.

The value of voltage and current during the transient period are known as transient response. The C.F. of differential equation represents the transient response.

The value of voltage and current after the transient has died out are known as steady state response. The P.I. of differential equation represents the steady state response. The complete or total response of network is the sum of the transient response and steady state response which is represented by general solution of differential equation.

The value of voltage and current that result from initial conditions when input function is zero are called zero input response. The value of voltage and current for the input function which is applied when all initial condition are zero called zero state response.

Table 1

S.No.	element	symbol	unit
1	charge	q	Coulomb
2	current	i	Ampere
3	resistance	R	Ohm
4	inductance	L	Henry
5	Capacitance	С	Farad
6	voltage	V	volt

Elements symbol and units of measurements

Data and Methods

The paper uses secondary sources and table where necessary. The published journal and books related to differential equation, circuit and systems mathematical physics and electrical engineering and electricity from various publishers are the secondary sources as indicated in reference section.

Results and Discussion

To study the transients and steady state in electric circuit, it is necessary to know the mathematical concept of differential equation and its solution by classical method. Janapriya Journal of Interdsciplinary Studies, Vol. 5 (December 2016)

First order homogenous differential equation.

$$\frac{dy(t)}{dt} + py(t) = 0$$
$$\Rightarrow \frac{dy(t)}{yt} = -pdt$$

Integrating, Iny(t)=-pt+Ink

$$\therefore y(t) = k e^{-pt}$$

First order non homogenous differential equation

$$\frac{dy(t)}{dt} + py(t) = Q$$

The equation is not altered by multiplying e^{pt}

$$e^{pt} \frac{dy(t)}{dt} + e^{pt} py(t) = e^{pt}Q$$
$$\Rightarrow \frac{d\left\{e^{pt} y(t)\right\}}{dt} = \int Q e^{pt} dt + k$$
$$\Rightarrow y(t) \cdot e^{pt} = \int Q e^{pt} dt + k$$
$$\Rightarrow y(t) \cdot e^{pt} = \int Q e^{pt} dt + ke^{-pt}$$

The first term of above solution is known as particular Integral and second is known as complementary function. Particular Integral does not contains any arbitrary constant and C.F. does not depend on the forcing function Q. If Q is constant. Then

Application of Differential

$$\Rightarrow y(t) = e^{-pt}Q\frac{e^{pt}}{p} + ke^{-pt}$$

$$\therefore y(t) = \frac{Q}{p} + ke^{-pt}$$

The formation of differential equation for an electric circuit depends upon the following laws.

i) i=
$$\frac{dq}{dt}$$

ii) Voltage drop across resistance (R) = Ri

iii) Voltage drop across inductance (L) = L $\frac{di}{dt}$

iv) Voltage drop across capacitance (C) =
$$\overline{c}$$

Kirchhoff's law: the algebraic sum of the voltage drop around any closed circuit is equal to resultant emf in the circuit.

q

Current law: at a junction current coming is equal to current going.

L-R series circuit: Ri+ $L \frac{di}{dt} = E \Rightarrow \frac{di}{dt} + \frac{R}{L} = \frac{E}{L}$

C-R series circuit: Ri+
$$\frac{q}{c} = E \Rightarrow \frac{dq}{dt} + \frac{q}{c} = E$$

L-R circuit analysis

The switch s is closed at time t=0. Find the current i(t) through the voltage across the resister and inductor.



Here, the voltage across resistance= Ri(t)

di(t)

Voltage drop across inductance= L dt

From Kirchhoff's law, L $\frac{di(t)}{dt} + Ri(t) = V$

$$\Rightarrow \frac{di(t)}{dt} + \frac{R}{L}i(t) = \frac{V}{L}$$

Which is first order linear differential equation.

$$e^{\int \frac{R}{L}dt} = e^{\frac{R}{L}t}$$
I.F=

eral solution is, i(t)
$$e^{\frac{R}{L}t} = \int \frac{V}{L} e^{\frac{R}{L}t} dt + k = \frac{V}{L} \cdot \frac{e^{\frac{R}{L}t}}{\frac{R}{L}} + k = \frac{V}{R} \cdot e^{\frac{R}{L}t} + k$$

Gen

Application of Differential

Since the inductor behaves as a open circuit.

