A STUDY ON THE KNOWLEDGE AND BEHAVIOUR CHANGES RELATED TO AN EDUCATIONAL INTERVENTION ABOUT CONSEQUENCES OF SMOKING DURING PREGNANCY.

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Abstract

A study of the mothers' habit of smoking and an educational intervention for prevention from the consequences of smoking during pregnancy.

A descriptive and intervention study was carried out in 1998 on the impact of health education intervention to raise awareness among smoking mothers about consequences of smoking during pregnancy. This study was conducted at the Shree Panch Indra Rajya Laxmi Devi Prashutigriha (Maternity Hospital) over a period of one month from 6th September to October 1998 (Bhadra 21, 055 Aswin 20th 055). The main objective of the study was the effects of smoking on the health of mother and fetus before and after an educational intervention.

The study population were the smoking habit of pregnant mothers who came to the hospital for Ante-natal check–up, and delivery. A purposive sampling technique was used to select the sample. The total numbers of sample were 100 according to eligible criteria of observation sign, willing to participate and cooperate. The instrument used for the study was a personal interview schedule. The instrument consisted of semi–structured questionnaire items of socio–economic factors, nature of the women's smoking habit, stage of her pregnancy its complications and out come. A Pretest tool, followed by educational intervention of facts and information, a post-test, and follow–up tools were used. The educational intervention gave information on the known injurious effects of smoking on health, knowledge health problems in relation to smoking, knowledge of pregnancy complications associated with smoking, knowledge smoking is associated with shorter life span, cancer of lungs, breast, uterus and cervix and also effects on the child in utero. After the intervention, a post-test showed that the subjects knowledge their knowledge substantially changed regarding smoking and its effects during pregnancy on the post test. Some additional information of anti smoking of quality care during pregnancy regarding safe pregnancy was given. The obtained data were analyzed by using frequencies, percentage, range mean, standard deviation, coefficient of variation and correlation by computer analysis. Paired "t" test was used for testing the hypothesis and to assess the impact of the

education intervention on the smoking habit of mothers. Their knowledge before and after the educational intervention were compared.

Findings of the study revealed that the majority of the pregnant women have smoking habits without pertinent knowledge on its effect. After educational intervention mothers knowledge raised their awareness of smoking consequences and also responded positively by 80 percent changes reflected by their smoking habit. Only 20 percent respondents did not respond to educational intervention. A coefficient of correlation indicated a positive and significant correlation of educational level with the knowledge of the respondents. The main objectives of the study were achieved through the educational intervention.

Abbreviations used in this document.

ANC	Ante Natal Clinic.
AIDS	Acquired Immune Deficiency Syndrome.
CO	Carbon Monoxide.
CBS	Central Bureau of Statistics.
CV	Coefficient of Variation.
EDD	Expected Date of Delivery.
HIV	Human Immune Virus.
HMG	His Majesties Government of Nepal.
IEC	Information, Education and Communication.
IUD	Intra-Uterine Death.
INGO	International Non-Governmental Organization.
I.O.M.	Institute of Medicine.
KAP	Knowledge, Attitude and Practice.
L.B.W.	Low Birth Weight.
LMP	Last Menstruation Period.
M.S.M.T.	Megendra Samjhana Medical Trust.
NGO	Non-Governmental Organization.
OPD	Outpatient Department.
SD	Standard Deviation.
SEAR	South East-Asia Region.
SEARO	South East-Asia Region Office.
TBA	Trained Birth Attendant.
T.U.	Tribhuvan University
U.K.	United Kingdome.
U.S.A.	United States of America.
VDC	Village Development Committee.
W.H.O.	World Health Organization.
I.E.C.	Information, Education, Communication

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CHAPTER I

INTRODUCTION

Nepal is a developing, landlocked country wedged between China on the North, and India on the East, West and South covering a total area of 141,181[1] square kilometers of land. Nepal is situated on the lap of the Himalayas. The Kingdom of Nepal is divided into five development regions, 14 zones, 75 districts and 3,913-village development committees. Nepal has 21 million people of whom 50.1%[2] are female. Among them, the women of childbearing age (15-49 years) constitutes 23%[3] of the total female population. The average fertility rate was 4.64[4] in 1996.

The current population growth rate is 2.3%[5] per annum and the National per capita income is 234 U.S. Dollars[6] for 1997. Forty percent of the population is below the poverty level. The women's literacy rate is 25%. Eighty one percent of the population engages in agricultural activities. Nepal is 149th[7] in the world in terms of economic conditions.

1. **Background of the problem (scenario of problem)**

Every year, there are 1.1[8] billion smokers in the world. Among them, 12 percent of women globally smoke. In developing countries, 7 percent of women smoke compared with 24 percent of women in developed countries. According to a World Health Organization (W.H.O) 1998, report, Nepal has the highest prevalence rate (62 percent) of women smokers in the world. The prevalence of smoking by females in the rural area of Kathmandu is 58.9 percent and in the urban areas of Kathmandu is 14.2 percent[9].

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[1] W.H.O. Country Situation Analysis, smoking and health, World Health Organization, Report of a Regional Seminar, Kathmandu, Nepal 26-30 March SEARO, Technical Publications No.7. New Delhi, 1985.

[2] Population Projection for Nepal, (1991-2011). National Planning Commission, Kathmandu, 1994.

[3] HMG/ Ministry of Health, Maternal Mortality and Morbidity study Family Health Division, Department of Health Services. Nepal, 1998.

[4] Ajit Pradhan, Ram Hari Arayal, Gokarna Regime, et,al. Family Health Survey, Kathmandu Nepal, & Calverton, Mary Land, Ministry of Health, New Era and Macro International I.N.C. 1997

[5] Central Bureau of Statistics, Kathmandu Nepal.1997.

[6] CBSs, 1998 op. cit.

[7] CBSs, 1998 op. cit.

[8] W.H.O. Tobacco situation global scenario, Tobacco consumption and health effect, World No - Tobacco day 31 May 1998.

[9] M.R.Pandey, Prevalence of chronic bronchitis in rural community of hill region if Nepal, Thorax 1984.

Tobacco consumption is increasing at the annual rate of 2.1 percent in developing countries and is decreasing at the annual rate of 1.1 percent due to smoking control actions[10]. The prevalence of daily smokers increases at the peak age of (16-19 years) of whom 16 percent are girls. Because of the low literacy rate, peer pressures and parents' smoking habits all influence the onset in girls at time of pregnancy[11].

It is estimated annually that 3.5 million deaths are caused by smoking tobacco in the world. One million deaths occurred in developing countries. Thus health and economic losses are due to smoking tobacco[12]. Smoking is a major public health problem around the world. Most smokers have poor understanding about how smoking affects, directly and indirectly the health of pregnant mothers of fetus and there is little concern for nearby non-smokers. Smoking is a major preventable cause of pregnancy complications such as spontaneous abortion, still birth, pre-mature delivery, babies with low birth weight, neo-natal death, congenital abnormalities, placenta previae. These problems are higher in smokers than non-smokers. The probability of Nepalese women suffering from pregnancy complication is very high. These complications are more common in smoking women than non- smoking women. Women's health during pregnancy is precious. There is a need to protected pregnant mothers against the bad effects of smoking and save lives.

Educational intervention helps to empowering women with basic information about harmful effects of smoking ensuring that the health of pregnant women and incumbent baby is preserved. Hopefully, educational intervention would help women reduce or stop smoking at least during pregnancy.

Awareness is the determinant factor of health and smoking. Knowledge aims at raising the level of awareness of the incompatibility of smoking and a healthy pregnancy. In other word an educational approach is a major means of achieving a change in health practice towards safe and healthy pregnancy. Because of the high percentage of women smokers and the high rate of pregnancy complications in Nepal, there is a need discourage smoking among women in our country.

This study will investigate the change in understanding the bad effects of smoking and the change in smoking habit of women who have been given an information about the harmful effects of smoking.

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[10] Candace Corey" Tobacco and Health" Behind the smoke screen, contact, 1990,114; 1.
[11] M.R.Pandey, op. cit.
[12] W.H.O., Tobacco use a public health disaster. World No- Tobacco day 31st May 1997. P.P.4;

SIGNIFICANCE OF STUDY

1. In previous years, the investigator conducted two case-studies on the problems of low birth weight baby and incomplete abortions of smoking mothers.

   The earlier case studies the encourage investigator to study the smoking habit of pregnant mothers. The investigator gave a health education program for the smoking mother against the smoking habit for healthier life. After the educational intervention, one client had totally given up smoking, as reported to the investigator during a follow-up visit. The client was a recent smoker and she demanded health education for smoking mothers to increase their awareness against smoking during pregnancy. Hence, health education is a major tool for preventing harmful smoking effects during pregnancy by reducing or quitting of the smoking habit altogether.

2. In Nepal, there are more pregnancy complications i.e., 40 percent pregnancies are at risks; (10 percent[13] perinatal mortality rate), more spontaneous abortions, placenta-previae, still-births, low birth weight babies and neo-natal deaths. These complications are more common in smoking mothers than non-smoking mothers. Hence, these factors increase the maternal morbidity and mortality rates, perinatal mortality rate, infant mortality rate and premature death of women.

3. Nepal has the highest prevalence of smoking women in the world, a high illiteracy rate in women, few health policies against tobacco consumption and very few research studies of smoking consequences during pregnancy.

   With all these considerations, the investigator felt the need to know the existing knowledge of smoking mothers regarding the consequences of smoking during pregnancy.

4. This academic study will act on the 1990 W.H.O. slogan of "Think-globally and act locally." While conducting this study through educational interventions, it is expected to increase women's awareness of smoking consequences during pregnancy. This study will help to lower the smoking rate by preventing the smoking habit and its consequences.

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[13] Dr.D.S.Malla, Ajit Pradhan;Fact sheet, **Maternal morbidity/mortality**, Family Health Division, Department of health services, Ministry of health, HMG of Nepal, 1998.

The findings of the study will be most helpful to those planners, policy-makers, and health care providers regarding health education strategies against tobacco consumption during pregnancy.

