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EDITORIAL

Southwestern Research Journal (SRJ) is a maiden attempt of publishing research articles by scholars of various disciplines within a same volume proudly affiliated with Southwestern State College. This journal is dedicated to the dissemination of cutting-edge research articles from diverse academic disciplines. We are elated to present the inaugural issue of the *SRJ*, made possible through the unwavering support of esteemed research scholars, the dedicated *SRJ* team, and the prestigious Southwestern State College.

In the dynamic landscape of today's world, the relentless pursuit of knowledge and solutions to intricate challenges necessitates robust collaboration across academic domains. Conventional demarcations that once compartmentalized distinct fields of study are gradually dissipating, ushering in a new era of interdisciplinary exploration. In the face of 21st century challenges, there is an urgent imperative for a multidisciplinary journal that can serve as a vibrant forum for scholars and practitioners to engage in the exchange of ideas, nurture innovative thinking, and confront multifaceted issues requiring holistic solutions. Within this editorial discourse, we underscore the profound significance of interdisciplinary research and ardently advocate for the establishment of a dedicated journal to fortify and advance this burgeoning intellectual frontier.

The time has arrived to wholeheartedly embrace the transformative potential of interdisciplinary research. The inception of a multidisciplinary journal represents a momentous stride towards cultivating collaboration, catalyzing innovative problem-solving, and confronting the intricate dilemmas of our age. By dismantling the barriers of disciplinary confines and championing the exchange of knowledge, we unveil the latent capabilities of interdisciplinary research. Through such visionary initiatives, we can chart a course towards a more interconnected, sustainable, and inclusive future. Let us fervently champion the creation of a multidisciplinary journal and embark on an expedition of discovery that transcends the constraints of individual academic realms. This endeavor enriches our collective knowledge and empowers us to address the world's most pressing challenges with renewed vitality and ingenuity.

We anticipate the continuation of this noble endeavor and humbly seek the support and engagement of readers from across the globe.

Editorial Board

RISKS AND IMPACTS OF LABOR INFLUX IN ROAD CONSTRUCTION IN NEPAL: STUDY FROM HUMAN SECURITY PERSPECTIVE

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ABSTRACT

This study attempts to explore the impacts of labour influx related to road construction in Nepal with particular attention to the local community. The study is based on consultation and focus group discussions with laborers and people living in local communities that hosted the project and additional key informant interviews with road project staffs, local leaders of major political parties, schoolteachers, local service providers such as police officers, medical workers, and others. The study concludes that influx of laborers have both positive and negative impacts on local community. Adequate monitoring and adaptive management of likely adverse impacts from labor influx are keys to properly addressing them and mitigating risks. This study identifies the way forward and instruments to prepare and implement in reducing labor influx for preventing the threats of human security of local community along the road alignment.

KEYWORDS

Community, Construction, Impact, Influx, Labor, Policy, Roads

INTRODUCTION

Many development projects often involve construction of civil works for which the required labor force and associated goods and services cannot be fully supplied locally

for a number of reasons, among them worker unavailability and lack of technical skills and capacity (OPCS, 2016). In such cases, the labor force (total or partial) needs to be brought in from outside the project area. In many cases, this influx is compounded by an influx of other people (“followers”) who follow the incoming workforce with the aim of selling them goods and services, or in pursuit of job or business opportunities. The rapid migration to and settlement of workers and followers in the project area is called labor influx, and under certain conditions, it can affect project areas negatively in terms of public infrastructure, utilities, housing, sustainable resource management and social dynamics. All over the world, construction of infrastructure such as highways and bridges is a key step toward development and poverty reduction (Machado, 2019). To build these projects, large numbers of male workers come into small and isolated communities for extended stays. This influx can bring many benefits for the local people. They may sell food to the workers, rent them houses, and in some cases join their ranks as paid employees at the construction sites. Local people may learn new languages, acquire new technical skills, and gain from exposure to ideas and cultures that they have not encountered before. However, the new comers can also bring a host of social problems; many of them are harmful to local people and the community. Long-standing community institutions and power balances can come under strain from the sudden presence of large numbers of men who are living without families, knowledge and their hosts’ customs and history and constraints by local norms. In recent years, governments and international development agencies have become increasingly aware of these harmful side effects of project labor influx and have begun working to address them. Initiatives include creation of mechanisms to allow local people to file complaints; strengthening of law enforcement; creation of gender-representative committees in communities hosting the projects; fostering of collaboration between local people and campsite managers and workers; and development of worker codes of conduct. Though interventions are becoming more common, understanding of how pre-existing social issues, institutions, and cultural norms shape their impacts has remained limited. Unless based on a firm grasp of these complex dynamics, programs may seem effective in theory but do poorly on the ground (WB, 2017). This study attempts to heighten understanding through a deep examination of project-affected communities along the Nagdhunga-Naubise-Mugling (NNM) that will host road workers, with particular attention to the impacts of labor influx on local people and the community.

This study was carried out to assist the implementing agency (DoR) and relevant stakeholders in establishing an approach to identifying risks to and impacts on local communities associated with the temporary influx of labor that typically results from upgrading of NNM road to Asian Highway Standard, and to advising accordingly on how to best manage such risks. The study focuses on the assessment and management of social and environmental risks and impacts, both anticipated and unanticipated, from the influx of labor into the local community along the road alignment. It summarizes key types of potential adverse impacts, and describes some potential measures to manage (e.g., avoid, minimize, mitigate, monitor) these impacts while protecting the local

community from the likely threats of human security.

Nagdhunga-Naubise-Mugling (NNM) Road

Road network is the principal means of transport in Nepal. It carries about 90 percent of the passengers and freight traffic. At present, the total length of primary and secondary road network in Nepal, comprising National Highways, Feeder Roads, Postal Roads and Mid-Hill Roads is about 12,680 km. National Highways and Feeder Roads, because of their importance, are grouped as 'Strategic Roads' and fall under the jurisdiction of Department of Roads (DOR), Government of Nepal. For the area and the population of the country, the existing road network length amounts to road densities of 8.49 km per 100 km² areas and 0.47 km per 1,000 populations. These figures are much lower than the figures of neighboring countries like India, Bangladesh and Pakistan. Out of the existing 12,680 km. road network, about 51.7 percent is Black Topped Road (BTR), while about 13.7 percent is Gravel Road (GR) and the remaining about 34.6 percent length is Earthen Road (ER) (DoR, 2020). The distribution of road length and pavement type for the different categories of roads is given in Table below.

Table 1

Road Length and Pavement Type

Road Classification	Road Length (km)			Total Length (km)
	BTR	GR	ER	
National Highways	3101.6	83.1	275.6	3460.2
Feeder Roads (Major)	2869.7	1094.9	2736.5	6701.1
Feeder Roads (Minor)	195.0	94.0	369.9	658.9
Mid-Hill Road	79.00	91.00	862.00	1032.00
Postal Roads	123.7	372.5	145.5	641.7
Urban Road	182.8	2.5	1.0	186.3
Grand Total	6551.8	1738.0	4390.4	12,680.2

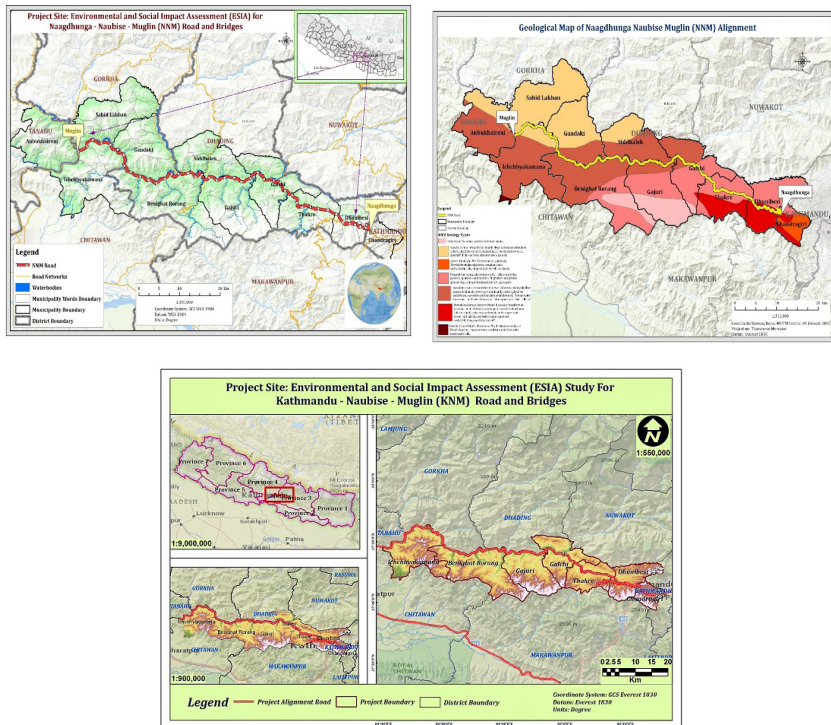
(Source: Statistics of Strategic Road Network, 2014)

NNM Road is as an important trade and transit route for linking Kathmandu Valley with Terai region and India. Almost all goods and passengers coming from India and other parts of country come through this road. There are other roads as well linking Terai and Kathmandu valley, but they do not fulfill the required standards in terms of horizontal curvature, vertical gradient, carriageway width, safety measures and other technical parameters for smooth and safe movement of commercial vehicles. NNM road is a part of Asian Highway (AH-42) and is the most important road corridor in Nepal. The road section from Mugling to Kathmandu lies on geologically difficult and fragile hilly and mountainous terrain. Since the average daily traffic in this route is comparatively very high, the present road condition and available facilities are not sufficient to provide the efficient services. The project road starts at outskirts of Kathmandu City at a place called Nagdhunga and passes through Sisnekhola,

Khanikhola, Naubise, Dharke, Gulchchi, Malekku, Benighat, Kurintar, Manakamana and ends at Mugling Town. The section of project road from Nagdhunga to Naubise (12.4 Km length) is part of Tribhuwan Rajpath (TRP) and the section from Naubise to Mugling (82.4 Km length) is part of Prithvi Rajmarg (PRM). Thus, the total length of project road along existing alignment is 94.8 Km.

The Department of Roads (DoR) is preparing to upgrade the 96-km Naubise-Mugling section of the Prithvi Highway, one of Nepal’s busiest highways and the Kathmandu Valley’s key supply line. The route is being widened to four lanes from two, and construction is slated to start in the next fiscal year, 2024. The DoR has prepared a detailed project report (DPR) for the scheme which is expected to cost \$3 billion. The World Bank is being considered as a potential financier (Subedi, 2018 Mar 2). The proposed project seeks to address poor transport connectivity and trade facilitation—two notable reasons for Nepal’s low competitiveness, a key factor limiting its growth—through increasing efficiency in movement of people and goods within and across the borders to enhance access to markets and opportunities and trade competitiveness. The NNM Road starts in Kathmandu district and ends in Chitwan district passing through populated areas, terraces, undulating cultivated lands and hilly and mountainous areas with many unstable slopes and active landslides. Majority of the land use in the NNM Road is cultivated lands, followed by forests, settlement areas and water bodies. There are no protected areas or national parks along NNM Road (Figure 1).

Figure 1
Study Area



This project will employ direct, contracted and primary supply workers. During construction, there will be potential issues of labor influx, health and safety impacts and gender-based violence (GBV) in relation to all roads; traffic safety risk will be particularly high along the NNM road, which is the main road to Kathmandu. However, if the project is able to manage these risks to a satisfactory level, it is envisaged to be instrumental in producing a number of positive impacts on the local, regional and national economy with increased regional trade between Nepal and India.

Study Area and Samples

The project area covers Kathmandu, Dhading and Chitwan districts. Dhading is adjoining district of Kathmandu and likewise Dhading is adjoining district to Chitwan. The project area is mostly located in hill area. The study was carried out at major settlements starting from Nagdhunga to ending Mugling along the road alignment. These settlements mainly include: Khanikhola, Naubise, Dharke, Mahadevbesi, Galchi, Gajuri, Baireni, Majhimatar, Malekhu, Benighat, Charaudi, Kurintar, Ramailo Danda, and Mugling. Naubise, Dharke, Mahadevbesi, Baireni, Gajuri, Malekhu, Benighat, Charaudi, Kurintar and Mugling. Thirty-seven community consultation meetings, 15 focus group discussions and 50 key informant interviews were undertaken.

Method

For the study purposes, qualitative data were collected from the major settlements as described in preceding section. Qualitative methods allow for understanding nuances and details of complex social phenomena from the points of view of those who experience them. Although findings cannot be generalized for the entire population, they reveal multiple layers of meaning for a particular group of people, which is important when studying human behavior, beliefs, attitudes, and perceptions. This research aimed at assessing the possible risks and impacts of temporary influx of workers or laborers induced by upgrading or improving the NNM road of Nepal focusing on the rights of host local community. The necessary data were collected from the field assessment. The methods employed for field data collection included community consultation, focus group discussions and key informant interviews with road project staffs, local leaders of major political parties, school teachers, local service providers such as police officers, medical workers, project affected HHs, representatives of from vulnerable and indigenous communities. The data collection was followed by data analysis and validation of findings.

RESULTS AND DISCUSSIONS

Human security is the peoples' physical safety, their economic and social well-being, respect for their dignity and worth as human beings, and the protection of their human rights and fundamental freedoms. Threats to human security may include crime; human trafficking; instability and contagion in financial markets; labour market insecurities and threats to job security; spread of diseases; and conflicts. From this perspective, human security requires a strategy for better social protection including

construction of the road project. Immigration of people from other areas and influx of workers are inevitable during the time of construction of any project. The upgrading and improvement of any highways or roads require numbers of workforce (skilled, semi-skilled and unskilled laborers) most of which may be migrant workers. The regular influx of migrant laborers may have both positive and negative impacts.

Positive Impacts

The improvement of NNM road and regular influx of laborers may have positive impact on economic benefits of the local communities owing to increased access to markets; higher income due to short-term employment by road contractors; and scale up of businesses through sales of extra goods and services by local businesses to road worker and firms and housing rentals to laborers in the host communities. Improvement of the road may include compensation at replacement cost paid to people displaced and improvement or at least restoration of standards of living or livelihoods. For the longer term, it may give them easier transport, better access to health care and education, and an improved sense of security due to increased traffic flow and policing. Many contractors do not provide housing for their workers, so that local people can raise their incomes by renting accommodations to workers.

The local host communities will also be benefited through improved sense of security due to increased policing and improved access to health and education services along the road alignment. The influx of outside laborers is likely to increase exposure to new cultures and languages, introduce to urban lifestyle, and increase earning through socializing with people outside the community and forming new friendships. Through interactions with the outside workers, community members could learn new languages, cultures, and behaviors, all of which they perceived as a kind of modernization and expansion of their worldviews. Women are envisaged to be more benefited by likely change in household dynamics, as increased income can make it easier for women to leave abusive relationships. There will be acquisition of new skills and cultural exchange at local communities along the road alignment. Workers often coming from cities and bringing with them, for example, new ways of speaking and dressing, which locals sometimes will adopt may foster the socialization process. In addition, workers sometimes will teach local people, the new skills such as operating machinery and driving.

The formation of friendships and relationships will be important in shaping positive perceptions of labor influx. This can happen as workers will rent houses in local villages and befriended their neighbors. They will also interact with community members in public spaces such as markets, sports fields, and bars where men meet for drinks and conversation. Through these interactions, the newcomers may be acquainted with local community members and sometimes may use their knowledge and resources to support community members in their daily struggles. Some women may also find lasting relationships and marriages with incoming workers for improving their life situations.

Negative Impacts

Labor influx for construction works can lead to a variety of adverse social and environmental risks and impacts. While many of these impacts could have been present already or might occur regardless of the labor influx, they are likely to be exacerbated by it. The actual type and degree of impact varies significantly depending on the characteristics of the project, community and incoming workforce.

Social Risks and Impacts

Social impacts are critical to address, as even a substantial labor influx already may lead to negative impacts on the host community. Pre-existing social issues in the host community can easily be exacerbated by the influx of labor. There is potential risk of social unrest and conflict due to increased presence of migrant population in the construction sites causing threats to human security at the local community. Conflicts may arise between the local community and the construction workers, which may be related to religious, cultural or ethnic differences (Migrant workers may have social, racial and religious conflict with the local community), or based on competition for local resources. Tensions may also arise between different groups within the labor force, and pre-existing conflicts in the local community may be exacerbated. Ethnic and regional conflicts may be aggravated if workers from one group are moving into the territory of the other. Another important likely risk and impact of influx of outside laborers is increased level of sales and usage of beverage (alcohols) in the construction and campsites which may create many social problems and threats to human security. The construction work should provide an incentive to the local community. This may be done through the creation of direct and indirect economic opportunities for the local community. The influx of outside workers in construction sites are likely to create disputes, conflicts, public oppositions, instable social interruptions, and even fierce social confrontation while bypassing and ignoring from access to job opportunities to them.

The influx of workers and service providers into communities may increase the rate of crimes and/or a perception of insecurity by the local community. Such illicit behavior or crimes can include theft, physical assaults, substance abuse, prostitution and human trafficking. Local law enforcement may not be sufficiently equipped to deal with the temporary increase in local population. Due to regular influx of outside laborers, the risks of betrayal, deceit, and crimes like killing, attempt for rape, illegal birthing of child and others are envisaged to be substantial thereby creating threats to human security at the host community. There are likely chances of disintegration of families due to interaction of locals with the outside workers insuspicion of family members. There is likely to increase the hidden flesh trade (prostitution) in the slums and nearby clusters as a profession. Workers tend to leave their wives behind and as a result may be tempted to engage in sexual relationships with women and young girls. In addition, prostitutes may also be attracted to the area due to the presence of workers, possessing a lot of money. The risks of human trafficking especially of women, young girls and children

and gender based violence (GBV) are envisaged to be higher due to regular influx of strangers, outsider workers and others thereby creating threats to human security at the host community along NNM road alignment.

Depending on the number of incoming workers and their engagement with the host community, the composition of the local community, and with it the community dynamics, may change significantly thereby causing threats to human security at the local community. The influx of outside workers from diverse culture and places may adversely impact the local homogenous society's traditions and way of life. Pre-existing social conflict may intensify because of such changes. The presence of construction workers and service providers (and in some cases family members of either or both) can generate additional demand for the provision of public services, such as water, electricity, medical services, transport, education and social services. This is particularly the case when the influx of workers is not accommodated by additional or separate supply systems. The influx of people may bring communicable diseases to the project area, including sexually transmitted diseases (STDs), or the incoming workers may be exposed to diseases to which they have low resistance. This can result in an additional burden on local health resources. Workers with health concerns relating to substance abuse, mental issues or STDs may not wish to visit the project's medical facility and instead go anonymously to local medical providers, thereby placing further stress on local resources. Local health and rescue facilities may also be overwhelmed and/or ill equipped to address the industrial accidents that can occur in a large construction site.

Construction workers are predominantly younger males. Those who are away from home on the construction job are typically separated from their family and act outside their normal sphere of social control. This can lead to inappropriate and criminal behavior, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community. A large influx of male labor may also lead to an increase in exploitative sexual relationships and human trafficking whereby women and girls are forced into sex work. Increased opportunities for the host community to sell goods and services to the incoming workers can lead to child labor to produce and deliver these goods and services, which in turn can lead to enhanced school dropout. A significant increase in demand for goods and services due to labor influx may lead to local price hikes and/or crowding out of community consumers. The rise in normal prices of daily goods and commodities will adversely affect the local community, as they will be unable to afford for purchasing these expensive goods and commodities at the local markets. There may be increased pressure on accommodations and rents in and around the construction sites. Depending on project workers' income and form of accommodation provided, there may be increased demand for accommodations, which again may lead to price hikes and crowding out of local residents. Delivery of supplies for construction workers and the transportation of workers can lead to an increase in traffic, rise in accidents, as well as additional burden on the transportation infrastructure. The environmental impacts listed below are more likely to be of relevance for NNM project that require a larger labor force for upgrading

and improvement.