$$\therefore i(0^+) = 0$$

from (1) $\therefore 0 = \frac{V}{R} + k \Rightarrow k = -\frac{V}{R}$
 $\therefore i(t) = \frac{V}{R} - \frac{V}{R} \cdot e^{-\frac{R}{L}t} = \frac{V}{R}(1 - e^{-\frac{R}{L}t})$

The voltage across the resistor and inductor are given as

$$V_{R}(t) = i(t).R \therefore i(t) = V(1 - e^{\frac{-R}{L}t})$$
$$V_{L}(t) = L\frac{di(t)}{dt} = L \cdot \frac{V}{R} \left[0 - (\frac{-R}{L})e^{\frac{-R}{L}t} \right]$$
$$\therefore V_{L}(t) = V \left[e^{\frac{-R}{L}t} \right]$$

$$\therefore V_L(t) = V, V_R(t) = 0$$
 At t=0, i(t)=0 and

At t=
$$\infty$$
, i(t)= $\frac{V}{R}$ and $\therefore V_L(t) = 0, V_R(t) = V$

$$\frac{L}{\text{At t}=R} = \tau \text{, i(t)} = \frac{V}{R} (1 - e^{-1}) = 0.632 \frac{V}{R} \text{ and}$$

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$$\therefore V_L(t) = Ve^{-1} = 0.368V, V_R(t) = 0.632V$$

 $\frac{L}{R} = \tau$ is known as the time constant of the circuit and is defined as the interval after which current or voltage changes 63.2 percent of its total change.

C-R circuit analysis

A condenser of capacity C farads with V_0 is discharged through a resistance R ohms. Show that if q coulomb is the charge on the condenser, i ampere the

current and V the voltage at time t, q=cV , V=Ri and $i = \frac{dq}{dt}$. Then V= $V_0 e^{\frac{1}{RC}}$



Here, the voltage across resistance=Ri

$$\frac{q}{C}$$

Voltage drop across capacitance= C

From krichhoff's law,
$$L \frac{di(t)}{dt} + Ri(t) = V \Rightarrow \frac{di(t)}{dt} + \frac{R}{L}i(t) = \frac{V}{L}$$

When after release of key the condenser gets discharged and at that time $V_0 = 0$. voltage across the battery gets zero. So

The differential equation of above circuit is $Ri + \frac{q}{C} = 0 \Longrightarrow R\frac{dq}{dt} + \frac{q}{c} = 0$

$$\Rightarrow \frac{dq}{dt} = -\frac{q}{Rc} \Rightarrow \frac{dq}{q} = -\frac{1}{Rc}dt$$

 $\log q = -\frac{1}{Rc}t + A$ (1)

But at t=0, the charge at condenser is q_0 . Therefore log $q_0 = A$

From (1)

$$\log q = -\frac{1}{Rc}t + \log q_0 \Rightarrow \frac{q}{q_0} = e^{-\frac{1}{Rc}t} \Rightarrow q = q_0 e^{-\frac{1}{Rc}t} \Rightarrow \frac{q}{c} = \frac{q_0}{c} e^{-\frac{1}{Rc}t}$$
$$\Rightarrow V = V_0 e^{-\frac{1}{Rc}t}$$

Conclusion

By using first order ordinary differential equation in L-R and C-R circuit we can find the current(i) and voltage (v) in the circuit when inductance (L) or capacitance(C) and resistance (R) are given.

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General Article

Ozone: A Pollutant and a Protector Gas

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Abstract

The natural balance of ozone in the stratosphere is due to continuous formation of ozone from oxygen and dissociation of it into oxygen in presence UV radiation. Amount of ozone can be determined by colorimetric method. It is poisonous gas near the earth surface in biosphere and protective shield in stratosphere. Depletion of ozone layer and formation of hole in it is due to reaction of CFCS, NO_x, OH, H₂O with ozone in stratosphere. Direct entrance of UV -B in the biosphere causes skin cancer, cataract, blindness, suppression of immune system degradation of plastics, reduction of food, vegetable & fish production and then alters the overall ecosystem. Protector ozone layer can be saved by replacing CFCS by HCFCS, by reducing supersonic flight & nuclear explosions, by refilling ozone in depleted area and by conducting public awareness about importance of ozone layer.

Keywords: Pollutants, stratosphere, CFCS, colorimeter, skin cancer.