5. This study of educational intervention helps against tobacco consumption and should be integral part of comprehensive health care program.

6. This study will bring about an awareness of the smoking women and young girls towards improving their health status with a greater understanding from the findings of this study will help health care providers in selecting the topics of smoking consequences for health education.

7. This study will meet the demand for health education against smoking for to prevent the harmful effects of smoking during pregnancy.

8. The finding of this study will help provide more information about the knowledge of Nepalese women concerning the prevention of complication of smoking during pregnancy. Educational intervention will help to prevent the onset of smoking by empowering with new knowledge and information, at least in study area.

Brief background of women smoking in the world

1. Women smoking rates in the developed world[14]

1. Australia	1992	24.0
2. Belgium	1993	19.0
3. Canada	1993	28.0
4. Denmark	1993	39.0
5. U.K.	1992	28.0
6. U.S.A.	1992	23.5
7. Netherlands	1993	30.0

2. Women's smoking rate in developing countries[15]

1. Nepal	1998	62.0%
2. Bangladesh	1998	20.0%
3. India	1998	15%- 65%, (37 million women smokers)
4. Indonesia	1998	0.6% - 4.6%
5. Sri Lanka	1998	0.8%
6. China	1998	9%

[14] Catalyst, an information series on smoking and health, background brief, adult smoking rate; Quit:

[15] W.H.O., tobacco situation; shocking facts, alarming statistics, World No-Tobacco Day 31st May 1998.

STATEMENT OF PROBLEM

Tobacco consumption is everyone's problem irrespective of smoker and non-smoker. In Nepal, tobacco consumption is a great challenging public health problem facing the country. These have the highest prevalence of women smokers in the world. Eighty five percent (85%) of men and Sixty two percent (62%) women smokers in Nepal. The sample study has demonstrated that 71.7% womens smokers above 20 years in 1981. This has been increased to 76.7% in 1998. During this 17 year interval the women smokers substantially increased by 5%. In these women, the smoking tendency may lead to more pregnancy complications such as spontaneous abortion, placenta previa, still birth, neo-natal death and low birth weight babies. This automatically endangers the future generation.

Educational intervention is essential against the consumption of tobacco, Timely corrective measures need to be instituted in different formal and informal health programs of Nepal. This problem requires the greatest attention by statesman, bureaucrats, administrators, planners, policy makers and politicians of the country. Only when this problem has been solved them, sustained development is possible. The global strategy is for more tobacco control and for prevention of tobacco consumption. It is estimated that most perinatal mortalities could be reduced by 25% if women did not smoke during pregnancy. Nursing professionals are mainly concerned with women's health and individual wellbeing and , being a health care provider she can play a vital role in prevention and control of tobacco consumption by providing an educational intervention to all smoking individuals. Every nurse can teach tobacco consumption is unacceptable and dangerous to women during pregnancy.

Therefore the researcher is focusing due attention on women's health problems especially during pregnancy in relationship to tobacco consumption. This tobacco consumption and its consequent complications can be prevented by

providing an educational intervention incorporating new information and instructions on smoking habit. (This study may result the change in knowledge and change in smoking behavior by reduction or cessation of smoking and also prevention from onset of smoking habit.) Pregnancy complications may decrease, if interventions is undertaken in time to alleviate the consequences of smoking during pregnancy. Hence, for the above mentioned reasons, the researcher desired to search for it, solution of the problem among smoking mother's knowledge about the deletenous consequences of smoking before and after educational intervention and to assess the change in mothers smoking habit.

Educational intervention will help in reducing or a cessation of smoking in pregnant mothers. It can also reduce the onset of the smoking habit.

OBJECTIVE OF THE STUDY

General Objective :

To assess the knowledge or smoking consequences on the health of the mother and fetus before and after giving educational information.

Specific Objectives:

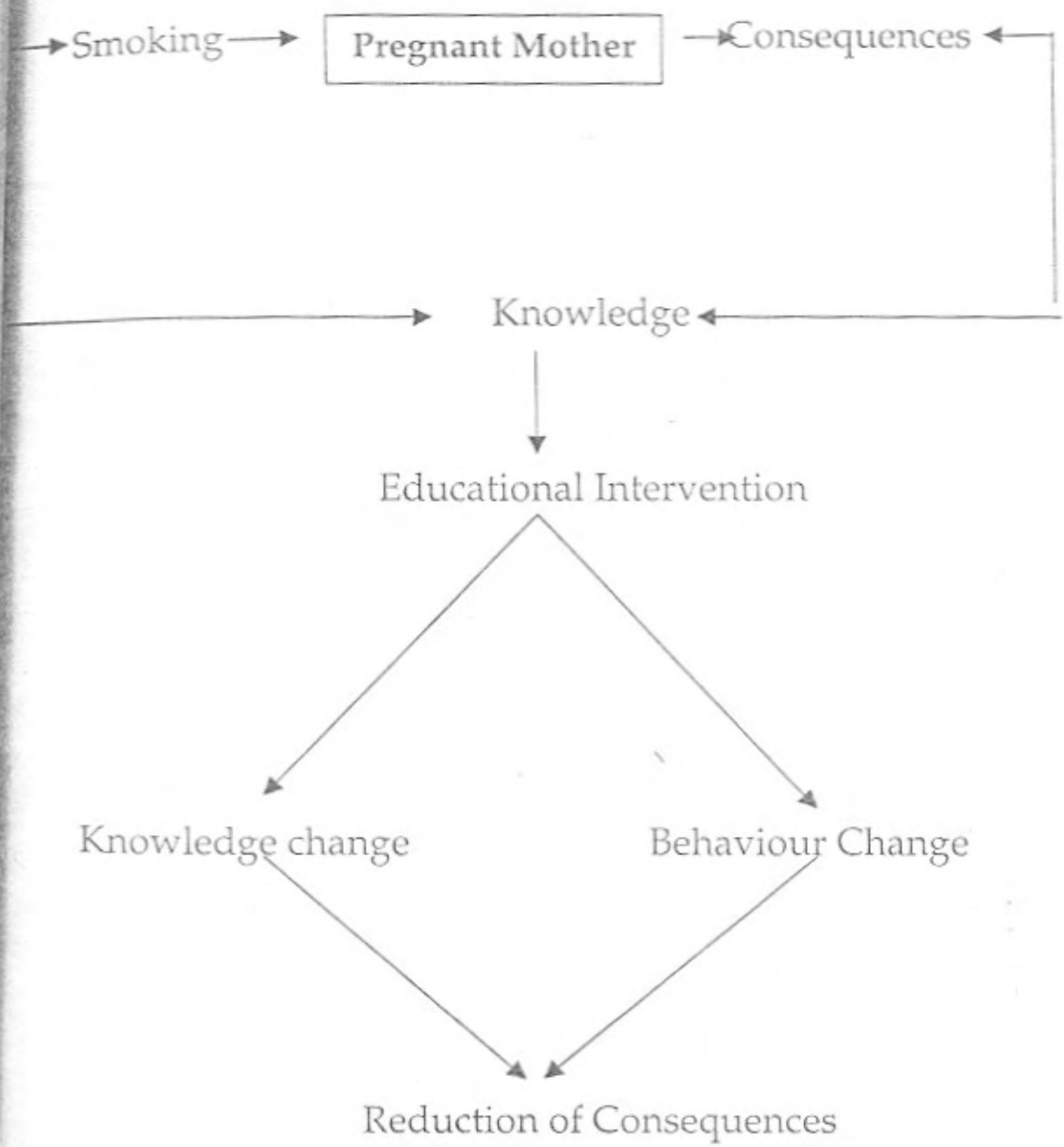
1. To assess the knowledge on smoking consequences on health of mother and fetus before educational intervention.
2. To educate smoking mothers by presenting educational information about the deletenous consequences of smoking during pregnancy.
3. To assess the knowledge on smoking consequences on health of mother after the educational intervention.
4. To assess the change in smoking habit after receiving the educational information.

CONCEPTUAL FRAME-WORK

In Nepal, pregnancy complications are very high. Forty percent of the total pregnancies are at high risk . There are more chances of complications in smoking mothers than in non-smoking mothers. One of the causes of risks in pregnancy is due to lack of awareness of the effects of smoking and lack of health education against tobacco use in Nepal. The consequences of smoking during pregnancy can be reduced or prevented by developing in the patient an awareness of factors contributing to a healthy pregnancy. This study will assess the understanding of smoking respondents by pre-test, increase their awareness of smoking consequences during pregnancy through educational intervention and assess their knowledge after the educational intervention by post-test. The objective is to increase awareness and develop a positive response to the reduction or cessation of smoking, at least during pregnancy also to meet the need for integrating education against tobacco use with other health services, which may help to prevent the onset of smoking habits in young women. It is hoped that the present investigation was an attempt to study the awareness of the effects of smoking on pregnant women and their babies, and to measure the degree of change after educational intervention .

Fig. 1

CONCEPTUAL FRAME WORK



This conceptual frame work is based on a system approach applied to educational intervention.

HYPOTHESIS

1. There is difference in mother's knowledge about smoking during pregnancy before and after educational intervention.

2. There is a difference in smoking habit after the educational intervention.

1. Independent and Dependent variables

- Previous knowledge and educational intervention in respondents.
- Dependent variables are acquired knowledge and smoking behavior after receiving education and information.

Socio-economic and demographic factors.