Environmental Risks and Impacts

Large populations of workers generate increased amounts of waste, for which no sufficient local waste management capacities may exist, which would likely lead to improper disposal practices. Project-related activities, along with workers' camps, and a lack of appropriate wastewater discharges may pollute nearby water resources. Major health risks can occur if latrine pits spill over into local streams that are used for drinking water by the host community. The establishment of campsites and construction of roads toward them may create many risks and problems such as noise and light pollutions and others. Poor sanitation practice of the outside workforce in camps and construction sites is also likely to generate pollution issues thereby increasing waste and sewage generation and creating community health and safety risks in and around the campsites. The inadequate and illegal waste disposal and increased wastewater discharges in and around the campsites may also cause many environmental and health related problems at local levels. Open defecation (OD) is one of the risks in construction and labor campsites. Due to the dumping of garbage, rubbish materials and solid wastes, the environment is likely to deteriorate at the local community.

The provision of clean drinking water and water for hygiene purposes can result in increased pressure on freshwater resources in the project or campsite area. In ecologically sensitive areas, workers' camps can have impacts on the local wildlife. This may include disturbance of species, as well as illegal hunting. In the same context, new access routes for workers' camps may have impacts on natural habitats. There may be increased depletion and degradation of locally available natural resources like land, forest, water bodies and others due to presence of outside laborers resulting over exploitation, use of/demand for natural resources at local levels. For instance, the outside laborers in the campsite may create pressure on deforestation of the jungle. This will certainly create risk and adverse impact on the local ecology and environment causing various environmental and health related problems. These can result from forest or land conversion for worker housing and workers' agricultural subsistence activities.

Increased use of / demand for natural resources is envisaged to be higher due to regular influx of outside laborers. This can include logging for construction, fuel wood collection, use of water resources, farming and grazing, hunting and fishing, trade in endangered species, potential introduction of invasive or non-native species, and land degradation. The construction phase of the project may also result in the in-migration of general population seeking to take advantage of the economic and development opportunities created in the area, or worker families that relocate to the project area. This in turn can result in adverse impacts on the host communities in the area thereby increasing competition for the direct and indirect economic opportunities created due to the project and increasing pressure on and competition for resources and infrastructure in the area. The take-over of land for camp use and access roads, and noise and lighting those are likely to affect local environment and wildlife. The local public lands may be

used in establishing campsites for laborers. The access roads will also be constructed from the road head to the campsites.

The previously mentioned likely social and environmental risks and impacts identified under NNM road can be rated as substantial and low in construction and operational phases respectively. Such adverse impacts are usually amplified by local-level low capacity to manage and absorb the incoming labor force, and specifically when civil works are carried out in, or near, vulnerable communities and in other high-risk situations causing threats to human security at the local community level. While many of these potential impacts have been identified in the project's Environmental and Social Impact Assessment (ESIA), they may only become fully known once a contractor is appointed and decides on sourcing the required labor force. This means that not all specific risks and impacts can be fully assessed prior to project implementation, and others may emerge as the project progresses. Thus, measures defined in the project Environmental and Social Management Plan (ESMP) to address such problems sometimes may be insufficient. It is therefore important to develop site-specific measures before the contractor starts work, and update them as necessary to reflect project development. Overall, adequate monitoring and adaptive management of the potential impacts from labor influx are keys to properly addressing them and mitigating risks.

Foreseeing and Mitigating the Possible Disaster

The number of deaths from landslides in Nepal has been increasing dramatically due to a complex combination of earthquake, climate change, and explosion of informal road construction that destabilize slopes during rainy season. This trend is likely to increase as the enhancement of road construction, especially China's Belt and Road initiative seeking to construct three major trunk roads through Nepali Himalaya from which adjacent communities get benefited being linked to the poorly constructed road. To determine the effect of these informal roads on generating landslides, better to compare the distance between roads and landslides triggered by earthquake of 2015 especially in Gorkha. The area was badly impacted by landslide in the monsoon that year. The unsystematic and unplanned construction roads crumbled, and if the spatial correlation is strong enough to further imply causation.

The incessant rainfall during monsoon accumulates debris and water on the road that reduces the durability of it. We find that in addition to a concentration of landscapes with more alluvial and agriculturally viable soil that rainfall-triggered landslides are more likely to occur within 100m of a road than the landslides generated by earthquake. The steep land, poor water drainage and debris management are the major causes for the road damage, especially during heavy monsoon rain. Based on these findings, geoscientists, planners, and policy makers need to deplore how road development affects the physical, socio-political and economic factors that increases risk in exposed communities, alongside, ecologically and financially for the sustainable solution.

CONCLUSIONS

The influx of laborers while upgrading and improvement of NNM project will have both positive and negative impacts on the local community. The major positive effects of labor influx may include: economic benefits (increased access to markets, higher income due to short-term employment by road contractors and sales of extra goods and services by local businesses to road workers and firms-scale up of businesses); increased access to basic services (improved sense of security due to increased policing and improved access to health and education services); benefits at the community level (increased mobility, safety model of transport, exposure to new cultures and languages, introduction to urban lifestyles, learning through socializing with people outside the community and forming new friendships); benefits at the household level (increased family income, and change in HH dynamics); and benefits at the individual level (acquisition of new skills and cultural exchange, finding a partner and lasting relationship, for women employment by the project, greater independence and confidence). While the adverse impacts on the host community that can result from temporary labor influx, it is important to recognize that appropriately managed labor influx can provide potential benefits for the community which can be developed for the project and which will serve the community beyond the project duration.

Labor influx for construction works can lead to a variety of adverse social and environmental risks and impacts on local communities. The common categories of social risk associated with labor influx included risk of social conflict; increased risk of illicit behavior and crime; influx of additional population; impacts on community dynamics; increased burden on and competition for public service provision; increased demand and competition for local social services, as well as for goods and services, which can lead to price hikes and crowding out of local consumers; increased risk of communicable diseases and burden on local health services; gender based violence (GBV); child labor and school dropout; local inflation of prices; increased pressure on accommodation and rents; increased in traffic and related accidents and so forth. Likewise, the environmental risks and impacts of labor influx included increased demands on the ecosystem and natural resources; increased demand for fresh water resources; camp related land use, access road, noise and light pollution; increased level of deforestation, ecosystem degradation, and species loss; inadequate waste disposal and illegal waste disposal sites; wastewater discharges.

Such adverse impacts are usually amplified by local-level low capacity to manage and absorb the incoming labor force, and specifically when civil works are carried out in, or near, vulnerable communities and in other high-risk situations. The adverse impact of labor influx in NNM road is rated as substantial and low in construction and operation phases respectively. Adequate monitoring and adaptive management of such likely impacts from labor influx are keys to properly addressing them and mitigating risks. To this end, it is inevitable to reduce labor influx by tapping into the local workforce; assess and manage labor influx risks based on appropriate instruments

depending on the risks identified in the ESIA and incorporate social and environmental mitigation measures into the civil works contract. It is recommendable to prepare and implement Influx Management Plan (IMP), Labor and Recruitment Plan (L&RP) and Code and Conduct for Workers.

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INDIGENOUS KNOWLEDGE ON HEALTH AND USE OF HERBAL PLANTS AS DOMESTIC : A CASE STUDY OF ILLITERATE AN INDIGENOUS CASTE 'BANKARIYA'

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ABSTRACT

This study has aim to explore the indigenous knowledge of Bankariyas on health and herbal use practice as domestic cure along with socio-cultural characteristics. Nepal, however, is known economically poor but richer in natural resources like herbal plants. Before emerging of advanced technology of medical science in Nepal, almost Nepalese people were under treatment with medicinal plants. Such domestic treatment is continued since an immense time and still in rural areas but in recent days, practice of herbal use and treatment are going to be displaced, and medicinal plants are in high risk of vanishing due to increasing urbanization, human residence, over harvesting, deforestation etc. Bankariyas are found socially, economically, and academically very poor and back ward as people of Stone Age and still believed in shamanism, god and ghost. If someone becomes sick, they do not take patient to hospital without consultation their traditional healer or shaman's incantation. Shamans are consulate to find the sickness that what happened with sick. Because, healer keeps knowledge that what happened with sick, what kind of treatment is necessary and what herbs work for what disease and incident. According to situation shaman starts treatment either incanting with esoteric words praying deity/god or herbal treatment. Therefore, they found having sound knowledge of traditional healing. At present, such amazing treatment practice has been going to be vanishing. Hence, to keep it alive this study was conducted based on census survey to obtain socioeconomic data as quantitative and healers were consulted as homeopathic doctor as qualitative research design.

KEYWORDS

'Bankariya', Indigenous knowledge, Herbal Plants

INTRODUCTION

Nepal is richer in natural resources like medicinal plants and indigenous knowledge of herbal use and practice as domestic cure but due to weak mechanism and inaccessibility of advanced technology the state is getting failure, which needs protection of these sources and the practices of herbal treatment. In another hand, Banakriyas, who are still in Stone Ages, is one of the 59 indigenous nationalities according to NFDIN Act 2058, recently categorized under Chepang nationality (NFDIN Act 2067), living in Musedhap forest of Handikhola VDC of Makwanpur from around 100 years. Economically very poor, literally back warded, socially excluded and dominated, politically ignored but traditionally very rich in indigenous knowledge, skills, and cultural norms and values this caste's ancestor was used to live in west-northern rocky hills of Makawanpur for more than 300 years (District Profile, 2058).

According to the study of 2008 the number of Bankariyas was only 60 (Moktan, 2008:23), whereas study of 2005 had shown 62 (Moktan, 2005:47), and the article published in Kantipur daily (2057 BS), has mentioned that they were 78 in number that decreasing every year is nearly extinct stage. According to 2058 census, they were 71 in number. However, the number has decreased to 62 in the year of 2061BS (2005 AD), when a research was conducted. If the population of Bankariyas is analysis properly, it has been found that instead of increment, the population has being lessened. The number of Bankariyas was only 60 when the research was conducted in 2008 are shown below in detail. The recent studies have claimed that the ancestors of Bankariyas were used to live in the west- northern rocky hills named of Khairang and Raksirang of Makawanpur for more than 300 years.

The study area of this research was Musedhap of Hadikhola VDC where Bankariyas are recently residing after getting from the government in lease basis for 50 years. This VDC is one of the 43 VDCs of Makwanpur of central development region located in the lap of *Chure* range and bordered with dense forest of Parsha District in south, Manahari market on its west, Padampokhari village on its east and Basamadi village on its north which is linked with east-west highway.

METHODOLOGY

Because of having very few numbers of the target group, census methodology was applied to collect socioeconomic data as a quantitative research and in-depth as well as face-to-face interview were conducted as a qualitative research. Field observation and semi-structured questions were applied to obtain qualitative data from healers as well as herbal expertise to collect treatment information as a homeopathic doctor. Primary sources were given priority and secondary sources were also collected to support the study. Plants were identified during the field study; unidentified plants were brought to the Botany Department, TU, Kirtipur and identified by using appropriate identifying key. Local name of herbal plants has been obtained from Bankariya healers with its photograph and verified with botanical scientific name in Botany Department at TU,

Kirtiput. The disease treated by each medicinal plant has also been explored and the functions of each part of plant been assessed which are alphabetically listed in result section as provided by expertise.

RESULT AND DISCUSSION

Bankariyas, amid the enormous progress of 21th century, they are still living in a hunting and gathering mode of ancient, primitive and uncivilized life. Their energetic days are being spent simply for collecting wild roots and fruits such as Gittha, Bhyakur, Chuiya, Bharlang and hunting birds and wild animals. After getting little land from Nepal government to settle down they have started to produce crops in their land, even still facing the great problem of starvation, have very interesting legend about their ancestral origin.

ANCESTRAL LEGEND

Bankariyas beliefs that they are descendant of God Ram, and in another hand, they claimed themselves to have originated from rocky hill, which is very similar to legend of Chepang. According to them “Long ago, in those heavenly days, a servant dog of God Ram urinated on a stone while assisting in hunting in the forest. The urine was mixed up with sacred semen and right after it touched the stone of rock have a miracle happened. A human was emerged out of the rock. A man who grew up in rocks was the ancestors of Bankariya. Even, Chepang also claim same story. Similarly, another Bankariya narrated that once, a virgin maid gave birth to a child. However, it was not a sinful foil deed, however, she was disappointed and she placed the baby under a big rock with the intention of killing. However, the baby escaped and survived as a fortunate child. The child grew up among rocks and was the first ancestor of Bankariya, whereas, Adhikari (1977) has mentioned the story of virgin maid who gave birth to a child and placed under a rock to kill was the ancestor of Chepang. In fact, Chepang word too sounds like ‘Chepinu’ (being pressed under two objects) as Chepang’s local language. Therefore, it is told that Chepang name given to the child even he survived after being pressed under the rocks. Their emotional attachment with the rock and cave, these days seems to have some relation with this narration due to almost of them still live in rocky hills.

Another myth related to Bankariyas’ historic past narrates the story of Sita (a lady character of Ramayan) and Balmiki. According to respondent Goddess Sita gave birth to a baby named Lava and was upbringing under the protection of Balmiki, the Sage, in his hermit cottage. One day she encounters with monkeys and was spellbound to see a baby monkey playing with its mother. Therefore, she was too interested to play accordingly with her baby and rushed to the cottage. She took her baby out of cradle, unnoticed to Balmiki. On his arrival, Balmiki was afraid not to see Lava in the cradle. Therefore, because of fear being cursed by Sita, he immediately created an identical baby out of Kush (a kind of sacred grass) to place in the place of Lava. Sita was surprised to see another baby similar to the first one in cradle when she back. At the same time, Balmiki

assured Sita by telling everything to accept him as her own son. Later both Lava and Kush moved to different location and named Lalahari for Lava and Kushhari for Kush. In present days, the Bankariya claim to be the descendent of Lalahari whereas Chepang also claim the same (Moktan. 2008). Gurung (1989) has mentioned the same story for the Chepang in his research that Chepangs are the descendent of God Ram due to Lava was the son of Rama. Bankariya respondent informed that Kusunda are the descendent of Kushhari.

Gurung (1995) further adds that Chyobang can be divided in to two sub words as **Chyo** means rock and **Bang** means top of a hill in their mother language. Therefore, Chyobangs are people living at the top of rocky hills and later Chyobang gradually being pronounced as Chepang, which '**Che**' means dog and '**Pang**' means arrow. It proves that they were called Chepang because they hunt with dog as a helper and arrow as a weapon, but legend of nomenclature of Bankariya is different. According to socialized, socially reputed and well known people of society 'A man who does not want raising cattle, neither work in the field as a farmer and lives in forest freely as chimpanzee is categorized as laziest animal is called Bankar (monkey) in pure Nepalese language, who depend on wild products; and there is no difference between Banker (monkey), and lazy guys of a certain group of people (it might be one of the group of Chepang), who lived in forest by depending on wild fruits and roots might have called in a bitter word Bankar (monkey) that became later Bankariya (Moktan, 2008).

At present, Bankariya are considered that they are not other than an isolated generation of Chepang because a small group of Chepang about hundred years ago either willingly or forcibly migrated to another place and finally they were identified as Bankariya residing in periphery of Chure forest of Handikhola VDC since 80 years. There is nothing distinct differences between Chepang and Bankariya such as religious functions like worshiping of god and pray to deity; performance of traditional feast and gathering, socio-cultural norms and values like purifying of mother after giving a new offspring, feeding ceremony, system of head shaving, wedding system, kinship practice and culture of death rites, indigenous skills and knowledge, body structure, dressing culture, ancestral history, pronunciation of mother tongue, lingual tone and collective behavior and even the surname of them. Surname of Bankariya found in research area were only three like Bangrange, Rupakote, and Broso, which are very similar to Chepang such as Bangrange, Rupakote, and Broso. Additional surname of Chepang was Kalikote, Porjal, Gowamati, Thami, Purwange, Roma, Chitravansi, Sitagotra, Sunapraja, Banskore, Jongronge, Kangila, Pano-rana, Sugi-rana Baspe-rana, Kanse-rana etc. Bankariya youth either male or female can marry with youth of Chepang and Chepang youth can marry with the youth of Bankariya.

Raksirang, Khairang, Kankada and Dandakhark are the primitive habitats of their historical past. The researcher has come to this historical finding after a long

approach and discussion with Aita Ram, the eldest Bankariya. His grandfather had told him about the origin of his ancestors that they must have been living there for years until his grandfather immigrated to *Sarikhet*. According to him, they came there via Bharta VDC around 150 years ago and later on, his father was born in Kuwapani of Sarikhet VDC in the eastern top of Chunling River. Finally, he came wandering down to Sannanitar of east - west Highway. Therefore, all these stories about Aita Ram's forefathers are informative enough to explore their origin. To sum up, they have reached to their present location in Chure range wandering through Kankada, Raksirang, Sarikhet, Kuwapani and Sananitar.

The recent households' survey shows the number of the Bankariyas to be only 60. Many efforts have been made to set up them as social being by District Development Committee. The committee has been supporting them economically since 2057. As a result, some of Bankariya are sending their offspring to school these days. This shows their newborn interest on social improvement. A woman group was formed in Baishakh 2061 BS after the endeavor of National Indigenous Women's Forum, a partner NGO with National Foundation for Development of Indigenous Nationalities working for providing support to their entire development. The aim was to protect this indigenous ethnic people and make them aware on issues such as ethnic empowerment. The forum made them participate in a workshop held in Kathmandu for their development and conservation, too. Age-wise distribution is given below in detail (Table 1).

Table 1
Age-wise distribution of Bankariyas

SN	Age Group	Male (%)	Female (%)	Total (%)
1	Less than 4 years	4 (17%)	9 (25%)	13 (22%)
2	5-14 years	4 (17%)	11 (31%)	15 (25%)
3	15-24 years	6(25%)	5 (14%)	11 (18%)
4	25-34 years	2 (8%)	3 (8%)	5 (8%)
5	35-44 years	2 (8%)	1 (3%)	3 (5%)
6	45-54 years	3 (12.5%)	3 (8%)	6 (10%)
7	55-64 years	0 (0%)	1 (3%)	1 (2%)
8	65 and above	3 (12.5%)	3 (8%)	6 (10%)
9	Total	24 (33.33%)	36 (66.67%)	60 (100%)

(Source: Field survey, 2008)

Similarly, academically they are almost illiterate. Very few numbers of them are literate. None of them were passed secondary school which is tabulated below.

Table 2

Educational attainment of Bankariyas

S N	Level of Education	Male (%)	Female (%)	Total (%)
1	Illiterate	10 (42%)	15(42%)	25 (42%)
2	Literate	2 (8%)	3 (8%)	5 (12%)
3	Primary Level	7 (29%)	9 (25%)	16 (27%)
4	Lower Secondary Level	1 (4%)	0 (0%)	1 (17%)
5	Secondary Level	No	No	No
6	Children under 5 years	4 (17%)	9 (25%)	13 (22%)
7	Total	24 (40%)	36 (60%)	60 (100%)

(Source: Field survey, 2008)

Above-mentioned table has clearly shown that 42% of Bankariyas are illiterate, 22% children are under 5, and 39% are literate (27% kids of primary level, 12% literate.

After getting a plot of little land (6 hector/households) from the governments they have started to produce crops as their subsistence means, but due to lack of fertilizer and the means to plough the land crops were not sufficiently produced as they hoped. In another hand, they were strictly prohibited to enter the forest which is conserved by Parsa Wildlife Conservation in which they used to collect the wild fruits, roots and shoots, and collected raw materials like wild bamboo and so forth to make the baskets and many other objects for selling and making cash. These days they are involving in farming but due to low production they are facing great starvation. The table presented below could clear the situation of food distribution for the whole year.

Table 3

Educational attainment of Bankariyas

S.N.	Distribution of food supply	Number of Households
1	Up to 3 months	2 (17%)
2	Up to 6 months	7 (58%)
3	Up to 9 months	2 (17%)
4	For the whole year	1(8%)
7	Total	12 (100%)

(Source: Field survey, 2008)

This Table 3 has shown the real situation of poor Bankariyas that 92% people are found to be victim of starvation. Here, some of the residential huts of respondents and their skills are presented below (Figure 1, 2, 3, 4, 5).

Figure 1

Residential settlement of Bankariyas on the top of hill



Figure 2

Data collectors in residential hut of Bankariya



Figure 3
Residential home of Bankariya



Figure 4
Bankariya women with dresses in home



Figure 5

Traditional skills; weaving the bamboo basket in home



The local name with scientific name of medicinal plants along with its functions as domestic cure as provided by Bankariya expertise are alphabetically listed below in descending order.