Introduction

Ozone, the O_3 form of oxygen, is harmful for living beings in lower layer of atmosphere near the earth's surface (biosphere). It forms a distinct protective layer in the upper atmosphere. Most of the atmospheric ozone is found in stratosphere (11-50 km from earth surface) at altitude between 15 to 35 km. In this region its concentration is 10 ppm and near the ground surface it is found in trace amount and this blue pungent gas acts as highly pollutant. It forms only 10^{-5} % of the entire atmosphere. The highest concentration of ozone occurs at altitude from 26 to 28 km in the tropics and from 12 to 20 km towards the poles. O_3 concentration is more near the poles than at the equator & more abundant in winter than in summer. The ozone layer was discovered in 1913 by the French physicists Charles Fabry and Henri Buisson. The ozone layer has the capacity to absorb almost 97-99% of the harmful UV radiations that Sun emit and which can produce long term devastating effects on humans beings as well as plants and animals. In nature, there is a continuous formation of ozone from oxygen in presence of UV radiation through natural atmospheric process and they are also being destroyed naturally. UV radiation of shorter wave length coming from sun breaks oxygen molecule into oxygen atoms and these atomic oxygen combines with molecular oxygen to form ozone **(Ambasht, 2005)**.

Ozone is itself a very reactive and occasionally accepts atomic oxygen transforming both into molecular oxygen.

 $O_3 + O_2 = 2O_2$ UV radiation at wavelength longer than 242 nm can't be absorbed by O_2 it is absorbed by O_3 causing molecule to split into one atom & one molecule of oxygen.

$$O_3 + UV (I > 310 \text{ nm}) \longrightarrow O_2 + O$$
$$O_3 + O \longrightarrow O_2 + O_2$$

Hence, ozone is constantly created by solar radiation photolysis on earth's atmosphere & is constantly removed by reaction with UV radiation of longer wavelength. Ozone is easily destroyed by nitrogen, hydrogen and chlorine containing compounds (H_2O , NO, HO, CFCS) found in nature as well as released by various kinds of human activities.

Ozone layer in the stratosphere absorbs solar UV-B (280-320 nm) which is most harmful part of the ultraviolet. Ozone blanket totally absorbs highly harmful UV-B (280-320 nm), nearly totally absorbs harmful UV-C (200-280nm) and passes harmless longest wave length UV-A (320-400 nm). Thus it acts as protector gas for plants, animals by absorbing harmful UV radiation in stratosphere and as pollutant around the ground level (troposphere). Exposure of harmful UV-B radiation causes mutation, skin cancer, cataract, adverse effect on animals and plants.

Data and Methods

Ozone is a important reactive oxidant in air. Now a days, ozone in the atmosphere is recording by the satellite. Experimentally, it can be analyzed by physical as well as chemical methods. The average concentration in air is < 0.08 ppm. It can be determined by redox titration, coulometer, colorimeter (spectrophotometric method), UV absorption, 1R absorption & chemilumicence methods.

Theory

The simplest method involving iodine is colorimetry which involves liberation of iodine in following manner.

 $O_3 + 3KI + H_2O \longrightarrow KI_3 + 2KOH + O_2$

Materials: Equipments and reagents

- Absorbing solution: 1% KI+0.1M phosphate buffer (P^H=6.8)
- lodine stock solution 0.05N
- Working Solution: Diluted 5ml of 0.5 stock solution to 100 ml.
- Standard solution of iodine.
- SO2 absorber
- Chromic oxide as a scrubber during reaction.
- Spectrophotometer/colorimeter.

Method

A 10 ml of absorbing solution is put in the midget impinger. Air is passed at the flow rate of 0.5 - 3 L minute⁻¹ for 15 minutes. The total volume of air passed is measured. The temperature and pressure is also measured. The absorbing solution was transferred to 10 ml volumetric flask. The absorbance of colored solution was measured at 352 nm on spectrometer within 30 minutes. A standard calibration curve is prepared from stock solution of iodine.