1. Residence
2. Ethnicity
3. Age
4. Education
5. Occupation
6. Family status
7. Nutritional status
8. Gravida
9. A.N.C. visit
10. Smoking habit
11. Type of Tobaccos
12. Number of Cigarettes
13. Age of smoking
14. No. of years of smoking (Duration)
15. Reason of smoking
16. Previous history of pregnancy
17. Health problems
18. Change in smoking habit after educational intervention

OPERATIONAL DEFINITIONS OF TERMS OF STUDY

The following terms were used in this study:

1. Residence: It denotes geographical area of Nepal regarding address of the smoking respondents.
2. Age: - It denotes age of pregnant mothers with smoking habit. This study includes the reproductive age (15-49 yrs).
3. Ethnicity: It refers to the different ethnic groups of the smoking respondents, such as Chhetri, Tamang, Brahmin, Maharjan, etc.
4. Education: It refers to:
    a) Illiterate: The respondents who are unable to read & write.
    b) Literate: The respondents who are able to read & write.
    c) Primary: The respondents who are literate with formal schooling under grade five.
    d) Secondary: The respondents with former schooling under S.L.C.
    e) The respondents who are enrolled under the University program, such as Certificate, Bachelor and above.
5. Occupation: It refers to the respondents' job or work for earning money. Occupation is productive employment of respondents.
6. Type of Family: It refers to family type, single or joint family.
7. Income: It refers to the average income of the family per month.
8. Nutritional status: It refers to the diet of the respondents regarding appetite.
9. Gravid: It denotes a state of pregnancy of the respondents, both present & past irrespective to the period of gestation; e.g. prime, second & third gravid etc.
10. A.N.C. Visit: - It refers to the number of antenatal care visits received by smoking mother during pregnancy. According to WHO's technical group, a minimum of four visits for a normal pregnant women are recommended.
11. Smoking habit: It refers to daily tobacco consumption by pregnant mothers and also refers to the number of cigarettes smoking by respondent.

12 Knowledge: It refers to the facts and states of knowing about the effects of the smoking habit regarding pregnancy.

13. Pre-test: The assessing the level of knowledge of effects, of the mothers habit of smoking during pregnancy.

14 Behaviour - Act or functioning repeated practice of smoking.

15. Educational intervention refers to the information given to the mothers about the harmful effects of smoking and the prevention of the consequences of smoking by reduction or cessation of smoking during pregnancy.

16. Post-test denotes the assessment of the mothers' knowledge after educational intervention.

17. Feed back refers to the assessment of the change in smoking habit after receiving new information and personal instructions.

STRENGTH AND LIMITATION OF THE STUDY.

1. To reduce bias, all the mothers with smoking habit during pregnancy who were admitted for delivery were included without discrimination.
2. The investigator herself collected all the data to bring uniformity of information.
3. As far as possible, the privacy and confidentiality of the respondent were maintained.
4. Pre-test was done before the educational intervention.
5. Educational intervention was done to instruct respondent on the consequences of smoking during pregnancy and how to prevent those consequences, prevention from consequences of smoking during pregnancy.
6. The posttest was done immediately after the educational intervention within the same respondents, using the same tool.
7. This is a small academic study, which utilized a sample from the National maternity hospital, Thapathali, Kathmandu.
8. The study is limited to 100 pregnant mothers with the habit of smoking.
9. Before the data collection, a pre-test was done, to check the research tool, on the smoking habit of pregnant mothers (10%) who were not participants in the actual research study.
10. The total time available for data collection was 5 weeks. This study was limited to Maternity Hospital, Thapathali only. Therefore this study cannot be generalized.

CHAPTER II

LITERATURE REVIEW

INTRODUCTION

Studies of women's knowledge on smoking consequences in pregnancy for the prevent of such complications in field of womens' health and development are very few and scattered. However, some of the relevant concepts and studies conducted during the past are presented in this chapter.

- Theory of Learning
- Education
- Smoking rate
- Risk of smoking during pregnancy
- Reason for smoking
- Cancer
- Content of cigarettes
- Smoking habits
- Age of smoking
- Shortening of life span
- Smoking risks for infants and children or non smokers
- The most prevalent disease caused by tobacco used.
- Heart disease
- WHO
- Women's Health
- Tobacco scenario in developing countries.
- Tobacco control measure
- Crop Substitution
- WHO Global Plan
- Banning of the Sport Sponsorship
- Knowledge Intervention
- A smoking cessation intervention for low–income pregnant women
- Smoking in pregnancy effects of stopping at different stages
- Low Birth Weight
- Self–help smoking cessation programme
- Research
- Tobacco situation in Nepal.

2.1 David, Ausbel a contemporary psychologist has cognitive approach to learning, knowledge success when act a reinforce behaviour immediate feed back on performance. In which central central idea is a assimilation theory. According the theory, the most of the meaningful cognitive learning occurs as a result of interaction between new information and knowledge. Which an individual acquired specially relevant cognitive structure. In this theory on organization of instruction is the Assimilation theory. Cognitive variables are learners' previous knowledge related to concepts or ideas.[1]

2.2 Effective health education is the key to smoking prevention. Such effective education is directed to youth and women. The national health committee of the government is focused on promoting healthy life style of the vulnerable group of women and young children. Ninety percent of the women and young children of experiment with tobacco consumption by the age of 20, of those smokers became dependent on the smoking habit. Knowledge, Attitude and Practice (KAP) model emphasized that creating awareness regarding safe protecting and prevention from consequences of smoking by providing confidence, supportive environment, and self empowerment model to assist non smokers.[2]

2.3 The women who smoked one to five cigarettes per day had no increased risk of preterm birth compared with non smokers. Those women who smoked more than 6 sticks per day will continued exposure to a smoke filled environment were associated with fetal growth retardation and increase in perinatal and infant mortality.[3] Cigarette smoking has a wide range of effects on reproductive health and women who smoke during pregnancy increase the risk of still birth, neonatal mortality and their children are liable to have delay in physical and intellectual development up to the age of 11 years.[4] Women who smoke 6 to 10 cigarettes per day had almost three times the risk of preterm birth and the women smoking more than 10 sticks of cigarette per day had five times higher risk of pre-term birth compared with non smokers. [5]

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1 Ausubel D. Novak J. and Hanesion H, Educational Psychology a cognitive view, 2nd edition New York, Halt, Rinehart and Winston 1978 (P 27/29)

2 St. Aban's Herts ALi 5TX, children and smoking, teaching AIDs at low cost (TALC) United Kingdom.

3 Jenson Babcock, Maternity and Gyanecology care, Third edition; The C.V. Mosby Company, 1985, (337).

4 Keith Ball, Tobacco or Health smoking speels death fo rmillion, World Health Forum, 1986; 7 (3): 214

5 Wisborg, Henriksen, Hedegavd, Secher, smoking during pregnancy and preterm birth Britist Journal of Obstetrics and Gyanecology, 1996: 103 (8): 800–5

2.4 The several studies demonstrated that smoking during pregnancy developed not only dependency on smoking but also there is a thresh hold effect on birth weight (is few study show that from Asia).[6] Tobacco if chewed as nearly 3 folds (actively or passively smoked) as bidi increase stillbirth, and reduced birth weight by 100–400 gm.[7] Female at two times greater risk for low birth weight then male and the Placental weight is significantly increased by (66 gm) like wise, (30) thirty percent male fetal wastage and 2 fold higher of perinatal mortality, in addition the occurrence of the sudden infant death syndrome. Infact more than 45 studies have confirmed that maternal smoking risk during–pregnancy[8] of a cigarette a day eventually reduces birth weight by 8–9 gms which is double the risk than non–smoker. The fertility of women is significantly reduced meaning it is harder to get pregnant. There are 115,000 miscarriages each year directly linked to smoking and other long lasting complications like spontaneous abortion, placenta previa, congenital abnormalities, neonatal death etc. observed in smoking mother and similar result has been observed by Slama (1998). WHO[9], Derek[10], Kuppel[11], and Wen et al[12] It is estimated that all perinatal mortality could be reduced by 25 percent if women did not smoked during pregnancy. Slama[13]

2.5 Among the adult smoker, health knowledge on smoking was generally lower among women, elder people or those with low education, and low socio–economic condition. Sustained research show that the parental smoking clearly exerts an influence on their children. In families, parental smoke affects 22.2 percent of the boys and 2.7 percent were addicted to

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6 Williams and Wilkins, "There is a threshold effect of smoking on the birth weight" Obstetrical and Gyanecological Survey, 1992; 47 (2) 96.

7 Sarala Krishna Murthy, "Maternal tobacco use and adverse reproductive, The National Medicine Journal of India, 1997; 10 (1):2

8 Uma Ram Nath: Tobacco smoke and what it does ? Tobacco Smoking Third World Alert, Oxford University Press, 1986.

9 WHO, Tobacco Kills or Impairs young people even before birth; World No. Tobacco day 31 May 1998

10 Derek Liewlln–Jones, Foundamental of Obstetrics and Gyanecology, Third edition, London, Boston, 1987; 1:74

11 Roberta A. Kuppel; and Joan E. Dukker; High Risk Pregnancy – A Team Approach, W.B. Saunders Company, 1986. p. 21

12 S.W. Wen; RL Goldenberg, Cutter GR, et.al Smoking, maternal age, fetal growth, and gestational age at delivery. American Journal of Obstetries and Gynecology, Jan. 1990, 162 (i) 53–8.

13 Karen Slama; Risks during pregnancy, Tobacco Control and Prevention, International Union Against Tuberculosis and Lung Disease ISBN 2-9504238-6-8 USA April 1998.

smoke. The rate of non–smoking parent or families were 11.3 and 7.6 percent respectively. The children explained that smoking was initiated by their parents. The 30 second TV or radio commercials aimed at alerting parent to rising risk of childrens smoking due to ignorance easily acceptable and promoting of tobacco consumption as adults.[14] Parental smoking is direct associated with the smoking of youth. If health care provider continue educate parent about it. This act as a incentive for the parent to quit the habit.[15]

2.6 Tobacco caused 85 percent of lung cancer. The chances of lung cancer will be increased by 15 percent among those who smoke cigarettes. Lung cancer mortality is increased especially in women. According to the American Cancer Society, lung cancer has replaced breast cancer as the leading cause of death in women. Smoking women have a two–three times higher rate of cervical cancer than non smoking women. Ten years after cessation of smoking, the excess risk for smoking related cancer decreased by half. Thirty percent of cancer could be prevented if people did not smoke. All cigarettes produce tar which causes cancer when applied to living tissue causes damage to a developing baby and causes cancer of cervix. Slama[16], Ram Nath (1986)[17]

2.7 Nicotine, tar, carbon monoxide, cyanide, and 4000 other elements of toxic substances are available in a cigarette. Forty three elements are carcinogen which are related to cancer. Nicotine constricts blood–vessels and contracts uterine muscles. Nicotine is an alkaloid that affects the central nervous system.[18] Studies show cough is much more common in those who smoked regularly at least a cigarette a week and is probably the cause of tobacco dependency or habit of smoking.[19] The Nicotine content in a cigar, if injected intravenously would be enough to kill an adult man. Nicotine is the incentive of the smoking habit. There are two side streams of smoke in the process of smoking. One side stream comes from the tip of the cigarette and curls away into the air. The second is the main stream of smoke, which is inhaled. This goes through a process of filtration as it

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14 Influencing smoking behaviour; Technical Report Series; Vol. 3 International Union Against Cancer Geneva (1978).