Results

Name of Plants	Parts use	Treatment Doses	Diseases
Local Name: Abhijalo (<i>Drymaris cordata</i>)	Leaf	Instilled latex or dry powder of leaves	Colds, Sinusitis
	Barks	Bark juice with Pudina mixture to be taken	Vomiting, Giddying,
	Stems/ Roots	Powder with water/milk to be taken	Diarrhea, Dysentery
Local Name: Aduwa (<i>Zingiber officinale</i>)	Fruits	Fried in fire to be chewed	Common, Colds, Laryngitis
Local Name: Ambak/Amba (<i>Podium guava</i>)	Fruits/ Barks	To be taken juice/extract with water	Diarrhea, Dysentery

Local Name: Aiselu (<i>Robus ellipticus</i>)	Fruits/ Roots	To be taken juice with water/milk	Diarrhea, Dysentery
Local Name: Akashebeli (<i>Cuscuta reflexa</i>)	Leaf/ Barks	Juice to be taken 3 times daily 15 days	Jaundice
	Stems/ Roots	Latex to be applied on navel 15 days	Jaundice
Local Name: Amala (<i>Emblica officinale</i>)	Leaf/ Fruits,	Crushed juice or powder to be taken	High fever, Vomiting
	Roots/ Stems	Juice or powder to be taken once daily	Indigested Blood purify
Local Name: Amliso (<i>Garsinia pedunculata</i>)	Roots	Powder with sugar to be taken with water/milk	Intestinal parasites
Local Name: Ankh (<i>Calitropic gigeanea</i>)	Roots/ Stems and Barks	Powder with Mustard oil should be applied	Pimple, Leprosy, Swelling parts
	Leaf	Juice with hot milk/water	Laryngitis
Local Name: Aru (<i>Prumus persica</i>)	Leaf	Apply the latex of Crushed leaf on wound	Ringworm, Insecticide
Local Name: Asuro (<i>Usticia adhatoda</i>)	Leaf/ Barks	Instilled the crushed juice	Sinusitis, Colds
	Roots/ Stems	Powder to be taken orally	Diarrhea, Pyorrhea
Local Name: Babari (<i>Ocimum basilicum</i>)	Leaf/ Stems and Flower	Instilled or Inhale the crushed juice	Sinusitis, Common colds, Indigestion
Local Name: Banmara (<i>Eupatorium adinophorum</i>)	Leaf/ flowers	Instilled or Inhale the crushed juice daily	Sinusitis, Colds, Cough
	Roots	Powder with honey/water	Diarrhea
Local Name: Barhmase Phool	Leaf/ Stems	To be chewed	Diabetes

Local Name: Barro (Terminilia belerica)	fruits	Fried in fire to be chewed	Gastritis, Indigestive, Abdominal swelling
Local Name: Batulipat (Staphania hernandifotia)	Leaf, Stems and Flower	Instilled/Inhale the juice	Sinusitis, Indigestion
Local Name: Batulijhar (Elephantopus scaber)	Leaf/ Stems	Inhale the juice	Colds, Sinusitis
	Roots/ Barks	To be taken juice	Intestinal parasitic
Local Name: Bel (Pyrus pashia)	Fruits	To be taken extract	Diarrhea
Local Name: Besar (Tutmeric)	Fruits	To be taken powder with honey 2/3 times	Diarrhea, Dysentery
Local Name: Bhuinchampa (Memilotinia suaveo)	Leaf/ Stems, Roots	To be applied the powder as bandage	Bone fracture
Local Name: Bojo (Acorus calamus)	Root / Stems,	To be chewed (No side effect).	Gastritis,Cough, Asthma
Local Name: Chari Amilo (Oxalis corniculata L.)	Leaf/ Stems,	To be taken juice	Indigestion
	Roots	To be apply crushed juice	Scabies, itching,
Local Name: Chiraito (Swertia chirata)	Roots/ Stems	To be taken powder/latex with water	Diabetes, headache,
	Roots	To be apply crushed juice	Scabies, itching,
	Fruits	To be chewed or to be taken juice	Diarrhea, Dysentery
Local Name: Chiurie (Bassia butirecea)	Leaf/ Roots and Fruits	Powder / juice to be taken with water thrice daily	High fever, Typhoid

Local Name: Datiwan (<i>Achyraidhus bidetacty</i>)	Stem/ Roots	Powder / juice to be taken with water thrice daily	Bleeding from gum, urine burning,
Local Name: Dhangero (<i>Woodfordia fruticesa</i>)	Flowers	To be taken juice with milk/water	Diarrhea, Dysentery
Local Name: Dhusre (<i>Colebrookea oppositifolia</i>)	Leaf	Inhaled/instill the latex of crushed leaf	Sinusitis, Common colds, Nasal bleeding
Local Name: Darshan Pipal(<i>Xanthosoma sagittifolium</i>)	Leaf/ Roots, and Barks	Paste to be applied on biting place daily	Snake biting, Scorpion biting
Local Name: Dhaturo (<i>Datura sremonium</i>)	Fruits/ Roots	To be applied powder with cow's milk, butter on biting area	Dog biting,
Local Name: Gahatejhar (<i>Calopogonium mucukoides</i>)	Leaf/ Roots and Stems	Powder / juice to be taken with water 3 times daily	Headache, body ache, Cut injury/wound
Local Name: Gaujo (<i>Tinosporia cordifolia</i>)	Leaf/ Roots and Stems	Powder / latex to be applied	Skin disease like ring worm, scabies, itching
Name: Ghiukumari (<i>Aloevera</i>)	Leaf	Latex/juice to be applied on concerned part	Burning wound
Name: Gurans (<i>Rhododendrom sp</i>)	Flowers	To be taken juice/powder with water/milk	Diarrhea, Dysentery
Local Name: Ghodtapre (<i>Cantelia asiatica</i>)	Fruits/ Stems	To be taken juice/powder with milk/honey	Asthma
Local Name: Gurjo (<i>Tinosporia cordifolia</i>)	Roots/ Stems and Leaves	Juice/latex with milk / water to be taken	High fever

Local Name: Hadebadam (Prunus anydgmium)	Fruits	Latex with juice of lemon to be applied	Cracked skin and Lips
Local Name: Hadjor(Viacum erticuletum)	Leaf/ Roots and Stems	Powder to be applied with Hing (Asafoetida)	Paralysis
Local Name: Harchul (Vacuum erticulet)	Roots/ Stems	Latex to be applied on fractured area as plaster	Bone fracture
Local Name: Harro (Terminalia chebula)	Fruits	Powder to be taken with honey or milk	Chronic Asthma
Local Name: Hattipaile (Ajunger lobata)	Leaf/ Roots and Fruits	Powder / juice to be taken with water 3 times daily	Diarrhea, Dysentery
Local Name: Indrakamal (Gardenia jasminoides)	Flower/ Leaf and Stems	Juice to be taken with milk/water	Common colds, Tooth ache, Insomnia
Local Name: Jamuna (Eugenia jamboline)	Seeds/ Barks	To be taken Powder/latex with water/milk	Diabetes
Local Name: Jharmoura (Not available)	Roots/ Leaf, and Stem	Juice to be taken with milk/water	Common colds, Tooth ache, Insomnia
Local Name: Kadam (Anthocephalus indictus)	Fruits	To be taken juice with sugar candy and garlic	Constipation
Local Name: Kafal (Myrice esculenta)	Barks	To be snuff the powder	Chronic sinusitis
Local Name: Kagati (Citrus limon)	Fruits	To be taken juice with garlic and black salt	Diarrhea, Dysentery
Local Name: Kalonigro (Dryoamarium boryanum)	Roots and Leaf	Juice to be taken with milk and sugar	Abdominal pain, Intestinal worms

Local Name: Khayar (Acacia catechu)	Barks	To be taken Latex/powder with honey	Chest/joint pain
	Barks	Applied/massage the latex on injury part	Fractured, Injured part
Local Name: Kimbu (Ficus hispida)	Barks/ Fruits	To be chewed or taken juice with water	Increase appetite
Local Name: Kurilo (Asparagus racemosus)	Roots and Fruits	To be taken latex or powder with water/milk	Increase the milk of cattle or mother
Local Name: Kyamuna (Engonia oparculata)	Bark/ Fruits	To be chewed or taken juice with Sancho jhar	Chronic sinusitis
Local Name: Lahure jhar (Hedyotes scanlens)	Whole parts	To be taken juice with water/honey/milk 10 days	Typhoid, High fever
Local Name: Lazzabanti (Mimosa pudica)	Whole parts	To be taken juice or apply latex with honey/milk	Toothache, Scorpion sting, Warts
Local Name: Mehandi (Lawsoniainermis)	Leaf	To be applied latex on hair	Making hair smooth
	Roots	To be applied latex on body	Skin disease, shores
Local Name: Mulapate (Rephanus sativum)	Leaf	To be taken juice with water/milk	Fever, Headache
	Roots	To be applied latex concerned part	Paralysis
Local Name: Neem (Azidirachta indica)	Leaf/ Fruits and Stems	To be taken juice/latex	Blood purification, Pressure control
Local Name: Pakhanbed (Barganie ligwata)	Fruits	To be taken juice/extract with water/milk	Diarrhea, Dysentery

Local Name: Parijat (<i>Nyctanthes Arbotritis</i>)	Leaf/ Roots and Flowers	To be taken juice/ powder of leaves	Cough, Diarrhea, Fever, Abdominal swelling
Local Name: Painyu (<i>Prunus carassides</i>)	Fruits/ Barks	To be taken juice with water/milk	Diarrhea, Dysentery
Local Name: Pirrey (<i>Cymbopogon citrate</i>)	Leaf/ Stems	Latex to be applied daily	Ring worm
Local Name: Phulijhar (<i>Melochia corchorifolia</i>)	Leaf/ Roots and Flowers	To be applied latex/ powder on wound	Insecticide of cattle wound
Local Name: Punrarva(<i>Boerhavia diffusa</i>)	Stems/ Leaf and Roots	To be taken crushed juice/ powder with milk	Urinary, diabetes and Kidney problem
Local Name: Rajbrikshe (<i>Cassia fistula</i>)	Fruits	To be taken juice/extract with water/milk	Diarrhea, Dysentery
Local Name: Rokuwajhar (Not Available)	Stem, Leaf, and Roots	To be taken crushed juice/ powder with milk	Malnutrition, Tuberculosis, Diphtheria,
Local Name: Rudilo (<i>Pogostomum benghalensis</i>)	Stem/ Leaf, and Roots	To be taken crushed juice/ powder with milk	Sinusitis, Scorpion sting, Shores, Colds
Local Name: Saaj (<i>Terminalia tomentosa</i>)	Barks	To be taken ash orally with sugar for one week	Intestinal worms
Local Name: Sindure (<i>Malletos philippensis</i>)	Stems/ Roots	To be taken crushed juice or powder with milk after meal	Abdominal pain and dysentery
Local Name: Surelbot (Not Available)	Whole parts	To be taken juice with water/milk	Blood circulation
	Stems/ Roots	To be keep in naval if delivery is being late	Delivery case

Local Name: Sajiwan (<i>Jatropha caracas</i> L)	leaf, Stems	To be taken juice or brush twice daily	Tooth cancer, tumor,
	Roots/ Barks	To be applied latex or powder locally daily	Chronic shores, wound
Local Name: Sarpagandha (<i>Rauvozia serpentin</i>)	Whole parts	To be massaged with latex twice daily	Vein ache, Joint ache
	Whole parts	To be taken juice or powder with milk	High blood pressure
Local Name: Sayapatri (Marigold)	Flower	To be chewed	Laryngitis
Local Name: Seundi (<i>Euphoria nerifolia</i>)	Leaf	Juice/latex with water	Gastritis, Indigestive, Abdominal swelling
Local Name: Sirukhar (<i>Hypoxia aurealour</i>)	Roots	To be taken powder with root powder of Bimiro	Intestinal parasites
Local Name: Surti (Nicotine tobacum)	Leaf	Drop to be put into ear	Ottorryhoea
Local Name: Titekarel (<i>Momordia taratula</i>)	Fruits	To be chewed or juice	Diabetes
Local Name: Titepati (<i>Artimisia japonica</i>)	Leaf/ Roots and stem	To be applied latex or powder locally daily	Skin disease, scabies, shores, ring worms
	Leaf/ Roots and Stems	To be sprayed juice or latex at home daily	Antiseptic use as incense, insecticide
Local Name: Tulasi (<i>Ocimum sanctum</i>)	Leaf/ Stems	To be chewed or taken juice two times daily	Cough, Bronchitis, Colds, Cut injury
Local Name: Uneu (<i>Dryopteris</i>)	Whole parts	To be chewed or taken juice twice daily	Dysentery, Diarrhea
	Whole parts	To be applied latex	Cut injury and wound

ADDITIONAL PRACTICE AND USE OF DOMESTIC TREATMENT

Beside herbal plants there are so many other domestic medicines in our kitchen as domestic treatment that we can prepare easily but we don't have the knowledge that how does it prepare and what is its function in what diseases. Bankariya expertise has reported that practice of treatment that how it may prepare at home and what these are. Therefore, some of the domestic treatment as suggested by expertise is mentioned below:

A mixture of Lasun (*Allium setivum*), powder of Besar (turmeric), Marich (*Piper nigrum*) and Black salt (*Birenoon*) with boiled water should be taken 2-3 times daily can cure common colds, influenza and even chronic cough. Similarly, local wine with honey or heated ghee could be taken 2 times daily to cure common colds, influenza and chronic cough.

Mixture of Methi (*Tringonolia Fonuun*), powder, Jwano (*Trychypereus amni*) and Jaidana (*Myristica bagarans*) should be taken 2/3 times daily to cure common colds, influenza and chronic cough.

A preparation of Kera (Banana), Chyura (Bitten rice) and Dahi (Curd) should be taken 2/3 times daily to cure Jhadapakhala (Severe diarrhea).

A mixture of Saldhup (*Shores robusta*) and curd should be taken 2/3 times to cure diarrhea.

A mixture of Aduwa, Marich, Lwang, Pipla and Jaifal should be taken twice daily for long time for Asthma.

A mixture of cow's milk, carrot, sugarcane and papaya should be taken 1 week for jaundice.

A mixture of honey, Aduwa, Marich and salt to be given orally and mixture of Abhijalo, Siltimbur, Lwang, and maize should be applied on place of snake biting.

A mixture of Lasun, Pyaj, Lwang and fruit of Chilaune (*Scheme waliichii*) should be applied in sting place of scorpion.

CONCLUSION

Above mentioned health knowledge and herbal use practices has clearly explained their expertise that how the illiterate Bankariya are skillful to diagnose the sickness and expert to find the herbs to cure sick, though socially and economically very poor and an excluded caste of Nepal, which are very skillful in term of traditional health practice and using of herbal plants as Aayurvedic/herbal treatment. In fact, they are perfect to make herbal medicines, which are applied to cure sick or illness. They recognize the plants and know its functional effects that which plant work for what diseases. But these plants are destroying and vanishing day to day due to over harvesting, deforestation, illegal cutting, landslides, over rehabilitation and governments' poor policies towards preservation of natural resources like important medicinal herbal plants.

However, they are very interested to keep their indigenous health knowledge and use practices of herbal plants continue by planting medicinal herbs as horticultural farm. However, there is neither preservation policy of traditional practices of health who knows such knowledge nor conservation practices of medicinal herbs as a national program. Due to it, indigenous health knowledge and herbal use practices in such indigenous nationalities are in vulnerable situation of vanishing. At the same time, government has strictly prohibited people to enter the forest as national park for the conservation of wild lives. This activity of government has made them very mercy and a pitiable because about 80% products for their livelihood collected from the forest was completely braked. In another hand, the medicinal plants they used to cure sick were used to bring from that forest because that forest was store of varieties of medicinal herbs and shrubs. Because of this, both knowledge of indigenous health treatment practice and use of herbal plants are in vulnerable situation of vanishing.

Therefore, this research was conducted with the aims to highlight the importance of preservation and existence of plants along with indigenous health knowledge for domestic treatment, and would like to suggest for conservation of indigenous knowledge of herbal use practice forever, which is very essential to keep alive. For this work government should need to activate the proper policy to conserve such medicinal plants by providing horticulture field with advanced technology of farming, harvesting, pasteurizing, storing, market management and selling along with promoting their traditional skills, which is the indigenous property of the country.

ACKNOWLEDGMENTS

In fact, this was a great opportunity for me to present a deeply analyzed research study report on indigenous health knowledge and use practices of herbal plants as domestic treatment by an culturally excluded, academically illiterate, socially and economically back warded, and even still living in a Stone Age an ethnic group 'Bankariya' residing in a Handikhola VDC of Makawanpur District from an immense time. Though, they are very poor and weak in every socio-economic sector but very rich in indigenous knowledge on health sickness and domestic treatment based on herbal plants that they know what plants work for what disease and its' doses with therapeutic methods. Therefore, being illiterate and backward community, they keep high knowledge on health sickness and advanced skill of herbal treatment as a rural doctor. Such kind of amazing but hidden expertise of savaged Bankariya, SNV Nepal has encouraged me by funding sum of amount to explore their expertise to generalize in public. This study would not have been possible without support of SNV-Nepal. Therefore, first, I would like to express my heartfelt gratitude to SNV-Nepal an INGO for financial support.

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plants work for what disease and therapeutic as well as treatment methods.

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RECOMMENDATION

Raute, knows as one of the vanishing staged an indigenous ethnic caste of Nepal, living in middle west district of Nepal used to move from one place to another place after a certain period of living in a particular area. They move from one place to another place is specially to find the sufficient foods for subsistence. They do not have any permanent home for residential settlement. They have neither the land for the farming nor the cattle for business purpose. But the Bankariya has own home for residence, own cattle like goat, cow, buffaloes, chicken to earn cash by selling it and try to maintain their daily life. They do not move hither and thither like Raute. Being a hard worker, still they are very poor. Due to uneducated, they are found to be jobless and depend on wild fruits. Still they are in hunting stage but they have their own strong indigenous culture. They believe on god, ghosts and spirits, witch and enchanter, luck and fate, and always use the herbal plants to cure any kind of sickness. Therefore, I would like to suggest to make an ethnographic visual documentary focusing their life cycle. It would be a great work as a property in the field of ethnographic socio-cultural upliftment and conservation.

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TECHNIQUES ADOPTED IN LITERARY TRANSLATION OF PROSE: A STUDY OF “PALPASA CAFÉ” FROM THE PERSPECTIVE OF EQUIVALENCE RELATION

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ABSTRACT

Purpose: This study aims to see the ‘equivalence relation’ between the source text and the target text in relation to ‘paragraph equivalence’ while translating a prose text from the source language into target language.

Methodology: The methodology of this study is document analysis. The texts are translated from Nepali into English. Nepali language is known as source language and English language is known as target language in this study. The words and sentences are counted and the difference is found in terms of percentage of the selected paragraphs; Nepali as source language and English as the target language.

Originality: This study maintains originality as a text of translation requires originality in the field of syntactic, semantic, stylistic and pragmatic aspects.

Practical Implications: This study has practical value because the work of translation transfers languages, among people as well as culture and civilization. In reality, translation has played such type of role that people have the idea of knowledge and civilization through translation.

Limitations: This research work is limited to the technique of translation from Nepali into English to show equivalence relation. The texts used are from the Narayan Wagle’s novel, “Palpasa Café” originally written into Nepali language and its translation into English language by?.

Findings: The findings of this study show that translation techniques are main sources of education from time immemorial. The ancient Vedic, Greek and Roman civilization, which are as sources of knowledge and education, have spread from place to place through the work of translation, if it had not been so, people would remain in their primitive situation in the field of knowledge. We would not read about Homer, Plato, Kalidas and many other writers today if their works were not translated from their source / native languages into other languages such as English/ Nepali/ Hindi. However, there is no exact one-to-one limitation while translating a text from its source language to another target language.

KEYWORDS

Equivalence, recognition, prose translation, source language, target language, word gap

INTRODUCTION

Translation has got main role in the process of the development of knowledge. If translation technique had not been applied in education, people today would not have got so vast knowledge like that of today. About the role played by translation today, Bhattarai (2000) has mentioned that the twentieth century has employed translation extensively as a most powerful and indispensable vehicle for disseminating knowledge and information. Likewise, we are confronting today an age of translation which gives us information such as; either translate or die; no third choice is left before us. It will not be an exaggeration to say that translation has been as a storehouse for academicians today which has contributed in our study, teaching-learning and improving our professional norms and values as well as conducting the work of research. We can not deny that translation needs scientific knowledge and skill to verify it.