Calculation

The corrected sample of volume of air of 760 mm & 25°C is $O_3 ppm = \frac{\mu L of O_8 from calibration curve}{\mu g of O_8 from calibration curve in litre}$ $O_3 mg m^{-3} = \frac{\pi S of Sample of air passed}{\pi S of sample of air passed}$ Janapriya Journal of Interdsciplinary Studies, Vol. 5 (December 2016)



Fig: Assembly for ozone analysis

Results and Discussion

Ozone as a pollutant In the troposphere at higher concentration, O_3 is toxic gases pollutant (If $O_3 > 0.1$ ppm or $0.002 \times 10^{-5} \mu\mu$ g m⁻³). It is formed by silent electric discharge in air or by the interaction of O_2 with UV rays or during welding or from high voltage electric discharge.

Its pollution causes in headache, irritation of eyes and respiratory tracts of human being, headache and coughing. Exposure of 50 ppm of O_3 for several hours will lead to mortality due to pulmonary Oedema (accumulation of liquid in the lungs). Young animals & human are more susceptible to these toxic effects than older subjects (**DE**, **2010**).

- O₃ pollution inhibits and reduces the enzymes activity. SH group on enzyme are oxidized by O₃.
- Ozone reacts with olefins to form pollutant chemical adehyde & free radical (Sindhu, 1998).

$$CH_{3}CH = CH_{2} + O_{3} \longrightarrow CH_{3}CHOO + HCHO$$

or $CH_{3}CHOO + HCOO$

- Dry eye disease is associated with higher ozone & lower humidity.
- Ozone acts as pollutant gas in biosphere. Its pollution causes foliar injury, damages plasma membranes, affect photosynthesis.
- In the USA, Ozone pollution is responsible for about 3 billion dollars annual loss in crop productivity (Mac Kenzie and El - Ashry, 1989).

Effect of ozone pollution on crop plants like soybean, wheat, cotton, maize, tobacco, potato tubers were studied with increasing O_3 concentration crop yield decreases.

Ozone as a protector gas

Ozone is constantly created by short wave length solar radiation photolysis of oxygen on stratosphere and formed a layer (blanket). This ozone layer absorbs harmful UV radiation coming from the Sun and protects the man, animals and plants in biosphere. In stratosphere about 90% of the total ozone is concentrated between 15 to 35 km zone. UV radiation is of smaller wavelengths than of visible light and range from 200 to 400 nm. The 200-280 nm range is called UV-C, 280–320nm is called UV-B and 320-400nm wavelength radiation is called UV-A. Among these, the most dangerous UV-B is strongly absorbed by ozone layer, UV-C is also absorbed by other atmospheric components and UV-A passes through ozone layer but reflected by oxygen and nitrogen back to the space. So, there is a natural mechanism of protection of biosphere against the hazards of UV rays.

Depletion of Ozone Layer

Protective ozone layer in the stratosphere is depleting day by day due to natural process and human activities. CCl_4 , CFC_5 , CH_4 , nitrogen oxides gases, hydroxyl free radical are mainly responsible for depletion of ozone layer.

I. Chlorofluorocarbons (CFCl₃, CF₂Cl₂, CF₃Cl etc. CHClF₂, CCl₂F –CClF₂, CClF₂–ClIF₂, CClF₂– CF₃, CF₂BrCl, CF₃Br, C₂F₄Br₂ etc.) are non-toxic, non-inflammable and stable low boiling, less viscous compound. These are used in refrigerators, air conditioners, spray cans, industrial solvents, fire fighting materials. In small amount these are also present in fast food packing materials, plastics, foams, sterilizing agents, cleaning agents, degreasing agents. These slowly move to the stratosphere by random diffusion and release chlorine in presence of UV radiation. This chlorine depletes ozone layer. One molecule of CFC is capable of destroying one lakh O₃ molecules in the stratosphere (**De, 2010**).

CFCl ₃ + UV	CI + CFCl ₂
CCI ₂ F ₂ + UV	$CI + CCIF_{2}$
$O_3 + CI$	$CIO + O_2$
$O_3 + CIO$	$20_{2} + C\overline{l}$
ClO + 0	$O_2 + Cl$

Similar catalytic action of breaking ozone into oxygen is also preferred by bromine. Region wise share consumption of CFCS in 1986 was 31% by USA and Canada, 30% by Western Europe, 14% by Eastern Europe, 12% by Japan, 1% by Australia and New Zeland while the rest of the world contributed 12%

II. N₂O produced by biological denitrification very slowly reaches the stratosphere where it gets oxidized into NO which catalyses ozone dissociation.