15 MR.Pandey, Parental smoking, Epidemology study of tobacco smoking behaviour among young in rural community of Nepal with special reference to attitude and beliefs community Medicine. Oxford University Press 1987.

16 Karen Slama, 1998 op cit.

17 Uma Ram Nath 1986 op. cit.

18 Lori Stevic–Rust. And Maximin Anita, Anatomy of smoking, How to Stop Smoking , Jaico Publishing house, Mumbai - 400023, 1997.

19 Uma Ram Nath 1986 op. cit.

passes through the unburnt tobacco and it also diluted by the air sucked through the cigarette paper. As cigarette becomes shorter in length, the harmful components became more concentrated with each puff. Carbon monoxide (CO) is a gas which when absorbed into the blood blocks the transport of oxygen to the tissues including the brain. CO forms 1–5 percent of the tobacco smoke in the active form carboxy haemoglobine. A hacking cough occurs due to the irritation of the smoke and the narrowing of the bronchial tube.

Hence smokers are need to motivate to quit the smoke's toxic components secondarily affect the nutrition of the smoking mother. Smoking mothers tend to eat less than non smokers. So the fetus get less nourishment, less blood supply to the placenta, there is a release of oxytocin hormone which affects the uterine contraction leading to premature labour, there is a disturbance of vitamin B_{12} and vitamin C level are lower in smokers than non smokers.[20]

2.8 Moktan studied the relation between new born birth weight and the smoking habit of mothers. Among 60 postnatal mothers, 14 (8.8%) had a history of smoking habit during pregnancy. When analyzed separately, mothers with <2500 grams baby weight at birth 9 (11.2%) had smoking history during pregnancy and 71 (88.8%) were non–smokers. Among the postnatal mothers who delivered • 2500 grams baby weight at birth 5 (6.3%) had smoking history during pregnancy and 75 (993.8%) were non–smokers. The result do not shows significant relationship on FT/LBW (p=0.2630). The mean number of cigarette smoking was 3.3 sticks per day and standard deviation of 2.1 among the mother with FT/LBW and the mean number of cigarette smoking was 2.8 sticks per day and standard deviation was 1.4 sticks with mother with •2500 baby weight at birth.[21] Deo study should 77 percent had low birth weight and neonatal length less than 47 cm. in smoking mothers' babies.[22]

2.9 Today an average teenager smoker starts smoking at the age of eleven and becomes a daily smoker before the age of 18 years. In Indonesia, the

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20 N. R. Butler, and E.D. Alberman, Perinatal problems, The second reports of the 1958 British Living Stone Survey, Living Stone, Edinburgh 1969

21 Kamala Moktan, A study on maternal risk factors of fullterm low birth weight, (MN un Published Thesis) Tribhuvan University, Institute of Medicine, Nuring Campus, Maharajgunj 1997 p. 61

22 Prabina Deo Comparative study on Neonatal outcome between smoking and non smoking mothers. (BN Thesis). T.U., IOM, Nursing Campus, Maharajgunj, 2054.

prevalence of tobacco smoking habit started under the age of ten years, 40 percent in between the age of 14–16 years and 72 percent reported that their parent did not know that their children had been smoking. The smoking age is varying from 16 to 21 years of age. The study of Madurai city, Tamil Nadu and revealed that the majority 67 percent of youth acquired their smoking habit at the age of 16–20 years.[23]

2.10 Each cigarette smoked shortens the life span by minutes.[24] A very few smokers know the smoking shortens life by five and half minutes for each cigarette smoked. For individual smokers, the magnitude of risk increases with increasing duration of smoking. Data from the mid 1980 confirmed that in smokers between ages of 35–69 years. The death rate is three times higher that of non smokers. Likewise smoker who die in their middle age loose about 20–25 years of their productive adult life devasting to the well being of their families and country.[25]

2.11 During gestation, maternal smoking increases the risk of reduced foetal limb growth, reduced birth weight by 200 gm, and neonatal death in childhood there is increased risk of lung infections like pneumonia and asthma. Those, who are exposed to smoke have increased tonsillitis, earache, otitis–media, respiratory distress syndrome, and are prone to alcohol consumption. Parental smoking is directly associated with pregnancy out come and is felt to be related to pregnancy complications. The adolescent who starts smoking before the age of 19 is easily addicted to smoking for life. In addition, infants of smoking mothers tend to be smaller at age of 1 year and have delay in physical and mental, intellectual development up to the age of 11.[26] Women should be urged to reduce or cease smoking at least during pregnancy. Maternal smoking with bed sharing presents a greater risk for sudden infant death syndrome. There is increased risk of congenital malformations like cleft lip and palate.[27]

2.12 Tobacco consumption is a major threat to sustainable and equitable National development. Tobacco consumption is a everyone's problem. A public health researcher describes the nicotine alkaloid found only in tobacco responsible for wide spread drug dependency for ahead of alcohol, heroin and cocaine and five times more bronchitis, emphysema

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23 MR. Pandey, Protecting Youth, Women and deprise from tobacco and alcohol, Regional consultation on tobacco and alcohol, Sri Lanka, 17-21 Nov. 1997.

24 Uma Ram Nath, op cit.

25 Keren Slama, op cit.

26 Uma Ram Nath, op cit.

27 Wisborg, Henriksen, et al, op cit, 1996: 103 (8): 800–5

and asthma in smoking women compared to those who do not smoke. Similar risks for cerebral vascular diseases. The global burden of disease from its ignorance ill effect 2.6 percent of all disease world wide. Tobacco only the burden of diseases increased 9 percent of the total burden in 2020 killing more than single disease. Hence the tobacco epidemic is like no other epidemic. Correctly it is pandemic sustained only by financial gain. It is all about money.[28]

2.13 Heavy smoking causes 10 times the chances of heart disease. Smoking presents a very important risk of myocardial infarction in women under the age of 50 who had 35 or more cigarettes a week and were taking the contraceptive pill. It was estimated to be 20 times higher than among those who had never smoked. The average cigarette smoker has two to three times greater risk of having a heart attack than lifelong nonsmokers. Smokers in their age of thirties and forties have five times as many heart attack than non smokers.[29]

2.14 Today, there is enough scientific evidence to prove beyond a doubt the health hazard posed by tobacco consumption. It is estimated that people light up a cigarette or chew tobacco every minute some where in the world. Every year tobacco causes 3.5 million death globally. This means 10,000 deaths occurred every day and eventually, every 10 seconds, a death occurred in the world. Nearly 1 million tobacco related deaths occurred in developing countries and 2.5 million in developed countries. By the year 2020, tobacco will only kill 10 million of the current 1.1 billion smokers in the World. Nearly 7 million tobacco–related deaths will occur in developing counties, more or less than HIV, AIDS, Tuberculosis, Accidents and so on. In developed countries, 41 percent of men and 21 percent of women regularly smoke. In developing countries, 50 percent of men and 7 percent of women smoke. The number of women smoking is increasing in many countries.[30]

2.15 Health is precious. The health of our women and children are more precious than men. Since tobacco has no safe level of consumption, we

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28 WHO Dr. Hiroshi Nakajima Director of SEARO Tobacco in SEAR, A health Challenge Tobacco situation, Global Overview, New Delhi, 1998.

29 Sloane, D, Shapiro, S, Rosenberg, L, Kufman et al. Relationship of cigarette smoking to myocardial infarction in young women, New England Journal of Medicine 298, 1273, 1978

30 WHO: Dr Utan Muchta Rafi, Reginal Director WHO SEAR on World – No Tobacco day, World Health Organisation, 1998.

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30 WHO: Dr Utan Muchta Rafi, Reginal Director WHO SEAR on World – No Tobacco day, World Health Organisation, 1998.

need to have a tobacco free world.[31] Healthy. pregnancies and healthy children represent the future. Most heads of states pledged their support and committed their countries resources to specific goals for improving the quality of life. One of their goals has to be a decrease in tobacco use which presents the most serious health threat for pregnancy and children in the next century. The tobacco companies are shifting from developed to developing countries and women, children and adolescent lives are at risk of life–long addiction. The health of children and women are each nation's future, and it must become a global priority. The prevention of involuntary smoking by the simple separation of smoker and non–smoker within the same air space may reduce the consequences of smoking. A commitment is to achieve a tobacco–free society and future generation with healthy lives and tobacco free society. The establishment of a minimum age of 18 years or older for cigarette purchase and sales licensing system. It should be maintenance the legal responsibility for tobacco consumption by youth. It is easier to prevent the onset of smoking than to quit smoking especially among women during pregnancy.

Recommendations by MSMT

a. Progressively increase taxes on all tobacco products.
b. Prohibit direct or indirect cigarette advertisement other.
c. Promote health education programme integrated with health survices.
d. Enforce the application of Law prohibiting smoking in public places, schools, hospitals.
e. Diversify the investment for induce tobacco industries.
f. Study the burden of diseases due to passive smoking.[32]

2.16 The tobacco industry has been quick to shift its attention from developed countries to other markets, and smoking prevalence has increased in many developing countries. In developed countries, an estimated four out of every ten men and two out of every ten women are smokers. In Nepal 1981–1998 smoking women increased by 5 percent and use of smokeless tobacco increased by 30 percent.[33] In developing countries, five out of ten men and nearly one out of every ten women smoke. Smoking is on the rise particularly among women in many developing countries. As tobacco companies have successfully promoted smoking as a sign of women's increasing independence and equality. A combination of factors such as

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31 WHO, Jimmy Carter, Children at risk Carter centre, XI World Congress of Cardiology WHO, Jan. 1991.