This paper sets out to investigate the translation of prose text from the point of view of word gap found in Palpasa Café in the translation from Nepali into English. A paragraph, from page-3 of Nepali version of “Palpasa Café”, is taken to compare and analyse the source language (SL-Nepali) and the target language (TL- English). The texts (sentences) in Nepali and English are studied from the perspective of translation study as mechanism of knowledge. This paper can assist the translators of Prose Text/ Novel by identifying the needs to be carried out across in the Target Language and what aspects of the original prose/ novel are to be respected during the translation process.

DIFFERENT VIEWS ON TRANSLATION

Translation is directly related to the development of education. If the texts from ancient documents were not translated, there would not have been knowledge to us of the past system. Furthermore, translation has been taken differently by different people. Regarding translation, Newmark (1998) has stated “Translation is first a science, which entails the knowledge and verification of the facts and the language that describes them- here, what is wrong, mistakes of truth can be identified; secondly, it is a skill, which

calls for appropriate language and acceptable usage” (p.6). In this sense, translation shows itself as an instrument to demonstrate knowledge of the foreign language and transmit the culture as mentioned in the source language into the target language. Although translation has got much importance today, due to different reasons, there will not be the same impact as found in original text, which is the main concern of this paper. So, there is problem of equivalence relation between source language and target language.

Regarding translation, Malmkjær and Windle (2011) have stated, “The study of translation in its manifold forms is now a well-established field of scholarly activity. Once seen as a homeless hybrid at best, and later as an interdisciplinary area best approached through its neighbouring disciplines- comparative literature (p.1). As mentioned above, translation has occupied the larger field of study and knowledge today. As this paper relates to literary translation, I want to mention that it is necessary to know the nature, problems and characteristics of literary translation. Literary translation is the reflection of artistic reality of the original but the reflection will be approximate rather than absolute. The literary translation intends to show creative intention of the author. Similarly, regarding translation, Bassnett (1991) has stated, “Although there is a large body of work debating the issues that surround the translation of poetry, far less time has been spent studying the specific problems of translating literary prose” (pp. 109-110). But we do not have to think that prose is of lower status literary work and it is easy to translate but we have to consider that creativity is found in all forms (essay, poetry, drama story and novel) of literature, not only in poetry.

METHODS AND PROBLEMS OF TRANSLATION

We are presented with the problem of equivalence in translation. About this situation, Lefevere (1992: 4) in his preface mentions, “Translators are allowed more liberties on what one might be tempted to call ‘the purely linguistic level’ certainly if the translation is not meant to represent the original in the translators’ culture” (p.4). However, translation is simply to help translators refine their knowledge of their own language. We have a question before us “Do we continue to have the same text?” As far as possible, the source text and the target text must be equivalent in words, message and grammatical structures. Regarding translation, Munday (2016) has stated, “It is inter-lingual translation, between two different verbal sign systems, that has been the traditional focus of translation studies. Much of translation theory has also been written from a western perspective of Classical Greek and Latin and from Biblical practice (p.10). In this way, it is known that the process of translation has made us known about the store of the past knowledge.

We should have knowledge about how we can understand the relation between translations and their source text. But the basic problem is that although translations are assumed to be somehow the same as the original but they are obviously different. The equivalence is produced by the translators and whether it is accepted or not is the matter of the readers. The matter of equivalence relates to phonetic equivalence, phonological

equivalence, morphological equivalence, syntactic equivalence, lexical equivalence and semantic equivalence. These days, there is trend of making inter-sentence equivalence or paragraph equivalence which will be of great importance to translate a text written in prose form. Furthermore, this paper has focused to analyse the 'paragraph equivalence' of prose text in terms of words, sentences and events/ activities.

Likewise, translation has got different aspects. About translation, Newmark (1998:48) has mentioned that the methods of translation are word-for-word translation, literal translation, faithful translation and semantic translation for second language [SL] emphasis and adaptation, free translation, idiomatic translation and communicative translation for target language [TL] emphasis. Taking into consideration of all these methods we can say that the study of translation is constantly expanding in a world that has experienced a flourishing situation of translated texts unparalleled in human history.

Translation of Texts and Analysis of Equivalence

The truth of translation is somewhere in between equivalence and acceptability. While translating a text from one language into another language, there will be differences in terms of language structure so that syntactic equivalence of source language into target language is not possible and this is also true between English and Nepali texts. Regarding translation, Nida (2000) has mentioned that since no two languages are identical, either in the meanings given to corresponding symbols or in the ways in which such symbols are arranged in phrases and sentences, it stands to reason that there can be no absolute correspondence between languages (126). As Nida has mentioned, it is due to the complexity of language function.

Translation of Sentences

The lines taken for study from "Palpasa Café" paragraph three and their translation techniques are as follows:

Source Text (Nepali): Kafiko surupsangai arko tabal bata myaun gardai biralo airaheko dekhen. Maile dhuwan udaundai lekhiraheko tasbirsahit yo upanyas- tayariko khabar chhapne Nepal magazinema malai man parne arko resturentko biralobareko prasanga samabesh thiyo. Tyastai biralo matira lamkiraheko thiyo. Chheuma kritrimrupale umarieka lalupateka bernaharu hurkera fulna thaleka thiye. Tyo biralo kakhaima aera basyo, tyo arko resturentma jhain.

Target Text (Translated into Target Text/ English): A cat miaowed, approaching my table. An article about my novel published in Nepal magazine had mentioned another cat in another restaurant. I frequented my favourite restaurant. This cat looked like that one and, like the other cat, jumped up and curled up on my lap. Beside my table, potted poinsettia thrust themselves forcibly out of the budding stage. After I finished my coffee, I phoned Drishya again.

ANALYSIS

As mentioned previously, this study is related to literary translation of Prose form,

the sentences are taken from “Palpasa Café” a Nepali Prose book. In this study, the analysis of the source text (Nepali) taken from a paragraph in page No. 3 is as follows:

Kafiko surupsangai arko tabal bata myaun gardai biralo airaheko dekhien.

Maile dhuwan udaundai lekhiraheko tasbirsahit yo upanyas- tayariko khabar chhapne Nepal magazinema malai man parne arko resturentko biralobareko prasanga samabesh thiyo.

Tyastai biralo matira lamkiraheko thiyo.

Chheuma kritrimrupale umarieka lalupateka bernaharu hurkera fulna thaleka thiye.

Tyo biralo kakhaima aera basyo, tyo arko resturentma jhain.

In the above sentences, total lines are five and total words are 54. Translation of the above text into English is as follows:

A cat meowed, approaching my table.

An article about my novel published in Nepal magazine had mentioned another cat in another restaurant.

I frequented my favourite restaurant.

This cat looked like that one and, like the other cat, jumped up and curled up on my lap.

Beside my table, potted poinsettia thrust themselves forably out of the budding stage.

After I finished my coffee, I phoned Drishya again.

In English, the total Lines are 6 and the total words are 68.

It is found that there are five sentences in the source text but there are six sentences in the target (English) text. In the source (Nepali) text there are fifty-four words but in the target text, there are sixty-eight words and the difference is of twelve words with a difference of 22. 2%.

This analysis of words and sentences shows that there is problem of equivalence relation between source text and target text. There is difference in the activities of the narrator between these two texts. In the first sentence of the source text, the narrator is having coffee but in the first sentence of the target text the translator has not mentioned the drinking of coffee. In the second sentence of the source text, the narrator is smoking, perhaps, but it is not mentioned in the target text. The third sentences of the both texts are also different because they show different activities-movement of a cat and the narrator’s visiting a restaurant. The analysis of the fourth sentence of both the texts shows that they have no any equivalence in words and semantic relation because the source text mentions about the flower but the target text mentions the activities of a cat.

The fifth sentences of the both texts also show difference without equivalence in words and sentences. On the other hand, the fourth sentence of source text is related to the fifth sentence of the target text and the fifth sentence of the source text is related to the fourth sentence of the target text. There is not sixth sentence in the source text but it is in the target text. The word “coffee” mentioned in the first sentence of the source text is found in the sixth sentence of the target text.

CONCLUSIONS AND FINDINGS

It is necessary that the equivalence relation should be in words, sentences, activities and meanings. However, I could not find the equivalence relation of words and meanings in terms of sentence-wise analysis of the source text and the target text. About such situation, Bhattarai (1997) has mentioned for equivalent problems in terms of word level difficulties as well as sentence level and pragmatic world and states. A translator can guarantee the full understanding, an appropriate understanding, an appropriate interpretation of the sense, but he may still doubt whether the source text expression has perfectly struck the balance (pp.380-381).

In the analysis of these texts, it is found that the translator has missed the spirit of the original text and deviation is clearly found. He should have translated the paragraph sentence- by- sentence to make the prose translation meaningful in orderly way instead of choosing the zigzag way. But whatever the situation may be Newmark (1998) mentions “Hence the translator’s task must never be to copy what is said” (p. 80). Translation is the base of modern education, as a whole. As the study finds, there is great value of translation in the process of knowledge formation and transformation of views and educational theories.

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THE IMPACT OF SOCIAL HEALTH INSURANCE ON HOUSEHOLD CATASTROPHIC HEALTHCARE EXPENDITURES ASSOCIATED WITH CHRONIC DISEASES IN SUNDARHARAINCHA MUNICIPALITY, MORANG

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ABSTRACT

Introduction: Catastrophic health expenditure (CHE) is the condition of paying for health care that exceeds a defined family income or consumption level. Households who spend CHE may have to forego the consumption of other goods essential to their well-being. Chronic diseases require ongoing and often expensive healthcare services and treatments, which can be financially devastating for households without adequate health insurance coverage. Social health insurance programs can provide financial protection and access to healthcare services for individuals and families with chronic diseases. This study aims to assess the impact of the social health insurance program on household catastrophic healthcare expenditures associated with chronic diseases in Sundarharaincha Municipality, Morang.

Method: A Retrospective Cross-sectional research design was adopted to collect the data from 424 households by cluster and probability simple random sampling technique. A semi-structured questionnaire was developed based on an intensive literature review. The investigator himself after the approval of the PUSHS-IRC (Purbanchal University School of Health Sciences Institutional review committee) collected data. Before data collection, formal permission was obtained from the Municipality office of Sundarharaincha. Written and verbal consent was obtained from each literate and illiterate household respondent respectively before the interview and observation. The findings were described in descriptive and inferential statistics.

Results: The data show that various socio-demographic characteristics are associated with catastrophic healthcare expenditures. A significant impact is seen

between social health insurance and catastrophic healthcare expenditures associated with chronic diseases. The majority of the respondents (93.4%) stated that health insurance protects their financial crisis from catastrophic healthcare expenditure. Most (93.7%) of the respondents who expressed reduced economic burden and others as benefits of the enrolment, were compared to health service from specialized hospitals (92.9%) among those who were protected from catastrophic healthcare expenditures by the health insurance program. Similarly, 94.7 % of the respondents said the economic burden was a problem if not enrolled in the health insurance program and 83.3 percent said tension and others as problems if not enrolled. This study also shows that 87.8 percent of the insured respondents who were protected against CHE by the health insurance program had less than 5000 NPR costs per visit (<0.001). Out of the total respondents who were protected against CHE by the health insurance program, 93.6 percent were satisfied with health insurance and 92.9 percent want to continue health insurance in the coming days.

Conclusion: By providing adequate coverage and support for households with chronic illnesses, social health insurance could significantly reduce the incidence of catastrophic healthcare expenditure, contributing to poverty reduction and improved health outcomes. Policymakers related to social health insurance program and the concerned government should implement measures to increase health insurance coverage among households having chronic diseases to reduce the burden of healthcare expenditure.

KEYWORDS

Catastrophic healthcare expenditures, Chronic diseases, Social health insurance, Sundarharaincha Municipality

INTRODUCTION

Chronic diseases are a major challenge for healthcare systems worldwide, and their prevalence is increasing in low- and middle-income countries, including Nepal. These diseases often require long-term treatment and management, resulting in substantial healthcare expenditures for affected individuals and their families. Such catastrophic healthcare expenditures can lead to financial hardship and even impoverishment, particularly for low-income households. In response, many countries have introduced social health insurance programs as a means of providing financial protection against catastrophic healthcare expenditures. (Acharya et al, 2019) The Social Health Insurance Program (SHIP) was introduced in Nepal in 2016 to address this issue. However, the impact of SHIP on reducing catastrophic healthcare expenditures associated with chronic diseases has not been fully evaluated.

METHOD

A retrospective Cross-sectional research design was used to find out the impact of Social health insurance on household catastrophic healthcare expenditures associated with chronic diseases. This study was carried out among people living in all 12 wards of Sundarharaincha Municipality, Morang. Each household was selected as a sampling unit during data collection. The sample size was 424. Cluster and simple random sampling

techniques were used to select the household in each ward of the sampling area. Semi-structured questionnaires were developed based on intensive literature reviewed to obtain necessary information. The research instrument was divided into three parts. Part I consisted of questions related to socio-demographic information, Part II consists of questions related to information about social health insurance and Part III consists of questions related to chronic diseases associated with catastrophic healthcare expenditures. The data collection period was one month (25th February 2023 to 25th March 2023) by the investigator himself, after approval of the institutional review board, Purbanchal University School of Health Sciences (PUSHS-IRC). Before data collection formal permission was obtained from the Municipality office of Sundarharaincha Municipality. Then after written and verbal consent was obtained from each respondent. The researcher visited the community, explained the objectives and procedure of the study to the participant, requested the time of the respondents, and explained to the participant their participation in the study was voluntary and written and verbal consent was obtained. Respondents were interviewed using the Nepali version interview schedule. Precaution was taken throughout the study at every step to safeguard the right and welfare of all respondents in the study. Respondents were ensured that their confidentiality and privacy would be maintained. Obtained information would be used for research purposes only. The average time required to interview was 20 - 25 minutes. Only one respondent was interviewed in a household while the data collection. If there is more than one person during the data collection, the head of the household was interviewed, who meets the inclusion criteria. The obtained data was analyzed and interpreted according to the objectives of the study and research questions. Then data were edited, coded and analyzed by using Statistical Package for Social Science (SPSS) version 16. Frequency distribution and percentage of all relevant variables were presented in the table, and relevant significance was calculated by using the Chi-square test.

RESULT

Table 1

Socio-Demographic Characteristics of Households and the Respondents

Characteristics	Attributes/ esponses	N	%
Gender of the respondents	Male	203	47.9
	Female	221	52.1
Head of the household	No	276	65.1
	Yes	148	34.9
The age of the respondents*	Under 25 years	96	22.6
	26 to 45 years	166	39.2
	46 to 65 years	123	29.0
	Above 65 years	39	9.2

Marital status	Unmarried	68	16.0
	Married	352	83.0
	Divorced/Separated	4	0.9
	Widow/Widower	0	0
Cast	Dalit	15	3.5
	Adibsi/Janajati	168	39.6
	Madhesi	68	16.0
	Muslim	4	0.9
	Brahmin/Chhetri	165	38.9
	Others/Dasnami/Sanyasi	4	0.9
Religion	Hindu	380	89.6
	Buddhist	8	1.9
	Islam	4	0.9
	Christianity	28	6.7
	Others	4	0.9
The main sources of income [^]	Agriculture	185	43.6
	Service	127	30.0
	Laborer	72	17.0
	Business	142	33.5
	Remittance	43	10.1
	Pension	31	7.3
	Others	30	7.1
Educational status	Illiterate	19	4.5
	Literate	114	26.9
	Primary Education	71	16.7
	Secondary Education	124	29.2
	Higher Education	96	22.6
Family type	Nuclear	179	42.2
	Joint	241	56.8
	3-Generation	4	0.9
Size of family	Up to 4 members	107	25.2
	5 to 8 members	283	66.7
	Above 8 members	34	8.0

Economically active member(s)	Up to 1	88	20.8
	2 to 3	245	57.8
	4 and above	91	21.5
U 5 age children	Up to 1	88	20.8
	2 to 3	336	79.2
	Above 3	0	0.0
Senior citizen (> 65 years of age)	Up to 2	417	98.3
	Above 2	7	1.7
Monthly income (in NRS)	Up to 10000	47	11.1
	11000 to 20000	118	27.8
	21000 to 30000	85	20.0
	Above 30000	174	41.0
Monthly expenses (in NRS)	Up to 10000	73	17.2
	11000 to 20000	146	34.4
	21000 to 30000	139	32.8
	Above 30000	66	15.6
Title of the main expenses [^]	Food	420	99.1
	Cloths	346	82.1
	Education	354	83.5
	Healthcare	321	75.7
	Communication	48	11.3
	Transportation	173	40.8
	Others	4	0.9
Income/Production adequate to feed	Throughout the year	194	45.8
	9 to 12 months	4	0.9
	6 to 9 months	23	5.4
	3 to 6 months	28	6.6
	Less than 3 months	175	41.3
Total		424	100.0

Note: [^] = Percent may exceed 100 due to multiple responses. * = Under 18 years of old were not to be selected.

Table 1 depicts that, out of 424 households, females occupied more than half (52.1%) and males were a little less than half (47.9%). Of the respondents, nearly one-third (34.9%) were household heads. The mean age of the respondents was 41 years and the age group of 26 to 45 years occupied 39.2 percent and most of them (83%) were married. The cast of the respondents accounting 39.6% percent were from Adibasi/Janajatis per the definition of Ministry and Health and Population, Nepal. 38.9 and 16 percent were from Brahman/Chhetri and Madhesi respectively. Approximately nine

(89.6%) out of 10 respondents were from Hinduism. The main source of income was agriculture which accounted for 43.6 percent. Approximately, one-third of the respondents (29.2%) completed secondary education, and 4.5 percent were illiterate. More than half (56.8%) of the total respondents belonged to a joint family. Two-thirds (66.7%) of the total families had 5 to 8 members in their homes. More than half (57.8%) of families had 2 to 3 economically active members. The majority of the families (79.2%) had 2 to 3 under-five children and the rest (20.8%) families had up to one or no under-five child. Similarly, 98.3 percent of families had up to 2 senior citizens (above 65 years old) and only 2.7 percent had more than 2 senior citizens. Forty-one percent families had above Rs. 30 thousand monthly income followed by 11000 to 20000 (27.8%), 21000 to 30000 (20%) and less than 10000 (11.1%) respectively. More than one-third of the families (34.4%) had 11000 to 20000 monthly expenses, 32.8 percent had 21000 to 30000, 17.2 percent had up to 10000 and 15.6 percent families had above 30000 monthly expenses. The main expenditure of the respondents was in food followed by education, cloths, healthcare, transportation, communication and others respectively. Similarly, less than half of the respondents (45.8%) were sustainable to feed their family throughout the year whereas 41.3 percent expressed they could feed their family for three months or less.

Table 2**SHI and CHE related information of Households and the Respondents**

Characteristics	Attributes/Responses	N	%
Faced financial problems with healthcare expenditure	No	336	79.2
	Yes	88	20.8
Management of financial problem*	Sale of asset	8	1.9
	Borrowed from Neighbors / Friends	64	15.1
	Remittance	4	0.9
	Insurance policy	8	1.9
	Others	4	0.9
Benefits of enrollment^	Service from a specialized hospital	254	59.9
	Reduce economic burden	304	71.7
	Reduce tension	131	30.9
	Early treatment	155	36.6
	Quality services	95	22.4
	Others	20	4.7

Disadvantages of not enrolled ^	Economic burden	376	88.7
	Tension	238	56.1
	Delay treatment	134	31.6
	Lack of quality services	61	14.4
	Others	4	0.9
Get services before enrollment ^	Health Post	169	39.9
	PHC	169	39.9
	Government Hospital	159	37.5
	Private Pharmacy	152	35.8
	Private Hospital	225	53.1
	Community Hospital	8	1.9
	Private Medical Colleges	65	15.3
Go for treatment after enrolment ^	Others	8	1.9
	Health Post	159	37.5
	PHC	221	52.1
	Government Hospital	343	80.9
	Private Pharmacy	59	13.9
	Private Hospital	124	29.2
	Community Hospital	12	2.8
Received health service after enrolment	Private Medical Colleges	141	33.3
	Others	8	1.9
Quality of health service after enrolment (<i>among 393 respondents</i>)	No	31	7.3
	Yes	393	92.7
	Not improved than before	51	12.0
	Improved then before	287	67.7
Protect financial crisis from catastrophic healthcare cost	Worse than before	23	5.4
	Unknown	32	7.5
Protect financial crisis from catastrophic healthcare cost	No	28	5.6
	Yes	396	93.4
Total		424	100.0

Note: ^ = Percent may exceed 100 due to multiple responses. * = Among 88 households who faced financial difficulties

Table 2 shows that more than two (20.8%) out of 10 of the total respondents had experienced financial problems with healthcare expenditure. More than two-thirds (71.7%) of the total respondents said health insurance helps them to reduce economic burden as a benefit of enrolling in health. Similarly, the majority of the respondents said economic burden (88.7%) was a disadvantage of not enrolled in health insurance. More

than half of the respondents (53.1%) got health services from private hospitals before enrolling in health insurance. After enrolling in health insurance, eight (80.9%) out of 10 respondents were goes to Government hospitals for health services. The majority of the respondents (92.7%) received health services after enrolling in health insurance. Similarly, more than two-thirds (67.7%) of the respondents expressed the quality of health services were improved than before. The majority of the respondents (93.4%) stated that health insurance protects their financial crisis from catastrophic healthcare expenditure.