$N_2 O$	+	0	2NO
0 ₃	+	NO	$NO_2 + O_2$
NO ₂	+	0	$NO + O_2$

III. Oxides of nitrogen as exhaust of supersonic jet, automobiles, chimneys, nuclear explosion, lighting, volcano activities and present in free states in nature also deplete ozone layer.

N ₂	+	0,	2NO
NŌ	+	0_3	$NO_2 + O_2$
NO ₂	+	0	$NO + O_2$

IV. Hydroxyl free radical present in atmosphere & obtained by oxidation of CH₄ also catalyze usually above 40 km height.

+	0	CH ₃ + OH
+	ОН	$HO_2 + O_2$
+	0	OH + 02
	+ + +	+ 0 + 0H + 0

All these breaking down systems are end up in forming HCl & HNO₃

V. The presence of water vapor and species such as OH in the stratosphere lowers the amount of ozone.

O ₃ + OH	HO ₂ + O ₂
0 ₃ + OH	20 ₂ + H
H ₂ O+ UV	H + OH
H,0 + UV	H ₂ + O
$O_3 + HO_2$	$\bar{OH} + O_2 + O_2$

Hence, H₂O acts as pollutant in stratosphere.

Due to the reaction of CFCS, NO_x , CH_4 , OH with ozone in stratosphere ozone layer is going to depleting day by day. Ozone hole (depleted region) was first observed in October, 1980 by the NASA (National Auronautic & Space Administration). The overall reduction in ozone

layer is almost 8 percent. To save the ozone layer Kyoto protocol (1986), Mont real protocol (1987), London conference (1990), Bali (Indonesia 2008) summit etc. has been overcome.

On September 25, 2010, the average size of ozone hole was 22 million square Kilometers. The recorded size of hole in 2000 & 2006 was 29 million square kilometers, in 2015 (September- October) it was 25.6 million square kilometer as recorded by NASA & minimum concentration of ozone was 101 Dobson unit (DU). According to NASA atmospheric scientist Paul Newman, there are still plenty of ozone depleting chlorine and bromine compounds present in the stratosphere. Moreover, the lower atmosphere was colder than in previous years, which creates favourable conditions for ozone depleting chemical reactions.

Harmful effect of ozone hole formation

After ozone layer depletion and formation of ozone hole, the harmful UV ray (specially UV-B directly enters into the biosphere causes harmful effect on plants, animals and man.

- Direct exposure of UV-B radiation causes skin cancer (nonmelanoma skin cancer). On depleting the ozone layer by 1% skin cancer increases by 6%.
- UV-B damage to eyes particularly cataract and blindness (UNEP, 1993). 1% decreasing in ozone cataract & blindness patients increase by 100000 to 150,000. In cold region snow blindness is of course more due to UV-C radiation.
- UV-B exposure causes suppression of body's immune system which results vast variety of other infectious disease.
- Two thirds of about 300 crops tested species are found to be UV-B sensitive (UNEP, 1993). Pease, bean, melons, mustard & cabbage are most sensitive while the quality of varieties of potato, tomato, sugar beet and soybean are reduced. In most of the plants rate of photosynthesis decrease & then the biomass due to UV-B (Teramura et. al. 1991).
- In marine ecosystem, UV-B alters the food chain and ecosystem functions. Plankton, fish larva, Shrimps, phytoplankton are adversely affected by UV-B. CO₂ sink capacity decreases,

- UV-B exposure degrades the plastics used in construction.
- UV-B penetration causes global warming.

Protection of Ozone layer

Biosphere protecting ozone layer in the stratosphere can be saved from its depletion and exposure of harmful UV-B can be reduced by using proper precautions.

- By replacing CFCS by less harmful hydrochlorofluorocarbons (HCFCS) & methyl cyclohexane. In long term plan, ozone depleting substances must be completely phase out.
- By reducing the flight of high altitude supersonic jet and nuclear explosions which exhaust NO_v gases.
- By installing the solar powered Ozonator (matching to produce Ozone) in stratosphere by balloons to plug the ozone holes.
- By encouraging the development of products, technologies and initiatives that reap in co-benefits in climate change and energy efficiency.
- By improving the commercial refrigeration and by replacing halons in fire protection.
- By conducting the foster domestic and internal partnership to protect the ozone layer.
- By conducting the public awareness about ozone, ozone layer depletion and its harmful effect.