32 WHO Health Policies, Action, Alert, Manila Phillipine 1990

33 B.B. Adhikari, R.P. Pathak, Introduction to save children program, in Jumla, (Nepali) Mrigendra, Samjhana Medical Trust, Kathmandu, No. 2 Dec. 1998/99. p (16) (4)

increased purchasing power, parental influence, ignorance of tobacco hazards, as well as aggressive advertising and promotion campaigns, play an important part in enticing children and adolescents into increased tobacco use. Thus the gap between developed and developing countries is rapidly closing. The current trend indicates an alarming rise in global tobacco consumption. Ignorance about the ill effects of tobacco consumption big–budget promotions by tobacco companies and glamour attraction of smoking have further exacerbated the already disturbing scenario. Political leaders, bureaucrats, NGO's doctors, economists, community leaders, teachers, the media and families have roles to play to halt the growth of tobacco use and reverse the trend. Efforts should be to wean away the present users of tobacco and prevent the present and future generation of adolescents and women from smoking addiction.[34]

2.17 In developing countries, tobacco possess a major challenge not just to health but also to social, economic development and environmental sustainability. Because, tobacco costs the world over US$ 200 billion per year toward the health care. Money spent on tobacco consumption deprive poors families of basic needs, better meals, and education for future. Tobacco production takes up fertile land which could be used instead for food crops. Thus it threatens food security. Smoking leads to social disorder and to increased crime. Work is necessary for tobacco growing. Women and children did much of the work exposing themselves to risk of nicotine inhalation and easier accessibility of tobacco. Smokers falling asleep with lighted cigarette have caused fires at home and in forests. Fires destroy precious resources. They further pollute the environment. The tobacco curing process on consume much as 25 kg wood for 1kg of tobacco. This lead to a scarcity of wood.[35]

2.18 Education strategy for controlling tobacco use in the youth using formal and informal education techniques should be developed to reach this target population. The formal education system is an important channel for disseminating anti–tobacco information to schools, school personnel and community members for effective education interventions to reduce or prevent tobacco used. Health professionals can provide advice on its ill effects to all the in patients. Likewise religious leaders can encourage a tobacco free healthy life style through religious activities. Peer pressure against smoking should be building in the community through counseling and mass media techniques. Non smokers receive education for protection

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34 WHO Tobacco in SEAR 1998 op cit.

35 WHO Tobacco in SEAR 1998. op cit.

from involuntary exposure of tobacco smoke making them become tobacco addicted. Education and public information for tobacco on health issue including cessation programmes for risk groups of pregnant women and children should be established. Educational activities should aim to promote non smoking and reduce tobacco availability to the young and women during pregnancy. Education activities help and support young women who already quit smoking and to build a smoke free generation.[36]

2.19 There was a great demand for information to give up smoking. tips on Smoking reduction or cessation.

(a) Leave a longer stub, (b) Use filter cigarette, (c) Only smoke when sitting down, (d)Try chewing gum or sucking peppermints, (Lwang, Sukumel), (e) Do not inhale, (f) Cut out the first cigarette of the days and the last one at night.[37]

Special programme is care for kids and make alert to dangerous of smoking built up a positive image of non–smoking. Nicotine substitution therapy products include chewing gum, Nicorette, and nicotine skin patch. These produces are designed to gradually reduce the amount of nicotine in your blood stream to minimise physical discomfort. It is important to understand that physical urges are related to the nicotine withdrawal process. When each cigarette smoked the nicotine accumulates in your blood stream and lasts approximately 6 to 8 hours. The physical withdrawal symptoms are restlessness, irritability, difficulty concentrating, sleep disturbances, increased appetite, headache, constipation, dry mouth, sore throat, fatigue, and nicotine craving. Likewise there is a psychological desire to continue using the drug, nicotine, in order to cope with boredom and social discomfort. The gum is designed to assist only with physical urges and withdrawal. Gradually reduce chewing to two to three pieces of gum per day for 3 to 6 months. Each gum contains the equivalent of about 2mg of nicotine, each cigarette contains 1mg of nicotine. Nicotine patches consist of 21 mg of nicotine are used for six weeks. This is followed by a 14 mg. patch worn for two weeks. Finally when this patch is removed, the person will wear a 7mg patch for another two weeks. Depending on the advice of the physician (a nicotine

36 WHO, Significance of World No. Tobacco Day, World No. Tobacco Day 31 May 1998.

37 V.R. Bennett, Myles Text book of Midwives 11 edition Churchill Living Stone U.K. 1989 (P. 122)

inhaler) this process has been shown to be effective as an aid to smoking cessation.[38]

2.20 Smoking control media should be integrated into elisting activities of all heath sectors and hospitals. Parental smoking is directly associated with the smoking of youth. Hence the parent should be convinced to quit smoking not only to protect themselves and but also to protect the youth, and their children from picking up the habit of smoking.[39] Progressive financial measures of health tax is aimed at discouraging the use of tobacco and Progressive restriction should be eliminate all direct and indirect advertising, sponsorship concerning tobacco uses. Price of tobacco should be increased to create a higher barrier to easy access for youth. Because cheap cigarette promotes tobacco consumption which is not social benefit and encourage more smoking causing higher health care cost due to more disease and death. Tobacco control advocacy is not a discriminatory anti-smoking activity. Public policy should be advocated for a tobacco free society. Public health enemy is tobacco smoke not smoker. The community should mobilize toward demanding smoke-free public places. Politicians should eventually listen to the overwhelming public opinion and support strong policy for protection from involuntary exposure to tobacco smoke.[40]

2.21 Crop substitution is for tobacco cultivation by improving health education about dangerous of tobacco use. Health care providers should make key strategy for primary prevention of tobacco use and tobacco related cancer through different mass media. Initial phase tobacco consumption should be surveyed and study report revealed by Bangladesh cancer society. The study report indicated a higher prevalence in women smoking and tobacco growing was also wide spread in that agricultural community. In 1992 after health educational intervention through health care providers, religious leaders incorporated the message of health risk form tobacco. Results indicate that the rate of smoking had fallen and crop substitution by Okra production was very successful.[41]

2.22 In a WHO global plan of action on tobacco or health since 1985, all South-East Asia region (SEAR) countries initiated various measures to combat

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38 Lori Stevic Rust and Anita Maximin 1997 op cit.

39 M.J. Jarvis ; Smoking Intervention, smoking cessation; copyright @ ERS Journals LTD, 1997, European Respiratory Review. 1997:7: 45, 230–239

40 WHO: Tobacco control measure who call for redoubled World No. toabcco Day 31 May 1998.

41 Who-tobacco in SEAR 1998 op cit.

the tobacco epidemic through public health education programme and a ban on the advertisement of tobacco product on state–owned electronic media. Majority of SEAR countries have declared specific public place smoke–free. Nepal imposed a health tax on cigarettes with proceeds to be used for cancer control activities. Cancer societies and other NGOs have taken to educate against tobacco consumption. Very recently, Nepal announced a complete ban on advertisement for tobacco in all electronic media starting on 19 February 1999, the democracy day of Nepal.[42]

2.23 Sport sponsorship by Wills cigarette companies on influence minds. In India Wills brand World Cup '96 series broadcast to about 2 billion people where 12 nations participated in 36 cricket matches played over a month. 66% boys 34% girl (13 years 17 years). 130 randomly selected school 10 cities of India. The study revealed that after Wills brand cigarette company sponsorship 13% of students felt liking smoking, 5.9 percent smoked wills brand cigarette and 16 percent another brand cigarette. Knowledge on smoking cigarette can be addition 81.2% yes answered, like wise cigarette can cause serious diseases of cancer, heart attack 68% answered Positively, 67% percent Positively on the question of knowledge smoking does lower the life span. In the same way smoking is dangerous, 7.3% gave correct answered 41.3 percent have knowledge on smoking. Among them only 5 percent were smoker. The result indicate that. These who smoked cigarette due to poor knowledge on smoking rate increasing accordingly 14.5%, 36.9%, 38.4% and 41.9% . The sponsorship on children were analyzed create wrong perception which promoted to smoke. Knowledge is significantly effect risk of smoking and lowering smoking rate by initiation of full knowledge and also 45 percent promoted to smoke after wills World Cup. Thus study provide strong evidences for banning sports sponsorship by tobacco companies.[43]

2.24 About 2 percent of smokers actually gave up smoking and surprisingly high proportion of people were prepared to ban all advertisement of cigarette. Ellstein[44]

2.25 Evaluation of a smoking cessation program for low–income pregnant women suggests that such programs can both reduce smoking during pregnancy and prevent some relapses back into smoking in the

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42 Who-tobacco in SEAR 1998 op cit.