Table 3**Chronic diseases and SHI associated with protection against CHE**

Variables	Category	Protection against Catastrophic Healthcare Expenditure				Chi-Square	P value
		No		Yes			
		N	%	N	%		
Family member with chronic disease	No	8	13.1	53	86.9	9.19	0.010
	Yes	16	7.2	205	92.8		
No. of chronic patient	Up to 2	28	6.8	381	93.2	17.57	0.002
	Above 2	3	20.0	12	80.0		
Duration of illness	< 5 years	12	6.8	164	93.2	1.45	0.484
	6 to 10 years	4	4.1	93	95.9		
	> 10 years	4	3.9	98	96.1		
Average visit of HF in a year	< 10 times	16	5.9	258	94.2	0.78	0.680
	> 10 times	8	7.1	105	92.2		
Faced financial problems	No	20	71.4	8	28.6	1.63	0.441
	Yes	316	79.8	88	19.2		
Satisfied with HI	No	4	11.1	32	88.9	2.54	0.638
	Yes	24	6.5	349	93.6		
Continue HI in the coming days	No	4	25.0	12	75.0	2.12	0.714
	Yes	28	7.1	368	92.9		

P value significance at <0.05 level of significance

Table 3 demonstrated the association between chronic diseases and CHE on SHI with the family member and the number of chronic diseases was found significant as p -value <0.05 whereas the association duration of illness, financial problem, satisfaction with HI and continuation HI in the coming days were found insignificance as the p -value >0.05.

DISCUSSION

In our study, major sociodemographic factors associated with catastrophic healthcare expenditure include income, education, household size, health insurance coverage, and chronic disease status. Lower income households, larger households, and households with members who had chronic diseases were more likely to experience catastrophic healthcare expenditure. Higher education and health insurance coverage were associated with a lower likelihood of experiencing catastrophic healthcare expenditure. These findings also supported by the studies conducted in China and Thailand by (Xu et al., 2017, and Tangcharoensathien et al., 2015)

Based on the findings of our study, social health insurance can reduce household catastrophic healthcare expenditure associated with chronic diseases. Social health insurance provides financial protection to individuals and households against the high cost of healthcare services, particularly those associated with chronic diseases. These findings are supported by the studies conducted in China and Vietnam and by (Li et al., 2019 and Shumet et al., 2021)

Overall, on the basis of findings of this study suggest that social health insurance can minimize out-of-pocket expenditure and reduce household catastrophic healthcare expenditure associated with chronic diseases by providing financial protection, increasing access to healthcare services, containing healthcare costs, and pooling resources to spread the risk of healthcare costs across a large population. These finding are also supported by the studies conducted in China by (Zhang et al., 2017 and Liu et al., 2018)

The proportion of the healthcare expenditure covered by social health insurance among households associated with chronic diseases in our study was found to be 98.2 percent by providing financial protection, increasing access to healthcare services, containing healthcare costs, and pooling resources to spread the risk of healthcare costs across a large population. This is supported by the study conducted in Vietnam and China by (Nguyen et al., 2012 and Zhang et al., 2017)

CONCLUSION

The findings of this study underscored the importance of addressing chronic diseases in the context of healthcare financing and social health insurance. By providing adequate coverage and support for households with chronic illnesses, social health insurance could significantly reduce the incidence of catastrophic healthcare expenditure, contributing to poverty reduction and improved health outcomes. Therefore, policymakers should implement measures to increase health insurance coverage among households having chronic diseases to reduce the burden of healthcare expenditure.

LIMITATION

The limitations of this study was a relative small size, accuracy and completeness of data collection, selection bias, causality between SHI and reduction of CHE and subject bias on self-reported data may not have accurately reflected the true extent of catastrophic healthcare expenditure associated with chronic diseases.

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IMPACT OF TRAINING ON EMPLOYEE PERFORMANCE IN NEPAL

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ABSTRACT

The study examines about the employers who have improved their performance after the training. The main study of this research is how training has done impact on employee performance. When we examine the effect of three sets various independent variables was taken into account and two set of hypothesis which developed establishing relationship between these set of variables with dependent variables. 200 questionnaires were distributed among employees of several organization of Kathmandu valley and 150 have responded. The data are analyzed in statistical tools of the participants of employees. We surely know that there is positive and significant relationship between training and employee performance. It is a vital role in improving the performance of employees. We known the training regarding employee performance are conducted in various organizations. Training has influencing power on employees work commitment and performance which reinforce and implement training as root of organization to exceed goals. The study concentrates to improve employee performance that is lacking to achieve a task in an organization. It major impacts are to encourage employees to work apparently.

KEYWORDS

Employers, Organization, Training, Information, Variables, Performance, Relationship

INTRODUCTION

In competitive business, world organization and human resources practitioners have seen performance appraisal system as an effective tool for human resources management. The improvement of organization is very much dependent on human resources due to all other resources than human resources are non-living resources. A performance appraisal in one organization there is continuity and informal where personal feedback of a superior about employees may be the basis appraisal (Cintrón & Forrest Flaniken). In another organization, it is well defined, and a particular policy and approach may be guide by all managers. A system of performance appraisal dictates a time and effort spent by supervisor and employees defines which areas of performance are emphasized. To improve employee's performance training is biggest factor (Michael A. Akinbowale, 2014).

Employees are known as blood stream of organization and valuable assets of each organization where they can make or break the organization standard and effect profitability. A mutual relationship between performance appraisal and employee performance where training plays a vital role in making human resources management practices. If we guide them with training impacts the quality of the worker's knowledge and skills which ensures high performance in organization tasks. There is employee engagement in relation to employee organization and internal standards effects of leadership communication. A development of training and employee engagement on employee performance and testing medication effects of employee engagement in the relationship between training and employee performance (Sendawula, Kimuli, Bananuka, & Muganga, 2018).

Training and development enhance worker performance and productivity in organization. However, for some years now it appears training in organization of Nepal has been haphazard. There are many categories of workers have not qualified for any form of training nor is there any systematic process of staff development in place. A brief interaction with few of employees did show that management authority sees the cost incurred in the acquisition and maintenance of plant and equipment as more relevant that that expenses on training and development of its employee. This it is believed to have led to high labor turnover in the organization. A study was therefore to assists role of training on organization commitment (Rafiei & Davari2, 2015).

Objectives

A general objective of study is to examine the relationship between training and employee performance within the organizations. A specific objective of this research is given below:

- To explore the nature of training practices applied in various organizations.
- To know the impacts on employer's work performance after training.
- To know types of training related performances, organize in various organizations.

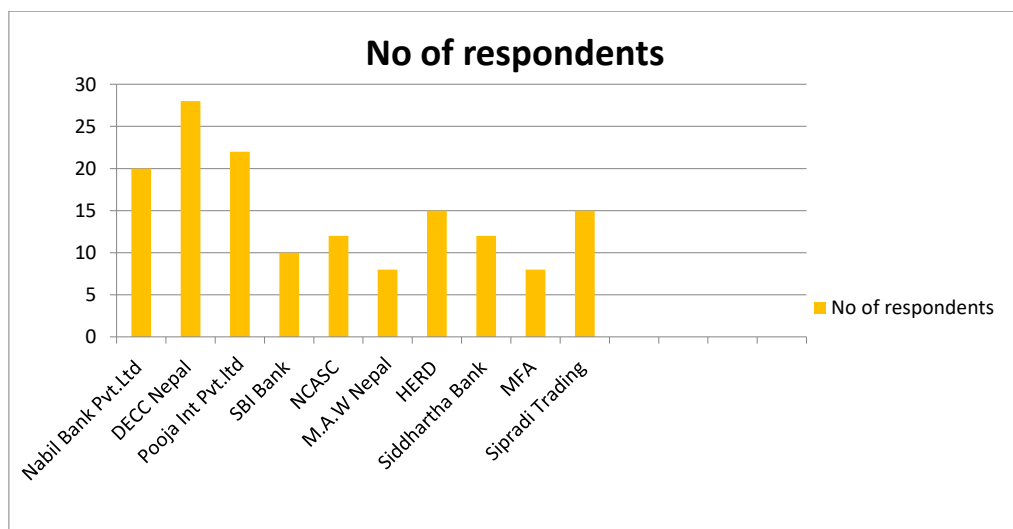
METHODOLOGY

The research was carried out to examine the relationship between training and employee performance within various organization. The research was allocated on renowned organization like Nabil Bank, Siddhartha Bank, Yamaha Nepal, Pooja International Pvt.ltd; DECC Nepal Pvt.ltd, Ministry of Local Development, and NCASC and so on. The target population for data collection was the employees of government sector, private and non-private organization in Kathmandu valley. Qualitative data were consulted mostly from internet-based reports, websites, newspaper and all. On the other hand, quantitative data, this research is based on company data. Data analysis was done to establish how the units cover in the research counter to the items under investigation. In this research, data were analyzed using descriptive-inferential statistics using SPSS computer system. Descriptive statistical indexes like frequency, distribution, percentage, Likert scale, mean and standard deviation were calculated and used for analyzing. Purposive sampling was applied to guarantee that specifics groups within a population are adequately represented in the sample and the efficiency is improved by gaining greater control on the composition of the sample. Each set of question were rated in Likert scale type to give all the data a quantitative figure so that it can be easy for calculation and analyses. After than data collected from the questionnaire are analyzed using SPSS and Excel software from which correlation and regression coefficients were analyzed. Those figures were calculated in order to prove the formulated hypothesis one after another. Excel was used in order to calculate mean, standard deviation minimum and maximum of the given data.

RESULTS

Figure 1

Respondent Description



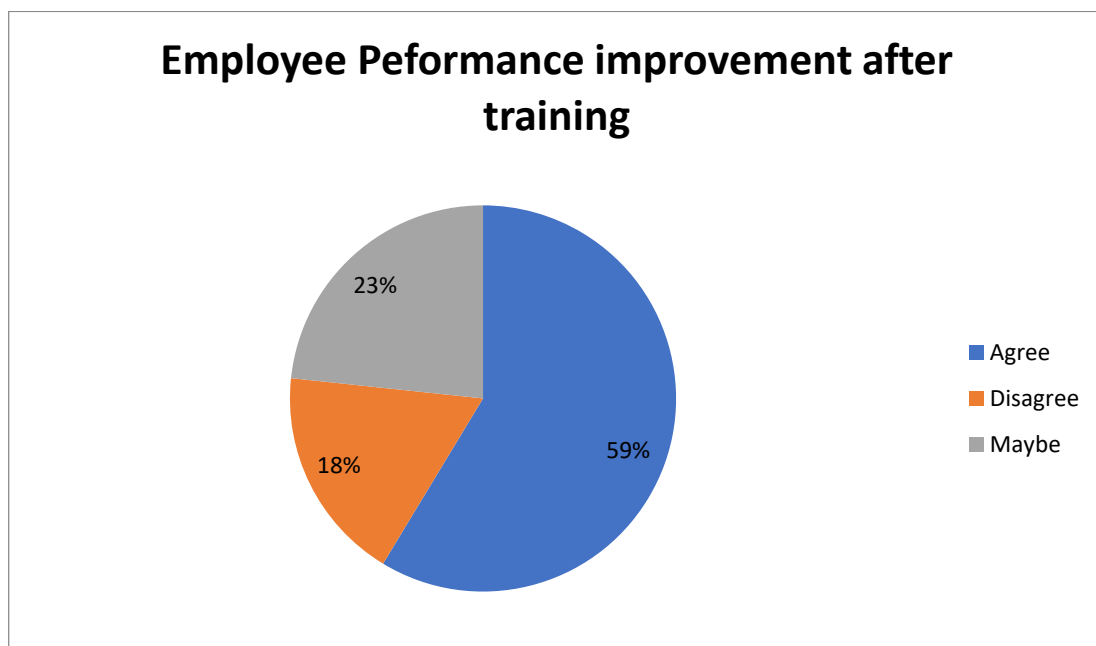
We had been to several organizations to fill up the questionnaires for my research. Due to the certain time consistency some fill up the questionnaires on the spot and some fill up questionnaires through the mail. From the above it is clearly known that DECC Nepal Pvt.Ltd and Pooja International staffs are friendlier and ease to fill up the questionnaires compare to rest of the organization. The participants of DECC Nepal Pvt.Ltd staff who have taken stress management training out of 30 questionnaires 28 employers respond a questionnaire. Whereas, Pooja International they had taken “Effective communication at workplace” out of 25 questionnaires 22 participations had fill up the form. The duration to fill up the questionnaires it took nearly one month of period (Figure 1).

Improvement in employee performance

I have discussed these questionnaires of selected organization respondents does they find any difference after training in their performance at work.

Figure 2

Viewpoint of respondents after training in their work performance



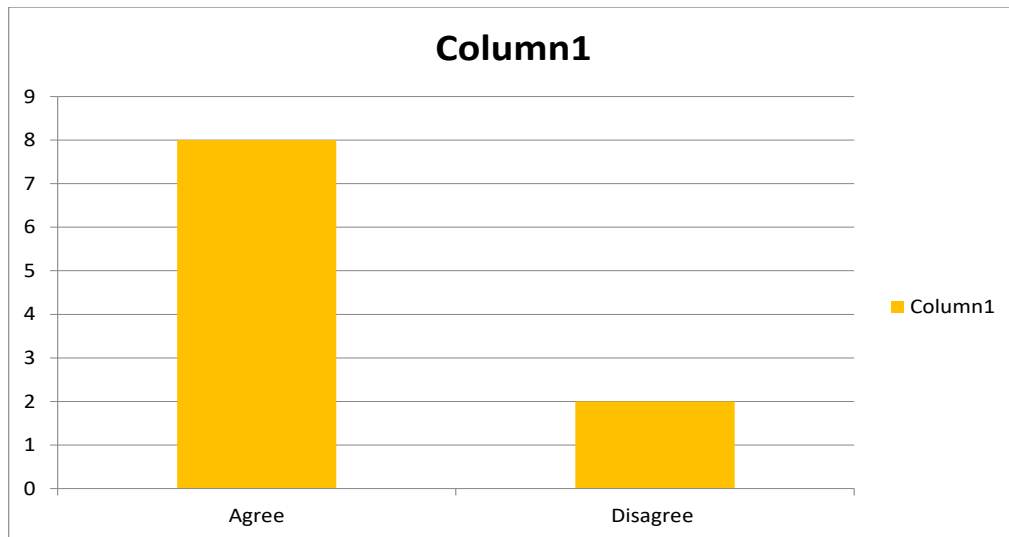
I have discussed to know respondents of various organizations that they feel certain changes in their work performance or not. Some of the respondents are on dilemma and some are satisfied, and some are not. In the above pie-chart (Figure 2) it clearly shows that 88% of respondents feel that their work performance improved after the training. While 27% of respondents did not find any improvement in their performance and 35 % of respondent are confused.

Improvement in employee performance

I have distributed questionnaires to managers of the various organizations what was the result in their employer's work performance after training.

Figure 3

Viewpoint of managers towards their employers on work performance after



training

Here in the given bar diagram (Figure 3), we can clearly see that managers are more satisfied in work performance of their employers after training. Out of 10 organization research 8 of the managers agree that there is improvement in employers' performance after training and while 2 of the managers are not satisfied with their employer's work performance after training. I had discussed managers of the organization in what way their work performance is improved which is mentioned in detail. Well, talking about SBI bank had conducted training related work performance they found certain changes in employers maintaining customer relationship more stronger opening various account and sanctioning loan. DECC Nepal Pvt.ltd after training employers are able to tackle any problem regarding the tasks in organization. The employers are more focused in every task attained by organization. Sipradi trading company has upgrade the financial revenue stronger after establishment of performance related training. MAW Nepal where there is improvement in working environment and best in dealing with clients and various offers and discounts theme is allocated targeting huge customers. NCASC where employees are so satisfied with the task ensured by organization, they are so active in participating in every fieldwork. Pooja International Nepal where employers after training successfully meet the sales target in that year. Nabil Bank Pvt. ltd after training they found positive changes on setting

organization goals. HERD International after training there is improvement in work efficiency where they finished a project assigned by organization in given time frame. Siddhartha Bank after training they create a new theme like various deposit account interest rate evaluation, various loans in minimum interest rate and fast and effective service for customers. Ministry of foreign affairs after training employers assists in the developments of plan and policy formation and analyzing the function of agencies and their impact on international relations more strongly.

GENDER OF RESPONDENTS

It is important to find out the actual distribution of the gender in workplace. 200 questionnaires were distributed to employees and owners or managers where we return 150 questionnaires.

Table 1

Gender distribution of respondent

Gender	Frequency	Percentage
Male	91	59.1
Female	59	38.3
Total	150	97.4

(Source: Field survey, January 2019)

After knowing about the virtue of gender, there are 91 males and 59 females. This data signifies that both genders were represented. However, majority of the respondents were males by 59% and 38.3% were females. A table shows the gender distribution of the respondents who have response the questionnaire (Table 1).

Education status of respondent

Education plays vital role in any profession field so qualified manpower are necessary for every organization. The best manpower can exceed goals and huge success in organization.

Qualification of respondent

Table 2

Education Status Distribution of Respondent

Qualification	Frequency	Percentage
High school	27	17.5
10+2 pass	36	23.4
Bachelors	57	37.0
Master Degree	29	18.8

P.H.D	1	0.66
Total	150	100

(Source: Field survey, January 2019)

As we can observe from above table the majority of 37% respondent have college diploma followed by 23.4% are high school graduates. Rest of the 17.5% is below 10+2 grades and 18.8% are only master's degree holder (Table 2).

Work experience of respondent

The main aim of providing training to employees is to reduce their weakness task given by organization. These data clearly define the overall commitment of employees in organization in mid of 2-5 years. After the training if there is any improvement in employee's performance the company provides rewards and benefits.

Table 3

Work Expearence of the Respondents

Experience	Frequency	Percentage
Under 2 years	38	24.7
2-5 years	58	37.7
5-10 years	40	26.0
Above 10 years	14	9.1
Total	150	100

(Source: Field survey, 2019)

The Table 3 shows that the majority of the working respondents have 2-5 years and 5-10 years of related working experience which is above 25%, 38 respondents have 0-2 years working experience and the rest of 14 have above 10 years working experience. It is obvious that majority of employees need more training to become skillful and competent.

Table 4

Descriptive statistics

	N	Min	Max	Mean
Training practices	150	2.00	5.00	3.3400
Delivery mode	150	1.00	3.00	2.6600
Training frequency	150	1.00	3.00	2.2800
Performance	150	3.00	4.00	3.5133

The Table 4 shows the variance of independent variables and dependent variables. A training practices have mean is 3.3400. Training practices shows how many trainings is organized by organizations. A delivery mode mean is 2.6600. A delivery mode is the way training instructions are delivered to support and enable learning process. A training frequency has mean value of 2.2800. Training frequency denotes here in the given data mean shows the average numbers of training practices, Delivery mode, training frequency and Performance attained to employers.