Conclusion

Ozone acts as pollutant in the biosphere and as protector gas in the stratosphere. Harmful UV-B entering through the depleted ozone layer (ozone hole) is damaging the health of mankind, reducing the food, vegetable & fish production, altering the ecosystem function & balance and causing huge monetary losses. From this realization, therefore, massive global efforts have to be initiated. The problem is global. Rich and poor men alike are being affected with least concern for geographical boundaries. Therefore, all nations have to join in the common endeavour of conservation of ozone and prevention of UV-B enhancement.

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General Article

Common Errors, Illusions and Myths in Statistical Procedures

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Abstract

Statistical Procedure is one of the prime components of research which facilitates to draw firm inference from sample information. Although it has various advantages and strengths, its application sometimes may be misleading because of its assumptions, illusions and complexities. There are many sources of errors that arise from the application of statistical procedures. For example; errors may arise from planning, preparation of research instruments, basic assumptions, application of different research approaches, common errors also occur while reporting the research outcomes and drawing conclusions. Therefore, a grater care is to be paid while applying statistical procedures.

Key Words: Errors, Illusions, myths and statistical procedure

Introduction

The Word statistics have been derived from Latin word "Status" or the Italian word "Statista", meaning of these words is "Political State" or a Government. Several sources document that the history of statistics goes back to mid-eighteen century. In that time, statistics was mainly concerned with the systematic collection of demographic and economic data by the states. The main purpose of such collection was related to either human and material resources that might be taxed or put to military use. But in the early 19th century, the collection of information was intensified and the meaning of the statistics broadened to the collection, summary and analysis of data. In modern terms, "statistics" means collection, presentation, analysis and interpretation of all types data. Now a days, statistics has become one of the important disciplines without which no research can be thought (Walker, 1975).

Although the origins of statistical theory lie in the 18th century advances in probability, the modern field of statistics only emerged in the late 19th and early 20th century in three stages. The first wave, at the turn of the century, was led by the work of Francis Galton and Karl Pearson, who transformed statistics into a rigorous mathematical discipline used for analysis, not just in science, but in industry and politics as well. The second wave of the 1910s and 20s was initiated by William Gosset, and reached its culmination in the insights of Ronald Fisher. This involved the development of better design of experiment models, hypothesis testing and techniques for use with small data samples. The final wave, which mainly saw the refinement and expansion of earlier developments, emerged from the collaborative work between Egon Pearson and Jerzy Neyman in the 1930s (Walker, 1975). Today, statistical methods are applied in all fields that involve decision making, for making accurate inferences from a collected body of data and for making decisions in the face of uncertainty based on statistical methodology.

There are several statistical procedures that are equally applicable in all areas of research (natural sciences, social sciences, management sciences, health sciences, educational research and other behavioral sciences). Although some statistical computations are harder to understand by general readers, the development of computer software have facilitated to compute the different measures easily. Electronic computers have expedited more elaborate statistical computation even as they have facilitated the collection and aggregation of data. A single data analyst may have available a set of data-files with millions of records, each with dozens or hundreds of separate measurements (Anders, 1998 & de Moivre, 1738). It is obvious that statistics has becoming one of the prime tools for conducting research in any areas but a great attention is to be paid while using statistical techniques due to their limitations, complexities and illusions.

Sources of Errors

Majority of errors in statistics occur due to human activities (inability to plan appropriately). For example, preparation, measuring instruments, experiments, surveys, determination of sample size (power and significance

level), missing cases, non response, sampling from the right population etc may play a vital in the reliability and validity of statistical procedures.

In general, the researcher uses hypothesis testing, estimation and model building for decision making process. For the centuries, researcher have been using sample or samples to a larger incompletely examined population to draw the conclusion for the parameters (Berger and Berry, 1988). But less attention is paid in assumptions, nature of data and the applicability of such statistical procedures in the proposed study. There are numerous sources of error in applying statistical procedures such as;

- A. Using the same set of data to formulate hypotheses and to test them
- B. Selecting samples from wrong population or failing to specify the population about which conclusions are to be made in advance.
- C. Measuring the wrong variables or failing to measure whatever the researcher expect to measure.
- D. Not able to draw random and representative samples.
- E. Using inappropriate and inefficient statistical models and
- F. Failing to validate the proposed models.