43 WHO, Trapping Children and youth tobacco industry insidious quest World No. Tobacco Day May 31, 1998.

44 Ellstein, DTV work shop on smoking and health; Medikinate International Marburg, 1978. p (267)

postpartum period. This program which involved individual counseling and a slide–cassette program, was field tested with 320 pregnant women enrolled in Women, Infants, and Children (WIC) nutrition programs. Study subjects were controls and study participants were for family income, education level, and occupational class. Small babies had been delivered in the past by 17 smoking mothers and by 13 mothers in the control group. Information on smoking, alcohol, and substance abuse was asked repeatedly on the first prenatal visit and thereafter. All were asked to stop smoking. Fifty five percent of the women provided data on the time of smoking cessation, of which 2.5% had stopped just before conception. 33% had stopped before 16 weeks and 23% had stopped between 16 and 30 weeks of pregnancy. eleven percent stopped at 30–36 weeks, and 29.9% after 36 weeks. The remaining patients (45%) had stopped at some unknown point during the pregnancy. Study participants initiated prenatal care at a later stage of pregnancy (57%) compared with controls (23%). Body weight and prenatal weight gain were similar in both groups. There were no significant differences in prenatal complications or pre–term labor between the 2 groups. The results of pregnancy outcomes show that babies of smoking mothers weighed 200gm less than babies of non–smoking mothers. There were significantly more low birth weight babies (<2500gm) among smokers. The head circumference and supine body length were significantly smaller among the smokers' babies. The chances of being admitted to the special baby care unit were higher among the smokers' babies. Placental ratio was significantly higher in the study group.[45]

2.26 Macarthur C. and Knox EG examined the effect on birth weight of stopping smoking at different stages of pregnancy before 6 weeks, between 6 and 16 weeks, and after 16 weeks. The study was done on 1235 smokers delivered at a West Midlands maternity hospital. They were divided into 5 groups; 85 women who stopped smoking during the 1st 6 weeks, 119 women who stopped between 6 and 16 weeks, 56 women who stopped after 16 weeks; 51 women who stopped during the 1st 3 months but resumed smoking before delivery; and 924 women who smoked throughout pregnancy. The average number of cigarettes smoked per day was between 13.1 and 13.8 for the 1st 3 groups, 15.5 for the group that stopped temporarily, and 18.6 for the group that smoked throughout pregnancy. In age, height, and social class, the 1st 2 groups resembled the

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45 Simmons, RA and Mc Carthy WJ; A smoking cessation intervention for low income pregnant women 1-6 month follow–up evaluation. Paper presented at 116th Annual Meeting of American Public Health Association (APHA) Boston, Massachusetts, Nov. 13–17, 1988. 6 (11)

nonsmokers, and the 3rd group resembled the persistent smokers. The 1st 2 groups, however, included more nulliparas than did the nonsmokers, the 3rd group included more nulliparas than did the persistent smokers, and the temporary stoppers were intermediate between the 3rd group and the persistent smokers. All the groups who stopped smoking had bigger babies than did the persistent smokers, but the babies of the temporary stoppers were not significantly bigger. The babies of those who stopped smoking before 6 weeks or between 6 and 16 weeks were 217gm and 213gm birth weight respectively heavier than the babies of the persistent smokers. The babies of those who stopped after 16 weeks were 120gm weight heavier than those of the persistent smokers but 100gm lighter than those of the early stoppers. The babies of the temporary stoppers were similar to those of the late stoppers. Stopping smoking at any time up to 30 weeks results in increased birth weight, but the greatest effects result from stopping before 16 weeks.[46]

2.27 A study was conducted of reproductive health and outcome of pregnancy among mothers delivered in three hospitals of Kathmandu in (Magnar 1992). A total of 3356 women who gave birth at Tribhuvan University Teaching Hospital Prashutigriha Thapathali, and Patan Hospital, between 1992 to 1993. The result indicate low birth weight was more common among the Chhetri, and Brahamin mothers. Those mothers who did not attend antenatal care among the smokers. The number of cigarette smoking was 3.8 Sticks a day. The mean birth weight identified at 40 of gestation was 2961 grams.[47]

2.28 A randomized trial of self-help smoking cessation program was implemented at a Missouri WIC Clinic in August 1985– August 1986. forty two percent pregnant women presenting at the clinic during this period identified themselves as current smokers and eighty six. Study participants were randomly assigned with usual care of (information about risk of smoking during pregnancy) or to 1 of 2 with self-help smoking cessation programms. The 1st of there multiple component group, involved in 20 minute individual counseling session with both risk information and behaviour change components and the provision of self-help materials, the 2nd the risk information intervention, involved a 10 minute counseling session with no provision of self-help materials or information on behavioral change. The percentage of women who quitting

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46 Macarthur C. and Knox EG; smoking in pregnancy effects of stopping at different stage; British Journal of Obstetrics and Gyanecology 1988, Jan 95 (6) 551-5.

47 U. Magnar, J. Sharna, N. Thapa, N. Pradhan, Reproductive Health and outcome of pregnancy among mothers, Journal of Nepal Medical Association, 1997, 35 (121).

smoking was highest in multiple component intervention group (11.1% at 9 months and 6.9% postpartum), intermediate in the risk information group (7.1% at 9 months and 7.1% postpartum) and lowest in the usual care group (2.6% at 9 months and 0% postpartum). These findings suggest that multimodal self-help cessation programmes are the most effective.[48]

2.29 A commitment to achieve a tobacco-free society for future generation with healthy lives, and healthy pregnancy. Research is urgently needed to determine the extent of this epidemic, its demographic trends, the ill effects of passive smoking, and incidence of tobacco use, especially among women during pregnancy and children. Further research is necessary to fully gauge the ill-effects of tobacco use on reproductive health to reduce the incidence of smoking. Smoking should be banned in public places. Part of health tax can be used to replace tobacco sponsorship of sporting events and to pay for anti-tobacco related interventions.[49]

2.30 Tobacco is used not only in the form of cigarettes but in bidis, keeyos, cheroots, cigars, pan masala, hookahs etc. in the WHO South East Asia Region. Nepal is a mountain country which produces six thousand metric tons of tobacco annually and 6.6 billion cigarettes are manufactured locally with 40% cigarettes, 30% bidi, 15% clay-pipe (Sulfa) 10% smokeless tobacco and 5% hookahs. It is reported that the prevalence of highest or tobacco use only cigarette ever recorded in world with 62% female and 84.7% male smoking in the country. In the mountainous region of Jumla the female percentage is 71.7 and in Kathmandu it is 14.2 percent. From a cross-sectional survey of a rural community of hilly region, the daily smoking by young girls of 8 years was found to be 6.7 percent. The highest prevalence of smoking started in between 16-19 years and 16% girls were without schooling, Woman Smokers above 20 years of in Nepal are 71.7 percent in 1991 and 76.7 percent in 1991 which increased by 5 percent whereas smokeless tobacco consumption is increased by 30 percent.

Nepal is the first country in the region to levy a health tax nearly half of health tax revenue thus realized is spent for cancer control. Tobacco and alcohol tax money account for a substantial sum in government revenue. A successful community project took place in the rural Kathmandu valley of Nepal. Before the intervention, 85% men and 62% women were smokers. Among the women smokers health knowledge on smoking was

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48 J.P Mayer; B. Howkings and R. Todd; A Randomize evaluation of smoking cessation intervention for pregnant women the completed study. WIC Clinic; American Journal of Public Health. 1990- Jan 80 (1) 76-81

49 WHO, World No-Tobacco Day 31 May 1998, op cit.

generally lower in those with low education and low socio-economic conditions. After educational intervention, smoking dropped markedly while with in a non-intervention community in the same valley.

Mrigendra Samjhana Medical Trust gave the following recommendations: (a) Education Strategy should be for controlling tobacco use in youth formal and informal education technique. (b) Educational technique should be developed to reach vulnerable group in population. (c) The single major deterrent factor seen peer pressure against smoking which should be built in the community through mass-media techniques. (d) Smoking control major should be integrated into the existing activities of hospital health workers. (e) Parental smoking is directly associated with smoking by youth. If we could convince. (f) The parents about it this will act as a good incentive for parents to quit the habit of smoking not only to protect themselves but also protect their children from picking up the habit. (g) Tobacco control effort should include health warning on all tobacco products advertisement.[50]

[50] WHO, Tobacco control measures, WHO Calls for redouble efforts, World No.–tobacco Day 31 May 1998

SUMMARY OF LITERATURE REVIEW

The smoking habit is a major public health problem facing the world. Women smoking during pregnancy is a major preventable cause of obstetric complications, such as spontaneous abortion, placenta previa, still–birth, neonatal death, low–birth weight, and congenital abnormalities. These risks are increasing as the number of women smoking increases, adversely increasing the risks of pregnancy complications by 3 to 5 times. Tobacco consumption is a concealed problem which has an impact on the mothers of the future generation. These problems threaten women's health and development as well as that of their babies. Smoking poses a major challenge for sustainable development of the Nation of Nepal.

Educational intervention is an essential tool for the promotion of health, and prevention of tobacco consumption during pregnancy. By educational intervention, awareness and attitudes can be changed. By increasing their knowledge, women will be empowered to help bridge the gap between smoking practice and health. Education strategy should be implemented by counseling with risk information, intervention, communication, and motivation to reduce or cease smoking at least during pregnancy. The education intervention should be integrated with individual instruction about ways of reducing smoking habit and controlling tobacco consumption with multimodal, self–help cessation programme, Nicotine replacement therapy NRT. Tobacco consumption is a habit which is very difficult to control. Nicotine dependancy can lead to deseases as dangerous as HIV and just as deadly.

WHO recommends that tobacco tax revenues should fund tobacco control measures,health promotion activities, and educational intervention. This researcher urges all concerned, responsible, direct and indirect health care providers to implement educational interventions integrated with other health services to meet the challenging need of women's health and development.All these programmes should be focused on the control of tobacco consumption among women's prevention from the onset of smoking among young girls and avoiding the adverse consequences of smoking during pregnancy.

CHAPTER III

RESEARCH METHODOLOGY

Details of research methodology selected and discussed in this chapter include research design, study population, sample, sampling procedure adapted in the development of a data collection tool, pre–test questionnaire, data collection, educational intervention procedure, post–test and plan for data analysis.

3.1 Research–design

This study is a descriptive and switched on educational intervention for the prevention of smoking consequences during Pregnancy. Thus, it is both qualitative and quantitative.

3.2 The Study Area

The area of study was purposively selected in order to conduct a study on the smoking habits of pregnant mothers' knowledge in Shree Panch Indra Rajya Laxmi Devi Prashuitigriha (Maternity Hospital) Thapathali, Kathmandu, Nepal. The reasons for choosing the site were twofold : this is the only maternity hospital in Nepal; this hospital is fully equipped with modern facilities for obstetrics, gynecology and for special care of the new born. Thus it is the referral hospital from all of Nepal. in these specialties.