DISCUSSION

Today a world of technology a workforce needs suitable training and being more precise, improved skills to deal with hassles and barriers in organization. We offer training to guide employees on how to achieve their purpose and advancement on employee's performance. Employee training is a significant part of Human Resource Management and Development; it is the key path of motivating employees and increasing productivity in the business (McClelland, 2002). Employee training is the important task to help everyone in the company to be more united. Company either hires experienced employees or trains the currently working employees. If the company trains its staffs by providing harmonious atmosphere, passion of work, team spirit, and work specification will be built among employees and management team within the process. It noted all human resources development activities are meant to either improve performance on the present job of the person, train new skills for new job or new position in the future and general growth for both individual, train new skills for new job or new position in the future and general growth for both individuals and organization do as to able to meet organization current and future goal. It noted all human resources development activities are meant to either improve performance on the present job of the person, train new skills for new job or new position in the future and general growth for both individual, train new skills for new job or new position in the future and general growth for both individuals and organization do as to able to meet organization current and future goal. The organization must have skills to identify which training method is suitable for employees (G. Abhishek, 2016)

As per the past two years, data where various organizations took participated on the training of employee performance. Here are a few organization data who have conducted training related to employee performance. SBI bank has conducted "Workshop on communication skills" in a year 2018. DECC Nepal Pvt. Ltd conducted "Stress management" training in year 2017. Nabil bank attained "Team Building" training in a year 2017. Siddhartha Bank attained training on "Excellence in Customer service" in a year 2018. The Ministry of Foreign affairs training on "Emotional Intelligence" year 2017. Sipradi trading Pvt. Ltd has attained "Leadership Excellence" on year 2017. MAW Enterprise attained behavior training in a year 2017. NCASC organize "Motivational factor" training in a year 2018. HERD International conducted training of "Personality and Skill development" training in year 2017. Pooja International conducted training on improving employee performance "Effective

communication at workplace” in 2018. There is positive relationship between employee performance and training from this various research areas. The research recognized most of the employees improved their performance after training. The organization performance is important factor, which is determined by training provided to the employees. From the overall finding the managers have given clear justification after training, they have declared there is improvement in employer’s performance. I have faced certain difficulty as well as more opportunities during research. The employers more satisfied after training they also feel certain changes in their work performance.

CONCLUSIONS

A study highlights the influence of professional training on improvement of employee’s performance in various organizations. The learning of relationship between employers training and performance is vital factor for every manager due to modern business trends and competitive business world. Training is motivating factor in career development and recognizing various training programs in the organization employees are more interested to get ideas about their current job, which eventually leads, in getting promotions among the department. Training has influencing power on employees work commitment and performance, which reinforce and implement training as root of organization to exceed goals.

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POLICY DISCOURSE ON ELECTRIC MOBILITY IN NEPAL

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ABSTRACT

In recent years, electric vehicles have become an increasingly appealing alternative due to rising fuel prices and commitment of governments from all over the world to reduce pollution and global greenhouse gas emissions. This paper intends to explore the complex network of existing policy barriers that governments at all levels must overcome in order to develop a sustainable and long-term e-mobility strategy. The study not only examines the existing gaps but also uncovers the shortcomings in policies enacted by state and provincial governments of Nepal to promote electric mobility in the country. A lack of top-level commitment, policy coherence issues, and undefined targets for addressing EV challenges are discussed in the paper. Furthermore, this research brings in a global perspective by showcasing impressive instances from nearby countries and world leaders in this field. This analysis may offer valuable insights for policymakers aiming to enhance existing policy gaps.

KEYWORDS

Electric mobility, Electric vehicles (EV), EV policies, EV Policy Gaps, Greenhouse gases

INTRODUCTION

The previous century was dominated by fossil fuel powered vehicles due to their ease of availability, low cost of fossil fuel, and government regulations that supported

such companies. It is one of the world's major industries, accounting for around 16 percent of global greenhouse gas (GHG) emissions (Ritchie et al., 2020). The shift to electric mode of transportation has become imperative due to the depletion of fossil fuels, surge in energy costs, environmental effect of fossil fuel powered vehicles and concerns regarding climate change. Reducing greenhouse gas emissions has become a top priority for most developed countries, and many governments have looked to electric mobility as a solution to this issue.

With the completion of mega-projects such as the Upper Tamakoshi Hydropower Project, Nepal has not only achieved self-sufficiency in electricity production, but also a significant amount of surplus electricity remains unused at night. Every day, NEA loses NRs. 40 million due to power wastage (Editorial: Surplus Power, 2021). It needs to come up with a solid plan to increase the consumption of its excess electricity within a short period of time. State policies and programs must be formulated from now on to build the necessary infrastructure for electric vehicles to consume electricity at a larger scale.

Finding a means to substantially reduce greenhouse gas emissions is a primary concern for most countries, and many governments view electric vehicles as part of the solution. Several of the world's largest automakers have already committed to going all-electric between 2025 and 2030. In this regard, the Government of Nepal (GoN), which is also experiencing a rapid increase in the number of vehicles at a pace of 16-17% per annum (DoTM, 2019), is aggressively working towards reducing carbon emissions produced by the fossil fuel vehicles. According to Nepal Rastra Bank (NRB) data, petroleum products alone account for around 15% of Nepal's total import bill. Hence, GoN intends not only to minimize air pollution and its health implications, but also to reduce the budget deficit caused by petroleum imports and to improve energy security. This research is primarily aimed at studying global EV trends as well as the current situation at the national level, along with identifying the underlying discrepancies and contradictions between policy and practice. Furthermore, it also aims to provide appropriate recommendation after analyzing EV-related programs and provisions in existing policies.

LITERATURE REVIEW

In the past, the majority of transportation methods relied heavily on fossil fuels because they were readily accessible, fuel prices were affordable, and received government backing, leading to about 16 percent of global carbon dioxide emissions (Ritchie et al., 2020). Electric vehicles (EVs) have gained more recognition as a greener option for reducing carbon emissions in the transportation industry. The move toward electric transportation is crucial due to the exhaustion of fossil fuels, increased energy expenses, the environmental impact of fossil fuel-driven vehicles, and worries about climate change (Adhikari et al., 2020; Vassileva & Campillo, 2017). Therefore, countries have implemented a number of initiatives to encourage the use of electric vehicles in view of the urgent need to mitigate climate change. According to Adhikari et al. (2020), countries all over the world have implemented various policies to promote

electric vehicles in response to the urgent need to mitigate climate change. However, these policy approaches differ significantly across countries and lack consistency.

The GoN has issued a number of policies that include provisions related to electric mobility. Implementing these policies as well as identifying and addressing the policy gaps have always remained a challenge. The 'Right to a Clean and Healthy Environment' is one of the fundamental rights ensured by Nepal's Constitution to all its citizens. As a result, the Nepalese government is obligated to adopt relevant policies, legislation, and initiatives to ensure that no individual is deprived of this right. The Nationally Determined Contribution- 2020, is by far Nepal's most concrete policy framework for supporting electric vehicles which had a goal of 90 percent private and 60 percent public vehicle sales being electric by 2030. The Ministry of Forests and Environment (MoFE, 2021) has highlighted a few major e-mobility policies that may be broadly classified into three categories: environment and climate change policies, transportation policies, and fiscal policies.

Policies relating to the environment and climate change include the National Climate Change Policy, 2019, and the National Environment Policy, 2019. The National Climate Change Policy emphasizes on encouraging EVs as well as establishing and implementing a low-carbon emission strategy. It does not, however, offer deadlines or targets for implementing these strategies (Global Green Growth Institute [GGGI], 2018). Similarly, the National Environment Policy is primarily designed to control pollution, promote greenery and manage waste. It also intends to promote clean vehicles such as EVs, hybrid vehicles, and hydrogen-powered vehicles (MoFE, 2021).

Policies relating to transportation include National Transport Policy, 2001, Environment-Friendly Transport Policy, 2014 and National Action Plan for Electric Mobility, 2018. The National Transport Policy aims to make the transportation industry more environmentally friendly by fostering clean-energy-powered electric buses, trams, and mass public transit vehicles, particularly in cities. Similarly, the Environment-Friendly Transport Policy outlines more concrete e-mobility targets, with the goal of increasing the percentage of electric vehicles by 20% by the end of 2020, reducing GHG emissions, and providing finance options for EV infrastructure development (MoFE, 2021). It also argues for bringing in the private sector to invest in advanced technology to facilitate the transition to more sustainable mode of public transportation. In addition to this, National Action Plan for Electric Mobility has classified the barriers to EV promotion into four major categories: policy and governance, infrastructure and markets, financing and resources, and data and monitoring barriers (GGGI, 2018). Despite being a comprehensive plan, it lacks a clear timeline and investment strategy. The ministries that were initially involved in the plan's preparation appear unwilling formulation appear hesitant to allocate budgetary resources needed for its execution (MoFE, 2021).

Furthermore, the Fiscal policy and National budget 2021/22 have not only declared more favorable taxes with the goal of promoting EV sales, but also announced

customs duties on EVs based on battery capacity. However, it would have been far better if it had discouraged the import of expensive and luxurious EVs costing millions of rupees by imposing a higher tax rate and encouraged the use of inexpensive 2-wheelers used by majority of middle income families and large public vehicles. The fiscal policy has also decided to reduce the tariff for charging of EV, increase the loan-to-value ratio for personal electric vehicles to 80 percent and impose additional pollution tax on fossil fuel (GGGI, 2018).

Existing Policy Gaps

The federal and provincial governments in Nepal have developed EV related policies, which are often reflected in sectoral policies for transportation, energy, and the environment. Furthermore, GoN has also developed Nationally Determined Contributions (NDC), National Action Plan for Electric Mobility for promotion of EV. However, its implementation is ineffective, as indicated by the sluggish deployment of EV across the country (MoFE, 2021).

Absence of directives and legislations governing E-mobility.

The Environment Friendly Transport Policy includes provisions and targets for EVs, some of which are also included in the Nationally Determined Contributions. However, the government has yet to make supportive laws, directives, and procedures for policy implementation. This clearly reflects a lack of executional clarity.

Lack of coordination among key stakeholders

After reviewing different underlying policies related to E-mobility, it became obvious that EV promotion is not the responsibility of a single authority. For example, Nepal Electricity Authority (NEA) announced plans to establish charging stations in major cities and highways, but has yet to put those plans into action due to lack of coordination with other government departments. Hence, there must be effective coordination among different departments of the federal government, provincial governments as well as the private sectors. The existing policies and action plans have already advised that coordination committees be constituted at federal level (GGGI, 2018; MoFE, 2021). However, this has not yet materialized.

Lack of ambitious targets

While multiple policies have been devised to promote EVs, and we still lack a specific electric mobility plan, the aims in the various policies differ and are unclear. For example, the Environment-Friendly Vehicle and Transport Policy states a target of 20% EV by 2020, yet the 2016 NDC mentions a 20% growth in EV by 2020 compared to 2010 (GGGI, 2018; MoFE, 2021). The NDC target appears to have been easily accomplished, given there were not even 2000 registered EVs in 2010 and 20% of which only accounts for 400 extra EVs on the road.

Absence of policy for conversion of fossil fuel vehicles to EVs

There is absence of policy to incentivize the conversion of fossil-fuel vehicles to electric vehicles in absence of policy for conversion of fossil fuel vehicle to EVs. There is no specific policy in place to encourage the modification, adaption, or conversion of fossil fuel vehicles to electric vehicles. This mainly includes the re-registration process and underlying charges of vehicles being converted to electric; the quality, safety standards and performance parameters of such modifications or hybridization.

It has been seen that the US government has been providing upto 10% of conversion cost up to a maximum of USD 4000 for converting a fossil fuel powered vehicle to plug-in hybrid or electric vehicle. Similarly, the Indian government intends to introduce Hybrid Electric Vehicles (HEV) retro fitment kits, which might greatly increase the fuel efficiency of gas-guzzling old fossil-fuel vehicles by converting them to EV, a greener option. For this purpose, it is going to select a particular type of vehicle fleet (say 3-wheeler autos) and encourage them to convert themselves to electric by providing required incentives.

Absence of dedicated electric mobility plan

While several policies have been developed to promote E-mobility, none of them have been designed solely to solve the majority of the underlying challenges associated with electric mobility. A policy similar to FAME, proposed by the Indian government, is required. Such a policy should be aimed towards at initiating and implementing programs and activities including necessary subsidies or schemes, as well as offering concrete action for achieving policy goals and targets.

Reluctance of the relevant authorities to develop regulatory mechanism for pricing of EV

Despite significant reductions in customs duty and exemption from other taxes, electric car prices in Nepal are significantly higher. EVs in Nepal are priced two to three times higher than in neighboring countries. Because of their high price, electric vehicles are often regarded as luxury items and is beyond the imagination of middle class customer. Hence, reducing consumption undermines a greater goal of developing electric transportation. Development of pricing framework and governance of EV retailers by appropriate authorities is required.

Inadequate political commitment

Transforming policy into action necessitates a consistent political and legislative effort. However, Nepal's unstable government and political structure has resulted in poor political commitment. It is often noticed that the urgency and necessity for E-mobility legislation is recognized only in emergency situations such as fuel supply shortage, embargo, and increased air pollution in major cities (GGGI, 2018).

Theoretical framework underlying adoption of electric vehicles

This paper tries to examine the consumer adoption of EVs through the lens of

Rational Choice Theory. According to this theoretical framework, human activities and behaviors are motivated by a desire to maximize benefits and utility, as individuals make decisions based on their self-interest in order to achieve optimal outcomes (Bobeth & Kastner, 2020). This perspective provides valuable insights into the motivations underlying consumer decisions to adopt EVs, as it assumes that individuals are rational actors who carefully consider the costs and benefits of their actions, taking into account factors like preferences, constraints, and information availability.

Zhang et al. (2011) asserted that the adoption of EVs by consumers can be largely interpreted as a rational behavior guided by the principles of Rational Choice Theory. This perspective suggests that consumers engage in thorough evaluation of the potential benefits and drawbacks associated with adopting EVs when compared to conventional fossil fuel vehicles. Zhang further stated that while making decisions, consumers take into consideration various factors, including the potential cost savings over time, the environmental implications of their choice, and the technological advancements that EVs offer. By carefully weighing these factors, consumers aim to make informed decisions that align with their individual preferences and overall well-being.

Furthermore, Rezvani et al. (2015) extend this view by highlighting key factors that influence consumers' attitudes towards electric cars. One significant factor is the impact of government-provided tax incentives and financial rewards. These incentives can sway consumers' decisions by reducing the initial cost barrier associated with purchasing EVs. Moreover, the technological aspects of EVs, including their range and speed capabilities, play a crucial role in shaping consumer perceptions. Consumers often assess whether EVs meet their practical needs and lifestyle preferences. Additionally, the cost-effectiveness of EVs compared to their fossil fuel counterparts, in terms of maintenance and fuel expenses, is a pivotal consideration for prospective adopters.

METHODOLOGY

The methodology for this research involved a systematic approach that commenced with an extensive literature review covering journal articles, reports, government policies, and newspaper articles relevant to electric mobility in Nepal. Database searches were carried out on platforms such as Google Scholar, Nepjol, and MDPI, using keywords such as "electric mobility and/or EV policy." These keywords were chosen to generate a broad spectrum of information. Data screening focused on materials directly related to barriers against EV use and policies related to electric mobility. Only resources directly related to electric mobility, as well as those referring to Nepal, India, China, and the European Union, were included. Similarly, government policies, papers, and reports pertaining to transportation, climate change, Nationally Determined Contributions, and financial policies were reviewed. Newspaper articles were also analyzed to gain an understanding of the overall discourse surrounding electric mobility in Nepal. Furthermore, the Nepal Public Policy Review was examined as it plays a pivotal role in understanding the influence of government policy on Nepal's electric mobility environment. Finally, ethical standards were maintained by following

copyright and ethical guidelines throughout the research.

Best Practices in Other Countries

India

The Indian government has come up with a comprehensive program for electrification of transportation through FAME I & FAME II schemes (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles I and II). Besides, it has also provided financial incentives like reduction of 5% Goods and Services Tax (GST) on EVs, and tax exemption on interest payments on bank loans for EVs (Kanuri et al., 2021). FAME I focused mainly on technological development, demand creation, pilot projects, and charging infrastructure installation. Similarly, FAME II, which was launched in 2019 with a budget of INR 100 billion, had clearer and more defined targets. The majority of the budget was allocated for demand incentives for EV purchase, mostly for public vehicles, while the remaining budget was for installation of charging infrastructure (Press Trust of India, 2021). The Indian government intends to provide incentives based on the battery capacity and nature of the vehicles, which means that larger public buses will receive more financial incentives than private two-wheelers.

Apart from the Central government, the State governments have also implemented ambitious policies and programs to accelerate the adoption of electric mobility in their states including electrification of entire fleet of government owned vehicles and building of charging infrastructures along the major highways (Kumar & Singh, n.d.). In addition to this, Kanuri et al. (2021) further state that, these schemes, incentives are provided to encourage the usage of electric vehicles and can be broadly classified into three categories; customer demand incentives, charging infrastructure incentives, and industry incentives.

China

China, which intends to phase out conventional fossil-fuel vehicles by 2035 and replace them with eco-friendly vehicles, has the largest market share of around 45 percent of all EVs (Virta Global, 2021). China is by far the greatest producer and buyer of electric vehicles. Its dominance in the EV market is primarily due to the Chinese government's substantial support for this industry in the past decade. To meet its ambitious objective of 5 million EVs by 2020, China has imposed EV quotas on vehicle manufacturers and importers, provided subsidies and tax incentives to manufacturers and customers, and promoted the installation of EV charging stations. Furthermore, the Chinese government mandated in 2016 that half of all new vehicles purchased by China's Central government be electric vehicles within five years (Erdenebileg, 2016). Public procurement can be considered as a crucial step in encouraging the general people to switch to electric vehicles.

European Union

The European Union has set an ambitious goal of becoming a carbon-neutral continent by 2050. The EU aims to have at least 30 million electric vehicles on the road

by the end of this decade, indicating a significant increase from the current 1.4 million EVs on European roads. To meet this goal, it will issue several new legislatives related to electric mobility in the coming years (Virta, 2021). According to Biresselioglu et al. (2018), the EU intends to boost electric mobility by forcing car makers to produce low-emission vehicles and to build extensive charging infrastructure. Additionally, its unique 750 billion euro stimulus package, intends to spend 20 billion euros to stimulate EV sales and the installation of one million charging stations by 2025. Ortar and Ryghaug (2019) further emphasized that aside from financial incentives and tax exemptions, EU countries such as France, Sweden, and Norway have implemented a tax scheme in which polluting vehicles pay a surcharge based on their CO₂ emissions level, while clean vehicles receive rebates. It seems that these nations have taken a proactive stance by implementing a tax structure which not only penalizes vehicles emitting higher levels of CO₂, aligning with the principle of discouraging pollution, but also rewards environmentally friendly choices through rebates for clean vehicles.

Takeaways from International EV Policies

The international landscape of electric vehicle (EV) policies offers some valuable insights that can be employed in determining effective strategies for promoting sustainable mobility worldwide. Firstly, public procurement or electrification of government-owned cars within a specified time frame, as successfully implemented by China and the Delhi state government, sets a valuable example for the wider market and highlights the significance of government leadership in promoting EV adoption.

Additionally, governments aiming to achieve ambitious EV adoption targets should consider imposing EV quotas on vehicle manufacturers and importers, emulating the Chinese model. This strategy, when combined with manufacturing subsidies and tax exemptions, incentivizes the industry to transition towards electric transportation (Zhang et al., 2011).

Moreover, it is apparent that the general public's adoption of electric vehicles has fallen short of expectations due to insufficient charging infrastructure and the range anxiety (Adhikari et al., 2020). To overcome these obstacles, governments may consider implementing specific program to build a dependable and robust charging infrastructure ecosystem, drawing inspiration from China, India and various European countries.

Furthermore, the government should prioritize financial incentives for affordable modes of transportation, such as mass transit and two-wheelers favored by the working class. Implementing a subsidy scheme, similar to India's FAME II scheme, with direct payments to customers' bank accounts after vehicle purchase is recommended.

Finally, leadership commitment remains pivotal for policy implementation. The incorporation of EV policy in Norway's Climate Agreement by political parties demonstrates how high-level support can bring about substantial change. Similarly, China and India also demonstrate a high degree of top-level commitment to EV promotion (MoFE, 2021). These key findings highlight the importance of an integrated

approach that combines legislative measures, infrastructure development, financial incentives, and constant political support to successfully transition towards a sustainable EV future.