Errors due to Fundamental Assumptions

Majority of the statistical procedures rely on two fundamental assumptions: that the observations are independent to each other and that they are identically distributed (iid) and the normality of population from which the sampling is done. If methods of collection fail to fulfill these assumptions, then analysis automatically fails to draw firm conclusions also.

Common Myths in Data Analysis

- A. We think, complex analysis and big words impress people. However, most people appreciate practical and understandable analyses.
- B. We assume that analysis comes at the end after all the data are collected. But We should think about analysis upfront so that we HAVE the data we WANT to analyze.
- C. We believe that quantitative analysis is the most accurate type of data analysis. Some think numbers are more accurate than words but it is the quality of the analysis process that matters.
- D. We say that data have their own meaning. However, data must be

interpreted. Numbers do not speak for themselves.

- E. We consider that stating limitations to the analysis weakens the evaluation. But all analyses have weaknesses; it is more honest and responsible to acknowledge them.
- F. We feel that computer analysis is always easier and better. However, data analysis depends upon the size of the data set and personal competencies. For small sets of information, hand tabulation may be more efficient.
- G. A common and regrettable fallacy is that the maximum likelihood estimator has many desirable properties that it is unbiased and minimizes the mean-squared error. But this is true only for the maximum likelihood estimator of the mean of a normal distribution.

Common Errors in Reporting the Results

In report writing, the researcher should also pay a greater attention about what to report and how to report. Reportable elements include the experimental design and its objectives its analysis, sources of data and missing data.

A special care is also to be given while presenting the data in the form of frequency distribution (table) and diagram. Table must be enough to display information on title, margins and appropriate units. A less attention is paid during the construction of diagram and the diagram is generally constructed according to comfort, easiness and appearance. But the researcher should able to choose an appropriate diagram according to nature of data because the diagram and graph must be able to show the salient features and should reveal data properties and make large quantity of information coherent. Graphical illustrations should be simple and pleasing to the eye, but the presentation must remain scientific.

In choosing between tabular and graphical presentations, there are two issues to consider: the size (density) of the resulting graphic and the scale of the information. If the required number of rows for a tabular presentation would require more than one page, the graphical representation is preferred. Usually, if the amount of information is small, the table is preferred. If the scale of the information makes it difficult to discern otherwise significant differences, a graphical presentation is better (Good and Hardin, 2003). One of the worst errors in statistics—one encouraged, if not insisted upon by the editors of journals in the biological and social sciences—is the use of the notation "mean ± standard error" to report the results of a set of observations. This expression is only applicable (reliable) when the sample comes from normal population. However, this expression may be misleading when the sample comes from non normal population.

Another important error that occurs in reporting the results of p values. Before interpreting and commenting on p values, it's well to remember that in contrast to the significance level, the p value is a random variable that varies from sample to sample. There may be highly significant differences between two populations and yet the samples taken from those populations and the resulting p value may not reveal that difference. Consequently, it is not appropriate for us to compare the p values from two distinct experiments, or from tests on two variables measured in the same experiment, and declare that one is more significant than the other.

If P value is misleading, then confidence interval can be used for interpreting the results.

A common error is to misinterpret the confidence interval as a statement about the unknown parameter. It is not true that the probability that a parameter is included in a 95% confidence interval is 95%. What is true is that if we derive a large number of 95% confidence intervals, we can expect the true value of the parameter to be included in the computed intervals 95% of the time (Duggan and Dean 1968; Gardner and Altman, 1996).

Confidence intervals can be used both to evaluate and to report on the precision of estimates and the significance of hypothesis tests. The probability the interval covers the true value of the parameter of interest and the method used to derive the interval must also be reported (Feinstein,1998).

Errors also occur due to the allocation of treatments. Allocation details (randomization, advance preparation of the allocation sequence, allocation concealment, fixed versus varying allocation proportions, restricted randomization) should be fully explained in report.

Missing data has also significant impact on quality of research outcomes. The researcher must mention such exceptions in detail. The missing data includes; participant do not participate in interview, ineligibles, withdrawals and crossovers etc.

The next serious errors that arise from bias at the different stage of the study. Bias arises from sponsors, researcher, co-researchers, enumerators and respondents. With careful and prolonged planning, we may reduce or eliminate many potential sources of bias, but seldom we will be able to eliminate all of them. Most biases occur during data collection, often as a result of taking observations from an unrepresentative subset of the population rather than from the population as a whole (Badrick and Flatman, 1999).