The total number of beds in maternity Hospital is 250. Thirty beds are in a special care baby unit. The largest such hospital in Nepal, it performs 15,000 deliveries per year and sees over 80,000 patient per year in out patient care (Manandhar, 1997).[1] The flow of hospital admissions is very high, on the average of forty-five per day. The average number of pregnant mothers seen is 109 per day. Among them, 4.5 percent are smoking pregnant mothers attending in ANC. Among 41 women admitted for delivery per day, 9.4 percent were cigarette smokers. (This lower attendance was due to a hospital strike that occurred during this study period in August and September 1998.)

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1 D.S. Manandhar S. Rajbhandari D. Pal, et el, Anthropometry of the term new born and Postnatal mother in Nepal Medical Association 97; 35: 150.

3.3 Sampling

In this study, the sampling is based on a purposive sampling technique. The investigator selected the study area at Thapathali Maternity hospital in Kathmandu, the Capital city of Nepal. This was done to represent the urban population and also the hill–region of this country. The study population was pregnant mother with smoking habits. The selection criteria was smoking pregnant mothers who were willing to participate in the study.

This study was conducted in the antenatal clinic, admission room and waiting room for delivery at Maternity Hospital, Thapathali, Kathmandu. The magnitude of this problem is very high in this capital city which has a high literacy rate and modern amenities are available. Most of the pregnant women came here from different parts of the country for various amenities of life and neonatal health services.

All the respondents of pregnant smokers were purposively selected for a study of their knowledge of the effects of the smoking habit during pregnancy. The total duration of data collection was done within one month including interview of respondents, pre–test, educational intervention and post–test from the same respondents, forty five to sixty minutes of time was utilised for each smoking mother's interview. The total number of smoking pregnant mothers as a sample for this studies 100.

3.4 Sample size:

Among all pregnant women who have attended antenatal check–ups and delivery in this hospital, only 100 respondents who had smoked regularly during pregnancy were selected for the sample.

3.5 Selection and development of tool:

The selection and development of a tool is based on the objective of the study. That is to assess the women's knowledge on the effects of smoking by pregnant mothers regarding safe pregnancy. The questionnaire was developed in structured and semi–structured formats for data collection. The tools were designed to show demographic characteristics of the respondents, the nature of their smoking habit, the stage of their pregnancy, and their out come knowledge regarding safe pregnancy and smoking (annex-1).

3.6 Validity and reliability of the tools:

The tools were developed after a thorough study and review of related literature and consultation with subject experts. The tool was translated

into simple Nepali language so that it could be understood by the study sample.

A Pre-test was conducted with 10 percent of the sample. Some modifications were made to the tools according to necessary requirements, adding more questions to assess knowledge about smoking habits, of the same pregnant mothers. The same questions were used for the post-test after giving the educational intervention and information.

3.7 Pre-test:

This pre-test was conducted at Morang Hospital in Biratnagar, with ten percent of the total sample size of smoking pregnant mothers, with permission from hospital authorities. They were not participants in the actual research study as respondents. This was done for the purpose being done for maintaining validity of the instrument (tool) before conducting data collection. The purpose of a pre-test is to assess adequacy in measurement and the need for modifications.

3.8 Ethical consideration:

The investigator followed the principals of justice, human dignity and physical well being of the respondents.

A formal request letter was sent to the hospital authority from Maharajgunj Nursing Campus in order to obtain permission to carry out interviews with smoking pregnant mothers. In addition, the student investigator personally approached the hospital authority and explained to the Matron the purpose of the study and the plan for data collection. Thus, the investigator obtained permission from the hospital authority to conduct and carry out the research study. In addition, the investigator collected data from smoking pregnant mothers only after obtaining their consent and cooperation. The investigator assured them that information will be used for this study only, and that highest standards of privacy and confidentiality will be maintained. The subjects were also protected from physical and emotional harm during the study.

3.9 Before interview, identify the smoking habit of pregnant mother by observation:

Observation of the following signs of tobacco consumption by pregnant mothers:-

a. Bad smell of tobacco smoke on the person and clothing of the subject
b. Tobacco stains on the lips and jaw.
c. Tobacco- related stains on teeth.
d. Aged (Wrinkled face)

3.10 Data collection procedure and educational intervention about smoking and its consequences.

The student investigator personally consulted concerned unit in-charge and other staff members in order to gain cooperation in order to meet the objectives of the study.

Face-to-face interview method was used for data collection in different units of the Hospital, with the use of structured and semi-structured questionnaire forms. The study was conducted in ANC, OPD. and admission room of the hospital.

After interview of smoking respondents, the pre-test was done. The pre-test was a process of assessing the mother's existing knowledge on smoking and its consequences during pregnancy. After the pre-test, the educational intervention was carried out to give them new knowledge, additional information regarding safe pregnancy and prevention from consequences of smoking during pregnancy.

Along with information to help to prevent a smoking habit, information was given to show that reducing the smoking rate or ceasing to smoke, at least during pregnancy can prevent the harmful consequences of smoking on both mother and infant. Colored charts were used to show the relationship of smoking and complications of pregnancy. The investigator personally disseminated needed instruction on strategies to reduce or cease smoking the following.

The component of the educational intervention were the following:

1. Information that smoking is injurious to health.
2. Information on the health problems felt by the smoking mother.
3. Information that smoking is associated with pregnancy complications.
4. Information that smoking shortens the life span.
5. Information that smoking may cause cancer of lungs, uterus, cervix and breast.
6. Information that smoking affects nearby children.
7. Information that smoking is related to Pneumonia and.
8. Information that smoking is related to Ear problems.

Before educational intervention, Pre-test and Post-test knowledge of 100 respondents was 0-9 correct scored .

After completing the educational intervention. A post-test was done to assess the impact of the educational intervention with the same pretest

tool. After the post-test a follow-up visit was done to assess the change in smoking habits after receiving the education and personal instruction. In the next visit, fifty five percent of the respondents themselves reported changes in their smoking habits.

3.11 Data tabulation and analysis:

The collected data were put on a master sheet and a frequency distribution table. The student investigator had shown rough data analysis in frequencies, percentages and interpretation to the concerned advisors for the proper way of presenting data on the tables regarding the use of statistical tests for different parameters to draw conclusions. The computer was used to get more reliable result of each data analysis. The parameters, knowledge presented in range, mean, standard-deviation, coefficient of variation and 't' test, were appropriately used.

3.12 Statistical Procedure

The collected data were tabulated and analysed using appropriate statistical methods the coefficient of variation (CV) was used to identify the relative magnitude of variation of knowledge present in each group of series of observations with respect to the magnitude of their arthematic means, CV is the Ratio of standard deviation to the arthematic mean expressed as the percentage of units. The series for which CV is lesson or more consistent is that knowledge.[2] Coefficient of correlations were done to determine the relationship between the selected factors (variables) and education level with pre-test and post-test knowledge of the respondents. Paired "t" test which makes inferences about the sample of difference between the pre-test an post-test knowledge.[3]

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2 M.K. Manandhar Job satisfation and job performance of agricultural extention personnel in Nepal, M.P.A. Theses Public Administration Campus central Department of Public Administration, Faculty of Management, Tribhuvan University, Kathmandu 1989

3 Richard Windsor et al. Evaluation of Health Promotion, Health Education, and Disease Prevention Programs. (2nd ed.) Mountain View, CA: Mayfield Publishing Co. 1994

CHAPTER IV

Analysis and Interpretation of Data

The main objective of this study is to examine the smoking habits of pregnant women admitted at Thapathali- Maternity Hospital to let them know the consequences of smoking during pregnancy and to assess the changes, if any, in their awareness of smoking behaviors after educational intervention.

This study is based on objectives used for data collection. The data are expressed in frequency and percentage form. A paired "t" test was applied to find out the significant difference in knowledge before and after an educational intervention. The parameters were presented in range, frequency and percentage. Knowledge of smoking respondents was assessed before educational intervention, which is presented by scored knowledge in percentage, range, mean, standard deviation, coefficient of variation and coefficient of correlation. After educational intervention, a post-test was done to assessed knowledge of same smoking mothers using the same pre-test tools. The post-test knowledge was statistically analyzed and presented in percentage, range, mean, standard deviation, coefficient of variation and coefficient of correlation.

The data were analyzed and interpreted in the following areas :

1. **Socio- demographic characteristics.**
2. **Smoking habit of mothers.**
3. **Gravida (pregnancy of mothers).**
4. Knowledge of Consequences of smoking habit before and after educational intervention.
5. **Change in smoking habit after educational intervention.**

TABLE 1

Distribution of respondents according to their geographical residence.

Geographical residence	No	Percentage
1. Urban area of Nepal	31	31%
2. Rural area of Nepal	69	69%
	100	100%

Table 1 indicates that the majority of the respondents were from rural areas of Nepal (53%) followed by semi-urban areas (25%) and rural areas of Kathmandu (16%). The respondents from urban area were found to be the least (6%). The data indicate that rural people are more dependent on the government hospital than urban people. It could be possible that rural people with relatively low socio-economic condition look to a government hospital for services whereas the urban people seem to be dependent on private hospital or nursing homes.

TABLE 2

Demographic Characteristics of the Respondents

Distribution of respondents according to their ethnicity.

Ethnic guoup	No	Percentage
1. Chhetri	25	25%
2. Tamang	20	20%
3. Brahimin	16	16%
4. Gurung/Magar	12	12%
5. Rai	9	9%
6. Newar	6	6%
7. Occupational Group (Kami/Sarki)	6	6%
8. Raj bahak	2	2%
9. Giri	2	2%
10. Chaudhari	2	2%
	100	100%

Table 2 shows that the majority of smoking respondents are from the Chhetri group (25%), followed by Tamang (20%), Brahmin (16%), Gurung & Magar (12%), Rai (9%), Newar (6%) and miscellaneous ethnic (12%). They require knowledge and information about the consequences of smoking during pregnancy and education how to avoid getting a smoking habit started smoking.

TABLE 3

Distribution of respondents by age.