POLICY OPTIONS AND RECOMMENDATIONS

Development of human resources

In Nepal, there are only a few technical people who are proficient at servicing and repairing electric vehicles. As a result, the extent of EV adoption and business investment is limited. Periodic manpower projection is required by defining the skills required for electric vehicle maintenance and producing workforce accordingly. This requires CTEVT capacity enhancement via strategic planning, new curriculum creation, and trainings for people needed for EV maintenance.

Designing EV specific curriculum

GGGI (2018) mentions that the curricula designed by most of the Nepalese universities for their engineering schools and colleges do not include EV engineering. There are also no specialized programs or training courses available for EVs. This has reduced chances for future engineers looking to learn new skills, while also being a possible barrier to EV adoption.

Imposing EV quotas

The government should set specific EV quotas on vehicle manufacturers and importers, specifying what percent of their overall imports should be comprised of EVs. In addition, a framework should be developed to penalize fossil fuel vehicle manufacturers and importers if they fail to reach their quota. This had effectively brought into action by the Chinese government since 2010.

Development of a specific electric mobility plan

While several policies have been devised to encourage E-mobility, none have been designed specifically to address the majority of the underlying issues related with electric mobility. A concrete policy should be developed that incorporates the majority of the unresolved aspects of E-mobility challenges. A policy similar to that proposed by the Indian government, FAME I and II, would be pertinent in Nepal as well. Such a policy should aim to initiate and implement programs and activities that include providing subsidies or schemes for EV manufacturers, for developing EV infrastructure and monetary subsidies to EV customers.

Legislation for the development of a robust ecosystem of charging stations

Infrastructure for charging in public spaces, large cities, and roads is vital for EV promotion. Along with government efforts, it demands the involvement of the private sector to build infrastructures at such a massive scale. To attract private investors, it is critical to develop supportive policies, directives, and procedures pertaining to investment mechanisms as well as EV charging rates in private charging stations.

CONCLUSION

The paper provides a comprehensive analysis of the policy discourse surrounding electric mobility (EV) in Nepal. It highlights various policies related to EVs and categorizes them into environment and climate change policies, transportation policies, and fiscal policies. Despite the presence of these policies, this paper identifies significant gaps in their implementation and design, hindering the effective promotion of electric mobility. These gaps include the absence of supportive laws, lack of coordination among stakeholders, inadequate target setting, absence of policies for converting fossil fuel vehicles to EVs, lack of a dedicated electric mobility plan, reluctance to develop pricing mechanisms, and inadequate political commitment.

As the initial stages of policy formulation are navigated, a substantial need emerges for the development of policies at all levels of government. The present moment calls for the initiation of a concrete EV policy that not only addresses current needs but also aligns with the government's long-term objectives. It is important to acknowledge that challenges have been encountered by both developed countries and neighboring nations during the implementation of their existing policies. For instance, the Indian government faced criticism for its inability to fully achieve the targets set by FAME I, leading to an extension of deadlines for FAME II to demonstrate progress. In light of such experiences, maintaining a positive outlook towards evolving policies and the government's commitment to addressing EV adoption challenges remains crucial.

Moving forward, it is essential to retain a positive attitude on the availability of dedicated policies and a certain amount of government commitment aimed at overcoming the barriers to EV adoption. However, the way forward does not only involve providing financial incentives to purchase electric vehicles. Instead, the emphasis should be on developing a comprehensive and long-term investment strategy that considers future possibilities and developments. Similarly, the government should also undertake essential initiatives, including the electrification of all school buses and mass transportation in major cities, the transition of government office vehicles to electric, and even the initiation of an ambitious project aimed at establishing an electric train network. By prioritizing effective policy implementation and taking inspiration from successful global models, Nepal can position itself for a cleaner, greener transportation future.

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REVIEW ON KAYACHIKITSA (INTERNAL MEDICINE) AS AN IMPORTANT SPECIALITY IN AYURVEDA

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ABSTRACT

Ayurveda is an ancient science which deals with the Ayu (Life) of all human beings. Kayachikitsa is one of the most important branch/speciality among primary eight branches of Ayurveda. In Ayurveda, Kayachikitsa is such a unique branch which deals with 'Kaya' meaning 'Sharira (body)/Mana (mind)/Antaragni (Digestive fire)' and 'Chikitsa' meaning 'treatment'. It deals with diseases suffering entire body and mind so, it is correlated to Internal Medicine in modern medicine. It is described as the superior branch of Astanga Ayurveda and it is given prime importance due to its wide field of application in diagnosis and treatment of various diseases affecting human beings. Kayachikitsa is a very important and leading speciality in Ayurveda. So, considering this fact, we summarize about Kayachikitsa speciality and its importance in this article.

KEY WORDS

Ayurveda, Kayachikitsa, Speciality, Internal Medicine, Astanga Ayurveda

INTRODUCTION

Kayachikitsa is the precious branch of Astanga Ayurveda which deals with the knowledge of aetiology, signs and symptoms, pathogenesis along with principles of

treatment of diseases affecting our body and mind. Kayachikitsa is made up of two words 'Kaya' and 'Chikitsa'. Here, 'Kaya' means 'Sharira (body), Mana (mind) and Antaragni (Digestive fire)' as a whole, whereas 'Chikitsa' means 'treatment'. It can be correlated to Internal Medicine in modern medicine.¹ The practice of Ayurveda is comprised of two schools i.e medicine and surgery in ancient times. Kayachikitsa represents the school of medicine and forms the basis for all other branches of Ayurvedic treatment. Kayachikitsa deals with different diseases like *Jwar* (Fever), *Atisar* (Diarrhoea), *Raktapitta* (Bleeding disorders), *Sosha* (Tuberculosis), mental illnesses like *Unmada* (Mania), *Apasmar* (Epilepsy), *Kustha* (different skin diseases) and *Prameha* (Diabetes) etc.² Kayachikitsa describes how to treat diseases caused by impairment of nutrition and metabolism, through correction of affected Dosha, Dhatu and Antaragni.³ It is concerned towards promoting an ideal health by holistic approach of healing body and mind through its principles of treatment .

Causes of Diseases⁴

Asatmendriyārtha samyoga: The hyper, hypo and perverse relationship of artha (objects) with the indriya (sense organs) destroy the equilibrium condition of sharirika and manasika dosha.

Pragyaparadha: Volitional transgressions and error in judgement

Parinama: Seasonal or Meteorological crisis

Different modalities of treatment in Kayachikitsa speciality⁵

Aparisankheya chikitsa: As diseases are countless, treatment is also countless.

Ekavidha chikitsa

Nidana par ivarjana: Removal of the causative factors of the disease is itself a treatment.

Pathya sevana: Eating healthy food and practicing healthy life styles and avoiding the unhealthy ones according to the disease is called Pathya sevana.

Dwividha chikitsa

Viparita Chikitsa/Shita- Ushna Upachar: Hot- Cold Therapy

Santarpana- Apatarpana Chikitsa: Nourishing- Lightning Therapy

Samsodhana- Samshamana (Purificatory- Pacifying Treatment)

Ojaskara/Urjaskara- Rogaghna (Treatment for the promotion of Oja or Immunity and to cure the disease)

Rasayana-Vajikarana Chikitsa: It is the subtype of Ojaskar chikitsa.

Rasayana Therapy ensures Dirghayu (Longevity), promotion of Smriti

(Memory), Medha (Intelligence), increases Vyadhi Kshamatwa (Immunity against diseases), Vayasthapana (preservation of youth, lustre, complexion and voice).

Vajikarana Therapy promotes virility, strength, prosperity, fame and offer healthy offspring.

Prasamana- Apunarbhava Chikitsa: It is the subtype of Rogaghna chikitsa

Prasamana chikitsa means dosha pacifying treatment methods

Apunarbhava chikitsa means those treatment procedures which prevent the recurrence of the disease.

Dravyabhuta- Adravyabhuta Chikitsa:

Dravyabhuta chikitsa deals with treatment of various disorders through dravya like drugs, medicines which are given internally. It is the conventional method of treatment.

Adravyabhuta chikitsa is a drugless treatment method where different tricks are used to treat the diseases like yoga, dhyana (meditation), marma chikitsa, vyayama etc.

Trividha chikitsa:

Daivavyapashraya-Yuktivyapashraya-Satwavajaya chikitsa

Daivavyapashraya chikitsa is a spiritual therapy like mantra, wearing mani, yagya, upavasa, homa, puja etc.

Yuktivyapashraya chikitsa includes all the therapeutic measures which help to bring dosha-dushya involvement in healthy condition in any disease like samana, sodhana, nidanaparivarjana measures etc.

Satwavajaya chikitsa implies therapeutics for mental or emotional disturbances like Dhi (Knowledge), Dhairya (patience), Aatmadi vigyana (Self-realization) etc.

Hetuviparita-Vyadhiviparita-Ubhayarthakari Chikitsa

Hetuviparita chikitsa means treatment which is opposite to cause of disease.

Vyadhiviparita chikitsa means treatment which is opposite to disease.

Ubhayarthakari chikitsa means treatment opposite to both cause and disease.

Chaturvidha chikitsa

Samshodhan-Samshaman-Ahara-Achara

Samsodhan means purificatory procedures.

Samshaman means pacification therapy.

Ahara means foods which are good for the disease.

Acharya means those good behavioral and social aspect which one should follow in certain disease.

Panchavidha Chikitsa

Panchakarma: Panchakarma chikitsa means five purificatory procedures i.e., Vamana (Therapeutic vomiting), Virechana (Therapeutic purgation), Niruha Vasti (Giving medicinal decoction through anus), Anuvasana Vasti (Giving oil-based medicine through anus), Nasya (Pouring medicines through nostrils)

Divisions of Kayachikitsa⁶

- Agni chikitsa (Treatment of Metabolic disorders)
- Ama Pachana (Autoimmune disorders)
- Samsodhana/ Panchakarma (Purification/ Penta-Detoxification Therapy)
- Manasa roga chikitsa (Psychiatrics)
- Rasayana (Rejuvenation)
- Vajikarana (Aphrodisiacs)
- Sankramaka roga (Treatment of Infectious diseases)
- Janapadodhwamsa (Treatment of Environmental pollution/ Endemics/ Pandemics)
- Twak/ Kshudra roga chikitsa (Dermatology)

Importance of Kayachikitsa

Kayachikitsa is a very important and leading specialization in Ayurveda field.⁷ There was the system of specialization even in ancient times in the field of medicine.

Among the eight branches of Ayurveda, Kayachikitsa is the most important one and is a prerequisite for all other specializations.¹ It is such a special branch which is as deep as sea and as broad as sky.⁸ It is given prime importance and described in the first position among Astanga Ayurveda due to its wide field of application in various diseases. Vagbhata explained the importance of Kayachikitsa as '*Nitya upayogi*' i.e. useful in daily life, '*Durbhedyam*' i.e. difficult to understand and '*Sarvanga Vyapi*' i.e. it is inter-spread over all other branches of Ayurveda and it deals with ailments related to all organs.⁹

Even in present days, Kayachikitsa speciality is in optimum use for the treatment of various illness of people. Kayachikitsa deals with the principles and methods of diagnosis and treatment of a variety of disorders like skin disorders, metabolic disorders like Diabetes, Hypertension, Obesity, Dyslipidemia, Fatty Liver and other lifestyle disorders, general medical disorders, Arthritis and Joint disorders, *Rasayana* (Geriatric medicine), *Vajikarana* (Aphrodisiac medicine) etc. Charaka Samhita is the

most important scripture of kayachikitsa. A recent study also showed that people visited Kayachikitsa department of an Ayurveda Hospital in Nepal to treat various chronic diseases, non-communicable diseases and life style disorders.¹⁰

According to Charaka samhita and Astanga Hridaya, innumerable diseases and disease syndromes are produced due to the imbalance in the harmony of *Sharirika dosha* (*vata*, *pitta* and *kapha*) and *Manasika dosha* (*Raja*, *Tama*) in the body.^{11,12} Kaya chikitsa provides several measures to maintain the balance between these dosha. Moreover, it is also concerned with the measures to maintain a Psycho-somatic equilibrium between the Sharirik (somatic) and Manasik (psychic) components of a person.¹³ It also discusses the basic methods of treatment by *Shamana* (pacification) and *Sodhana* (purification/detoxification methods), *Ahara* and *Aachara*. Curing the disease can be attained through shamana (pacification) and shodhana (purification/detoxification) chikitsa, shaman chikitsa pacify the morbid doshas, whereas shodhan expels the accumulated dosha.

Ayurveda has discussed six stages of a disease, which includes *Sanchaya* (aggravation), *Prakopa* (accumulation), *Prasara* (overflow), *Sthana-samshraya* (relocation); *Vyakti* (build up in a new site) and *Bheda* (manifestation into a recognizable disease). Kayachikitsa deals with various measures to stop any disease in any of the six stages of disease¹⁴. One of the most important treatment methods followed by kayachikitsa is panchakarma, which helps in purification and detoxification of body and maintain the harmony of dosha to attain good health, calmness of mind and happiness in life.

Kayachikitsa uses several herbal, mineral and natural therapies to treat various ailments. The role of mind in the causation and cure of diseases is well recognized in kayachikitsa, hence due importance is given to strict mental discipline and adherence to moral values. For that purpose, *Manasaroga* is described in kayachikitsa.

The basic principles of Kayachikitsa provide ways for the management of diseases related to the disturbed pattern of life style i.e. metabolic disorders which is the main factor of Non-communicable disease. The Kayachikitsa helps to manage various metabolic disorders including; obesity, hypertension, high cholesterol, fatty liver, diabetes and digestive problems.¹⁵ Uses of various internal medicines is done in Kayachikitsa for the management of ageing or geriatric care. The drugs and other approaches of Kayachikitsa improve skin luster, vision, vitality, cardio functioning, metabolic activities, functioning of nervous system and regularizes excretory system in elderly person.¹⁶

CONCLUSION

Kayachikitsa treats the patient as a whole by dealing not only human body but also mind and digestive fire. This branch of Ayurveda brings the equilibrium condition in endogenous factors of body like dosha, dhatu, mala and antaragni through different measures like internal medicines, purificatory procedures or satwavajaya chikitsa cor

Psychiatric disorders. Among other specializations in Ayurveda, Kayachikitsa is prime and its field of action is wide without which all remaining speciality wings will not exist. The pervuew of Kayachikitsa is broad as it deals with all systemic disorders, nutritional, metabolic, endocrinal, psychiatric, endogenous, congenital as well as hereditary disorders. Thus, Kayachikitsa is an important and super specialization in Ayurveda which is very comon and useful in simple to complex health problems.

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PERCEPTION OF DETERMINANTS OF PSYCHOTIC PATIENTS AND IMPACT OF PSYCHOTIC PATIENTS ON THE FAMILY OF KATHMANDU DISTRICT IN NEPAL

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ABSTRACT

Perception of determinants of psychotic patients and their impacts on the family of Kathmandu district in Nepal aims at finding out the determinants in terms of biological, psychological, and sociological aspects and their impacts in terms of social, financial, emotional, and health. The theoretical method is incorporated for roughly 30 caregivers (the sample size is estimated with the Population Proportion Formula) of psychotic patients in Nepal. Nonclinical data was used for the analysis, with a survey method for quantitative data and an interview method for qualitative data. The questionnaire and interview schedule are used as study instruments. Those instruments are tested through conceptual definitions, operational definitions, design, development, statistical analysis, and thematic content analysis. The analysis of the data for objective number 1 revealed that social determinants had the highest number of occurrences, but these were actually psychosocial and biological determinants. These determinants were directly or indirectly related to psychological or emotional factors and are synchronized with the bio-psychosocial model. (B.P.S.) developed by George Libman Engel of the University of Rochester Medical Center, New York. The results of objective number 2 concluded that the emotional impacts of psychotic patients were the most prominent, followed by social, financial, and health impacts. It is clear that emotional impact comes first, followed by other impacts such as financial, social, and health. These findings will support the fresh data for the urgent need for further in-depth study of the determinants of psychotic patients and their impacts on the family.

KEYWORDS

Biological, Determinants, Emotional, Health, Impacts, Physical well-being, Psychotic Patients, Social Determinants

INTRODUCTION

According to the DSM-IV, the five key symptoms of psychotic disorders are: 1) delusions; 2) hallucinations; 3) disorganized speech; 4) disorganized or catatonic behavior; and 5) negative symptoms. As a result, psychosis is defined as a change in the brain's information processing. It can cause an individual to lose touch with reality. The symptoms, such as auditory and visual hallucinations and delusions, are seen (DSM-5, 2020). In general, major determinants of psychotic patients can be biological, social, psychological, and environmental. The determinants that potentially contributed to the psychotic patients were misguided beliefs about the cause of the mental disorder, low literacy on the symptoms of mental disorders, internalized stigma, financial problems, the long distance to the psychiatric hospital, and the perceived complexity of the bureaucratic system (Marthoenis, Aichberger, & Schouler-ocak, 2021). Psychosis can have a great impact on all family members. Psychosis is accompanied by grief. The stages of grief are shock and denial, learning to cope, and acceptance. Different stages in the grief process can cause conflict. The family members are affected by the stress and grief associated with the illness. Psychosis often has a great impact on marriages and family relationships. Psychosis has a direct impact on development. The main developmental impacts can be difficulty forming an independent identity, learning independent living skills, living independently, finishing education, entering the workforce, identifying a career path, establishing adult peer relationships, sexuality, and starting a family. Every member of the family who is directly affected by psychosis can be affected developmentally (Early Assessment and Support Alliance, 2016).

Significance of the study

The study of the determinants of psychotic patients and their impacts on families can be an initial step in understanding the real situation and suffering of psychotic patients and their families in six districts of Nepal. Because the main aim of this study is to describe the actual conditions and hardships faced by caregivers and patients, it can be a small attempt at ushering awareness of severe mental illness and the plight of their families among the people and government of Nepal. Therefore, the public and government will be able to contribute for the betterment of the psychotic patients and their families. Overall, neuroscience, psychology, and medicine have made advances in identifying potential mechanisms for the development of

psychopathology. But the findings are overlapping, conflicting, and inconsistent (Karver, 2015). Even observational and experimental research showed that biogenic beliefs about mental illness are associated with negative, more stigmatizing attitudes towards the mentally ill. These facts show that the role of caregivers and the impacts of psychosis on families were not sufficiently considered during research and experiments (Lippi, 2016). Nowadays, medical science and psychology accept the importance of the role of caregivers and the impacts of psychotic patients on families in mitigating mental illness. This study will help to enhance the importance of the role of caregivers and the impact of psychoses, shading light on most aspects of determinants and impacts. The result of this study might help prevent caregivers from being hidden patients by encouraging people to provide adequate social support and showing the social impact of psychosis.

Statement of the problem

The first epidemiological field survey conducted in the Kathmandu Valley was in 1984 A.D. That field survey had estimated the prevalence of mental illness at around 14 percent (Nepal Health Research Council, 2022). The Government of Nepal Health Research Council, the National Mental Health Survey, and Nepal conducted a survey from November 2017 to January 2020. The general objective of the survey was to assess the prevalence of mental disorders in Nepal and find out the help-seeking behavior and barriers to accessing care among people with mental disorders in Nepal. The expected output was to deliver a complete analytical report with a clear national picture of the prevalence of mental disorders. In the report of this project, it is clearly stated that among the adult participants, 10% had a mental disorder in their lifetime (Nepal Health Research Council, 2022). According to the preliminary results of the National Census 2022, the population of Nepal has reached 2,91,92,480 (Central Bureau of Statistics, 2022). Approximately 3% of the 10% of people with mental disorders have psychotic symptoms. It means the population of psychotic patients in Nepal is 87577. Therefore, the prevalence of psychotic patients in Nepal is 0.3%.