Many researcher feel proud of using regression models in their study but less attention is paid on several dimensions model building such as; assumptions, adequacy of data, data set that covers entire range of interest, coefficient of determination, overall fit of model, significance of parameter and applicability of the model. There are at least five serious complications while fitting model:

Limited scope—the model we develop may be applicable for only a portion of the range of each variable.

Ambiguous form of the relationship—a variable may give rise to a statistically significant linear regression without the underlying relationship being a straight line.

Confounding—undefined confounding variables may create the illusion of a relationship or may mask an existing one.

Assumptions—the assumptions underlying the statistical procedures we use may not be satisfied.

Inadequacy—goodness of fit is not the same as prediction.

Regression models can be less successful for biological and social science applications. Before undertaking a univariate regression, researcher should have a fairly clear idea of the mechanistic nature of the relationship Look for deviations from the model particularly at the extremes of the variable range. A plot of the residuals can be helpful in this regard.

Illusions in Approaches

Since a long period of time, there is a contest between qualitative and quantitative research. One of the hot methodological debates in organizational and social sciences involves the relative merit of qualitative versus quantitative research. Supporters of qualitative research make strong claims about the strengths of their approach, including greater ecological validity, richer and more descriptive accounts of real-world events, and greater ability to uncover processes and mechanisms in natural settings (Maxwell, 2004). However, the quantitative research camp lament the advantages of their approach, discussing strengths such as precision of measurement, experimental control, and generalizability. Some of the beliefs associated with qualitative research are: qualitative research does not utilize the scientific methods; qualitative research lacks methodological rigor (qualitative research lacks internal validity; qualitative research lacks construct validity), qualitative research contributes little to the advancement of knowledge (Lance and Vandenberg, 2009).

Although different in focus, emphasis, and form, both approaches are striving toward a common objective—the advancement of scientific knowledge. Qualitative inquiry is an essential step in the process of initial discovery, just as quantitative research is necessary to confirm or disconfirm specific relationships among variables nested within a broader system.

Conclusion

The analyses clearly reveal that no statistical procedure becomes cent percent correct due to its assumption, limitations and coverage. We should pay a greater attention to minimize various errors from the very beginning of study (starting from planning to report writing and drawing the conclusion). Every scholar should be able to understand the basic principle underlying to each statistical procedure before use.
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Guidelines to the contributors

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Title should be brief clear, concise and informative. Do not include the authority for taxonomic names in the title. The first letter of the first word in the title is capitalized. All the other words, expect for proper nouns, are lower case. The author/s' name and present affiliation and e-mail address should appear just below the title.

Abstract

Body of manuscripts should be preceded by an abstract with the maximum length of 200-250 words for full-length article. It should be clear, concise and complete in its own limits providing a brief summary of the research including the objective, method, results and major conclusions. Do not include literature, citations in the abstract.

Key words: Five to eight key words should be provided at the bottom of the abstract arranged alphabetically.

Main context

Main texts should be organized under the following headings:

Introduction should describe significance of the paper beginning with a paragraph of explanation that describes the problem under investigation (e.g. existing knowledge and gap) leading to the main research objective and questions.

Data and Methods section should provide sufficient information so that the research can be repeated in future. Therefore, a clear description of procedures should include: Study area and time, nature and source of data, research design, data collection methods and data analysis procedure.

Results and Discussion generally should be stated concisely and clearly in descriptive, tabular and graphical forms. This section should address the

objective of specific objectives systematically. Discussion should provide: interpretation of the results without recapitulation them, comparison of the results and impact of the results on existing knowledge of the subject.

Conclusion should clearly point out the main finding, which must be justified by the analysis of data. Preconceived ideas should not override the results and conclusions.

Acknowledgment: Should be short and specific providing information about various supports (eg funding, supervision, field assistance) received for research.

References: JJIS follows American Psychological Association (APA)format for tables, figures and references, therefore contributors are requested to prepare their manuscript strictly based on the latest version of APA format. Some examples of referencing styles have been presented as follows; *Examples:*

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Tables-Tables with title on the top should appear on suitable place on the text, numbered consecutively. Each table should have an explanation and its contents must appear in the text.

Italics-italic scientific names and symbols, names of journal and books.

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