Similarly to this, there are 201532 people residing in the Kathmandu district as a whole (Central Bureau of Statistics, 2022). In all of Nepal's districts, it has the most significant population (Central Bureau of Statistics, 2022). Adults in Kathmandu make up about 12% of the city's overall population. The digits are 201753, and 2.4886% of the people in this group have psychotic symptoms (Nepal Health Research Council, 2022). The number is 6025. Similar to Kuala Lumpur in Malaysia, the capital of Nepal is located in the Kathmandu area. The incidence of mental illness was estimated to be approximately 14% in the Kathmandu Valley based on an

epidemiological field survey done in 1984 (Nepal Health Research Council, 2022). It houses the majority of Nepal's biggest hospitals and other medical facilities, making it the district with the most extensive healthcare facilities. According to the Health Facility Registry, Federal Ministry of Health (Government of Nepal Ministry of Health, 2015), It has the largest health facilities for treatment out of all the districts in Nepal, with the majority of large hospitals and health-related institutions, including the office of the Department of Health of the Nepal government. The majority of Nepalese seeking treatment for serious health issues travel to the Kathmandu district (Nepal Health Research Council, 2022). This region is therefore appropriate for the purpose of this study.

Despite the high prevalence of mental disorders in Nepal in comparison to other countries in the world, the Nepal government has given little importance to the mentally ill population. Therefore, less than 3% of the national budget is allocated to the health sector, with only 1% of that budget dedicated to mental health (WHO, 2021). The families and caregivers of mentally ill patients are totally ignored by the government (Government of Nepal Ministry of Finance, 2022). Thus, the current research is intended to identify the perception of the determinants of psychoses and the impact of psychotic patients on their families, which may provide baseline information on the major issues to be considered when making national policies regarding mental health.

Identifying the determinants of psychotic patients and their impacts on their families is the most important aspect of the management of psychotic patients. Without understanding the determinants of psychotic patients and their impacts on their families, health professionals cannot provide good professional service to psychotic patients. Therefore, they will exclude them from the disease, treatment, and decision-making processes. So they are not able to understand the needs and expectations of their family members (Akbari, Alavi, Irajpour, & Maghsoudi, 2018). Then they can become hidden patients. The outcome of this study will adequately identify the determinants and impacts of mental illness.

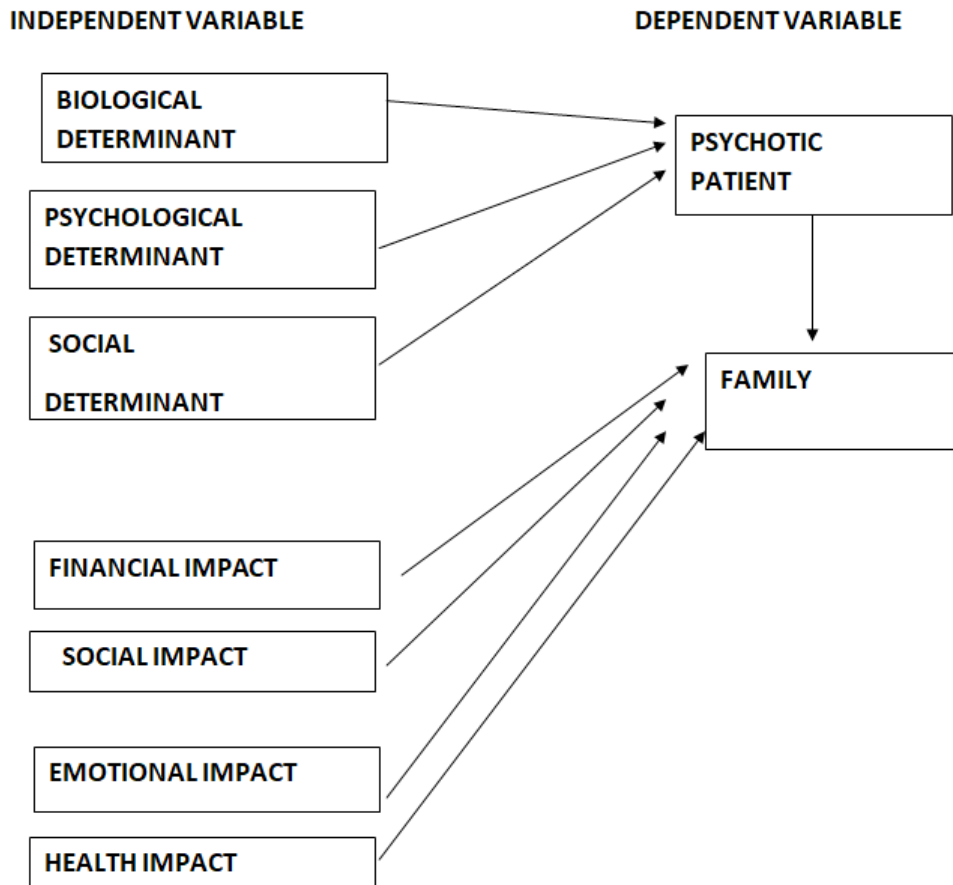
Due to the lack of knowledge and information on the determinants and impacts of psychotic patients, the patients and members of their families immensely suffer, and the patients and their families are constantly affected by the changes resulting from the disease and its treatment (Akbari, 2018). This study will shed light on knowledge and information about the determinants and impacts of psychotic patients for the betterment of people with mental illness.

Objectives of the study

1. To identify the perception of caregivers about the bio-psychosocial determinants of psychotic patients.
2. To assess the impact of psychotic patients on the family in terms of financial, social, emotional, and health factors.

Figure 1

Conceptual framework (Perceived determinants)



The conceptual framework of the study (Figure 1)

Theoretical Framework Determinant 1

The bio-psychosocial model serves as the foundation for the theory underlying

the causes of mental disease (BPS). The bio-psychosocial paradigm was developed by American physician and psychiatrist George Libman Engel (December 10, 1913–November 26, 1999), who worked at the University of Rochester, Medical Center in Rochester, New York (Dowling, 2005). According to this theory, the combination of biological, psychological, and social elements results in mental disease. These elements can operate as risk and protective factors in the emergence of psychological diseases. The majority of illnesses, however, lack a single, clearly defined etiology (Abera et al., 2015).

Mental health issues have a wide range of complex causes. Although they play a part, biological variables are not the only component at play. Additionally important are the social and psychological aspects. Most medical professionals believe that the bio-psychosocial model, which encompasses three key domains, can be taken as a determinant of mental health including psychoses. Biological issues such as genetics, brain chemistry, and brain injury. The social issues are life traumas, pressures, early life experiences, and family relationships. Psychological processes are how an individual interprets events as signifying something negative. The total mental health of an individual is the product of the complex interactions between these variables. The interaction of the factors is summarized in the diagram below. In actuality, it is a vast, intricate network (Delphis Learning, 2019).

Theoretical Framework for Determinant 2

The diagram given in number 2 above is adapted from the article "Modern Understanding of Psychosis: From Brain Disease to Stress Disorder and Some Other Important Aspects of Psychosis," by Johannessen & Joa, which was released in 2021 to justify the independent variables of the study. This theory states that stress from childhood trauma and other reasons has been linked to a wide range of mental illnesses, including psychosis, such as PTSD, sleep issues, anxiety, depression, bipolar disorder, hallucinations, personality disorders, drug abuse, eating disorders, and many more (Johannessen & Joa, 2021).

Theoretical Framework Impact 1

Hans Driesch, Ludwig von Bertalanffy, and William T. Powers developed the ideas of equifinality and multifinality. The pathways that link risk and protective variables to maladaptive and adaptive outcomes are thought to be explained by equifinality and multifinality. Equifinality is the knowledge that several potential routes or risk variables might lead to the same conclusion.

(Brittany Jordan-Arthur, 2015).

In psychology, the concept of equifinality describes the finding that, in any open system, a variety of paths can all lead to the same outcome. This is a framework for looking at how a person's behavior is influenced by a variety of different life circumstances (such as their living condition, ethnicity, biology, etc.). The multifinality

notion states that any component of a system may operate differently depending on the structure of the system. Simply expressed, equifinality suggests that many things are related to the same item, but multifinality indicates that one thing can be related to more than one object. The fact that many predictors are related to one outcome and numerous outcomes are tied to a single predictor (Dauchot, 2018) significantly clarifies the situation.

The idea of equifinality emphasizes the likelihood that several background risk **variables** could produce the same outcome. Numerous beginning circumstances, techniques, and ideas result in the same general conclusion. The concept of "multifinality" emphasizes how a **single** illness, treatment, concept, or risk factor may manifest itself in a variety of ways over the course of a person's lifetime. According to (Delisi, 2014)), a negative notion typically has detrimental impacts across contexts and in a number of ways.

This study also looked at the relationship between a psychotic patient's family and the impacts on their financial situation, social life, emotional state, and health in the light of the theories of equifinality and multifinality.

METHODOLOGY

The population are the caregivers among the family members of patients with the diagnosis of psychotic symptoms from the Kathmandu district, because Kathmandu district has a total population of 20,17,532 people (Central Bureau of Statistics (CBS), 2022). It has the highest population among all the districts of Nepal (Central Bureau of Statistics (CBS), 2022). The sample is composed of 30 caregivers among the family members of patients with the diagnosis of psychotic symptoms from the Kathmandu district of Nepal, based on purposive sampling. The caregivers are selected based on the diagnosis and medication of psychotic patients by qualified psychiatrists. Only nonclinical data are used for the analysis. In this study, the survey methods are used to collect the quantitative, data and the interview methods are used to collect the qualitative data.

DATA COLLECTION

Only nonclinical data will be used for the analysis. The survey methods are used to collect the quantitative data, and the interview methods are used to collect the qualitative data. In the survey method, questionnaires are used, and in the interview method, interview schedules are used as the study instruments.

DATA ANALYSIS

The collected data are entered into SPSS version 25 for Windows. Descriptive statistics use frequencies to describe variables. So, for objective number 1, descriptive analyses are used. For objective number two, content thematic analyses are used to gain a deeper and clearer understanding of the formation of themes.

Only nonclinical data will be used for the analysis. The survey methods are used

to collect the quantitative data and the interview method are used to collect the qualitative data. In survey method, the questionnaires are used and in interview method the interview schedules are used as the study instruments.

VALIDITY AND RELIABILITY

The content validity of the instruments is established by: 1. Cronbach's alpha scale; 2. inter-rater reliability method; 3. back translation method; and 4. necessary modifications.

LIMITATION OF THE STUDY

This study will be limited only to the caregivers among the family members of patients with psychotic symptoms. Therefore, limitations may occur due to the small and limited sample size.

RESULTS

After gaining the results from SPSS 25, Microsoft Excel was again used for the calculation and analysis to compare and evaluate the results. However, the findings and figures were similar.

Among the 5 scales of the Likert (strongly disagree, disagree, "neither agree nor disagree", agree, and strongly agree), "**agree**" was assigned for the response of the determinant (cause) of psychosis. But according to the respondents, even if they assigned "**agree**" on the cause of psychosis, it may not be the cause in all the psychotic patients. Anyhow, the majority of cases of psychosis may be determined by this cause. Next, "**strongly agree**" is assigned for the universal determinant of psychosis present in all of the psychotic patients.

Demographic Frequency of Background Variables

In this study, a total of 30 caregivers were invited to participate in the study. All 30 caregivers completed the questionnaire and interview schedule, giving a response rate of 100%. All of the respondents were from urban areas. Of those who completed the interviews, 22 (73.33%) were male and 8 (26.66%) were female in terms of the frequency of gender (Table 1).

Table 1

Gender, education, and economic status

Theme	Frequency	%
MALE	22	73.33
FEMALE	8	26.66

ECONOMIC STATUS		
LOW STATUS	0	0
MIDIUM STATUS	26	86.66
HIGH STATUS	4	13.33
ACADEMIC QUALIFICATION		
ILLITERATE	0	
SCHOOL PASS OUT	15	50
UNIVERSITY PASS.	15	50
TOTAL FRQUENCY	79	100

Note. The frequencies of gender, education, and economic status

The first and second highest frequencies of agree and strongly agree

1. DEATH OF A LOVED FAMILY MEMBER. (EMOTIONAL IMPACT) = **23**, (the highest frequency) in the likert scale of AGREE.
2. FAMIY FINANCIAL CRISIS (FINANCIAL IMPACT) = **21** (the second highest frequency) in the likert scale of AGREE
3. NEURO CHAMICAL DISTURBANCE (HEALTH IMPACT) = **11** (the highest frequency) in likert scale of STRONGLY AGREE
4. GENETIC RELATED CAUSE = **8** (the second highest frequency) in likert scale of STRONGLY AGREE.

Percentage and Frequency of “Agree” in Hierarchical Order

1. Death of a loved family member = Sociological determinants **23 (76.7%)** (Lead to psychological and emotional distress as grief, sorrow, anxiety, regret, resentment, and depression).
2. Family financial crises = Social determinants **21 (70%)** (Lead to psychological distress as stress, anxiety, and depression).
3. Academic failure = Social determinants **21 (70%)** (Lead to emotional turmoil as sadness, and anxiety).
4. Conflictual marriage = Social determinants **20 (66.7)** (Lead to mental or psychological pain, sorrow, stress, and envy)
5. Substance use = Biological determinants **20 (66.7)** (Usually, substances are abused for pleasure and psychedelic experiences but may result in mental or psychological distress due to adverse conditions in life and impaired relationships).
6. Physical and sexual abuse = Biological determinants **18 (60%)** = (Lead to physical

and psychological pain as remorse, regret, and shame.)

Percentage and Frequency of “Strongly Agree” Hierarchical Order

1. Neuro-chemical disturbance (Biological determinant) = 11 (36.7%), the highest frequency of the Likert scale of “strongly agree”. The imbalances in neurotransmitter have direct effects on the fluctuation of emotions).
2. Genetic-related cause (Biological determinant) =8 (26.7), the second highest frequency in the Likert scale of ‘strongly agree’. The genetic-related causes are also biological determinants. But the results of the studies show that the major cause of neuro-chemical imbalances might be due to genetic-related causes. It shows that there is a close relation between “Genetic related cause” and “Neuro-chemical imbalance”.
3. Substance use= (Biological determinant) = 7 (23.3%). As mentioned above, usually, substances are abused for pleasure and psychedelic experiences, but it could lead to extreme mental or psychological distress due to adverse conditions in life and impaired relationships).
4. Physical and sexual abuse = (Biological determinant) 5 (16.7%) Though it is related to biological problems, (it may lead to unbearable physical wounds and mental pain, remorse, regret, and shame).

Objective number 2

First, the responses were entered precisely with the words and sentences of the respondents in Microsoft Excel. Then themes were created and divided into four parts according to the independent variables of objective number two. Then the codes were generated on the basis of the themes for the analysis. Six Microsoft Excel sheets were used to enter the data for six research questions. After entering all the data for themes and codes, frequencies and cumulative percentages were calculated. Sum, mean, median mode, and standard deviation were calculated based on frequencies and cumulative percentages.

Table 2
Frequency

Frequency of Financial Impact	Frequency of Social Impact	Frequency of Emotional Impact	Frequency of Health Impact
16	21	25	16
30	9	4	1
5	30	18	0
2	14	30	3

4	7	11	23
10	23	19	10
Mean 11.16666667	17.33333333	17.83333333	8.83333333
Median 7.5	17.5	18.5	6.5
Sum 67	104	107	53

The highest frequency among four variable is emotional impact = 107. The second highest frequency among four variables is social impact = 104. The third highest frequency among four variables is financial impact =67. The lowest frequency among four variable is health impact =5 (Table 2).

Table 3
Cumulative Percentage

Emotional Impact (%)	Social Impact (%)	Financial Impact (%)	Health Impact (%)
20.66	26.58	32.91	20.25
68.18	20.45	9.09	2.27
11.11	55.55	33.33	0
4.08	28.57	61.22	6.12
8.88	15.55	24.44	51.11
16.129	37.097	30.645	16.129
Mean 21.5065	30.63283333	31.93916667	15.979
Median 13.6195	27.575	31.7775	11.1245
Sum 129.039	183.797	191.635	95.879

The highest cumulative percentage among four variable is financial impact = 191.635%. The second highest cumulative percentage among four variables is social impact = 183.797%. The third highest cumulative percentage among four variables is emotional impact =129.039%. The lowest cumulative percentage among four variable is health impact =95.879%. The results were totally synchronized between the data of frequency and the data of cumulative percentage including mean, median, mode, standard deviation and sum (Table 3).

The result were found totally synchronized between descriptive analysis of

SPSS 25 and the analysis of thematic content analysis of Microsoft Excel sheet and formulas including frequency, cumulative percentage, mean, median, mode, standard deviation, and sum of objective number 1. The results of objective number 1 and 2 are totally synchronized even though the data of objective number 1 were computed with descriptive analysis using SPSS 25 and the data of objective number 2 were computed with thematic content analysis using Microsoft excel sheet and formulas. Interestingly, the results were also synchronized with established theories and principles. It will be explained in detail in discussion and conclusion section.

Interestingly, the results were also synchronized with established theories and principles. It will be explained in detail in discussion and conclusion section.

DISCUSSION

The findings of this study are synchronized with established theories and principles, as in the examples following below. This study supports that the main and prime perception of determinants in psychotic patients is the interaction of biological, sociological, and psychological determinants, as mentioned in the bio-psychosocial model (BPS) of George Libman Engel, and that the bio-psychosocial model provides the theoretical underpinnings for the theory underlying the etiology of mental illness. The findings also explain that mental illness is the result of the interaction between biological, psychological, and social factors (Dowling, 2005). Thus, the combination of biological, psychological, and social elements results in mental disease, and these elements could also operate as risk and protective factors in the onset of psychological diseases (Abera et al., 2015).

The psychological or emotional determinants might be both **cause** and **effect** (result) of negative or positive human behaviors such as social, biological, and financial behaviors (social and biological determinants). As stated in the article by Dolan "Emotion is central to the quality and range of everyday human experience", (DOLAN, 2002).

The result of this study also showed that the psychological determinants (stress), social determinants (caused by financial burden), and biological determinants (neurotransmitters and chemical disturbances) were directly related to psychosis, as mentioned in the "theory of Johannessen and Joa" (Johannessen & Joa, 2021).

The findings also obviously showed as in the result of the paper in 2019 by Fekadu, Mihiretu, Craig, and Fekadu, that emotional impact comes first, then other impacts (financial, social, and physical) follow after any negative or positive event or incident in human behavior (Fekadu, Mihiretu, Craig, & Fekadu, 2019).

The results also showed that the fact that many predictors are related to one outcome and numerous outcomes are tied to a single predictor (Dauchot, 2018) significantly clarifies the situation. Thus, as the concepts of the theory of equifinality and multifinality stated, this study also supports the fact that four impacts such as biological, financial, social, and physical impacts could change the equilibrium of the

family of psychotic patients, and the equilibrium of the family of psychotic patients could also change the conditions and intensity of the financial impact, social impact, emotional impact, and health impact. Although impacts stand for predictors and family stands for outcome in equifinality, impacts stand for outcomes and family stands for path or predictor in multifinality. These conclusions were backed by the responses to six research questions in the study.

CONCLUSIONS

The findings of objective number 1 proved that the social determinants had the highest number of occurrences. However, those occurrences were, in fact, psychosocial determinants. All those determinants were directly or indirectly related to psychological or emotional factors, even though they seemed to be social determinants at first glance. The second-highest determinants were biological. These determinants were also directly or indirectly connected with psychological factors. For example, the determinant of substance use seems to be biological. However, in fact, it is a somatopsychic determinant. Because, usually, substances are abused for pleasure and psychedelic experiences but may result in mental or psychological distress due to adverse conditions in life and impaired relationships, the biological determinant of physical and sexual abuse is also a somatopsychic determinant. Thus, it also leads to psychological pain such as remorse, regret, and shame, along with physical pain. In the light of this study, psychological factors are inseparably related to other factors such as social and biological factors.

The conclusion of objective number 2 explicitly concluded that the emotional impacts of psychotic patients were the most prominent impacts on the family among the other three impacts: social impact, financial impact, and health impact. It is also obvious that emotional impact comes first, and other impacts (financial, social, and physical) follow any negative or positive event or incident in human behavior.

The findings additionally indicate that the relationship between several predictors and one outcome, as well as between many outcomes and one predictor, considerably simplifies the issue. As a result, in line with the ideas behind the theories of equifinality and multifinality, this study also supports the idea that four impacts—biological, financial, social, and physical—could alter the equilibrium of the family of psychotic patients and that this equilibrium could alter the circumstances and intensity of the financial impact, social impact, emotional impact, and health impact. In multifinality, effects stand for outcomes and family for route or predictor, even if impacts stand for predictors and family for result in equifinality. These conclusions were supported by the responses to six research questions in the study.

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