Age group	No	Percentage
1. 15 – 19 Years	11	11%
2. 20 – 24 Years	41	41%
3. 25 – 29 Years	21	21%
4. 30 – 34 Years	18	18%
5. 35 – 39 Years	8	8%
6. 40 – 44 Years	1	1%
7. 45 and above	-	-
	100	100%

Table 3 shows that the highest smoking respondents (41%) are between the ages of 20 – 24 years; second highest smoking respondents (21%) are between the ages of 25 – 29 years, third highest smoking respondents (18%) are between the ages of 30 – 34 years and then after teenage, 11% of the smoking respondents are between the ages of 15 – 19 years.

TABLE 4

Distribution of the respondents by education .

Education	No	Percentage
1. Illiterate	75	75%
2. Literate	11	11%
3. Primary	5	5%
4. Secondary	7	7%
5. S.L.C.	1	1%
6. Above S.L.C. or College	1	1%
	100	100%

Table 4 shows that, 75 % of smoking women are illiterate, 11% are literate, and 14% have different level of education. This result indicates that smoking respondents were uneducated about the consequences of smoking habits during pregnancy. It seems that the respondents need health knowledge and information on smoking, regarding safe pregnancy.

TABLE 5

Distribution of respondents by family status .

Family	No	Percentage
1. Nuclear Family	66	66%
2. Joint Family	34	34%
	100	100%

Table 5 shows that 66% of the smoking respondents have nuclear family status and 34 % belongs to joint families.

TABLE 6

Distribution of respondents by occupation.

Occupation	No	Percentage
1. Housewife	35	35%
2. Service	6	6%
3. Farmer	13	13%
4. Business	11	11%
5. Labour/Daily wages	35	35%
	100	100%

Table 6 shows that the majority (35%) of respondents are housewives, and the rest of the respondents such as labour/daily wages, farmer, business and service holders are 35%,13%,11% and 6% respectively. Most of the smoking respondents are engaged as household workers and in daily wages occupations.

TABLE 7

Distribution of respondents by family income.

Monthly Income	No	Percentage
1. Less than 2000 NRs	13	13%
2. 2000 – 3000 NRs	24	24%
3. 3000 – 4000 NRs	28	28%
4. 4000 – 5000 NRs	6	6%
5. 5000 NRs and above	-	-
6. Unknown	29	29%
	100	100%

Table 7 shows that 28% of the respondents' per-month income is 3000 to 4000 NRs, 24% of the respondents' per month income is 2000 to 3000 NRs. and 13% of the respondents have income less than 2000 NRs per month. Only 6% have family income 4000 to 5000 NRs per month and 29% of the respondents did not know their family income. Hence data indicate that the most of the smoking respondents are in lower income groups.

TABLE 8

Distribution of effect of smoking in respondents.

Effect of smoking	No	Percentage
1. Increase appetite	42	42%
2. Decrease appetite	52	52%
3. Constant	6	6%
	100	100%

Table 8 shows that 52% of the smoking respondents have decreased appetite than before pregnancy, 42% have increased appetite than before pregnancy and 6% have no difference. This indicates that in smoking women, their appetite decreased as compared to their non-pregnant state.

TABLE 9

Distribution of smoking women by gravida.

Gravida (no. of pregnancy)	No	Percentage
1. Prime	26	26%
2. Second	35	35%
3. Third	19	19%
4. Fourth	14	14%
5. Fifth	4	4%
6. Sixth	1	1%
7. Seventh	1	1%
	100	100%

Table 9 shows that smoking mother's prime gravida is 26%, second gravida is 35%, third gravida is 19%, fourth gravida is 14% and fifth, sixth & seventh gravida is 4% ,1% and 1% restrictively.

TABLE 10

Distribution of antenatal Clinic Health Service utilization by smoking respondents.

A.N.C visit	No	Percentage
1. Less than 2	56	56%
2. Three times	8	8%
3. More than 3 times	15	15%
4. No antenatal check-up	21	21%
	100	100%

Table 10 shows that 56% of the respondents had less than 2 antenatal visit. According to a WHO expert committee, it was recommended that there be a minimum of 3 ANC visits for a normal pregnancy. Hence only 23% of the respondents had 3 or more ante-natal visit during the study period.

TABLE 11

Distribution of various types of tobacco consumption by pregnant mothers.

Types of tobacco used	No	Percentage
1. Smoking Tobacco	92	92%
2. Tobacco Leaf	4	4%
3. Chewing Tobacco	2	2%
4. Bidi	2	2%
	100	100%

Table 11 shows that 92% of pregnant mothers smoked cigarettes, 6% consumed smokeless tobacco and 2% consumed bidi.

TABLE 12

Distribution of number of cigarettes smoked daily by pregnant mothers.

No of cigarettes per day	No	Percentage
1. 1 – 5 cigarettes +	82	82%
2. 6 – 10 cigarettes ++	14	14%
3. 11 – 15 cigarettes +++	2	2%
4. 16 – 20 cigarettes +++	2	2%
	100	100%

NOTE: Table 12 show that

\+ Light smoker — 1-5 sticks per day

++ Moderate smoker — 6-10 „ „

+++ Heavy smoker — 11-15 and above „ „

Table 12 shows that 82% of the pregnant mothers smoked 1 to 5 cigarettes per day, 14% smoked 6 to 10 cigarettes per day and 4% smoked more than 11 cigarettes a day.

TABLE 13

Distribution of starting age of cigarette smoking by respondents .

Starting age of cigarette smoking	No	Percentage
1. 5 – 9 years	6	6%
2. 10 – 14 years	18	18%
3. 15 – 20 years	51	51%
4. 21 – 25 years	21	21%
5. 26 – 30 years	3	3%
6. 30 and above	1	1%
	100	100%

Table 13 shows that 6% of the respondents start smoking at the age of 5 to 9 years, 18% start at the age of 10 to 14 years, 51% start at the age of 15 to 20 years, 21% start at the age of 21 to 25 years and 4% start at the age of 26 and above. It seems that respondents became addicted before the age of 19 years.

Table-14

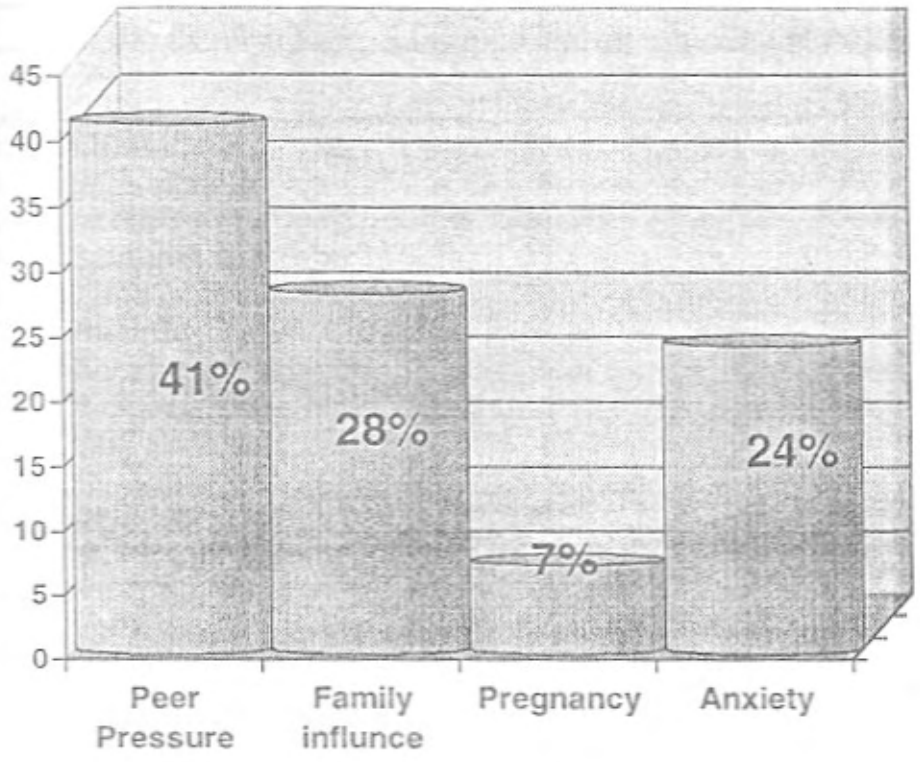
Distribution of duration of smoking of pregnant women .

Duration of smoking	No	Percentage
1. 1 years or less	6	6%
2. 2 – 5 years	42	42%
3. 6 – 10 years	25	25%
4. 11 – 15 years	16	16%
5. 16 – 20 years	8	8%
6. 21 and above	3	3%
	100	100%

Table 14 shows that 6% of the pregnant women smoke for a duration of one year or less than a year, 42% of them smoke for the duration of 2-5 years, 25% smoke for the duration 6-10 years,16% smoke for the duration of 11-15 years, 8% smoke for the duration of 16-20 years and 3% smoke for the duration of 21 years and above. The result indicates that the pregnant women need knowledge and information to prevent onset of smoking habit and its consequences during pregnancy.

Figure 3

Simple Bar diagram showing reason of smoking by pregnant mothers



This figure 3 indicates that higher percentage (41%) of smoking mothers consumed tobacco due to peer pressure and (28%) of smoking initiation due to parental smoking, (24%) tobacco consumed due to anxiety and the lowest (7%) of smoking due to pregnancy.

TABLE 15

Distribution of health problem felt by the respondents at the time of survey.

	Health Problems	No	Percentage
1.	Cough	74	33.79%
2.	Chest Pain	21	9.59%
3.	Sore in mouth	16	7.31%
4.	Asthma	16	7.31%
5.	Smoking addiction	36	16.44%
6.	Tired on exertion	20	9.13%
7.	Anemia	17	7.76%
8.	Burning micturation	6	2.74%
9.	Burning throat, heart	5	2.28%
10.	Pain abdomen	8	3.65%
	Total	219	100%

Health problems are distributed according to ten main problems such as cough, chest pain, sore in mouth, asthma etc, which is shown in Table 15. It shows that 33.79% of respondents felt the health problem of cough, 16.44% of smoking addiction, 9.59% of chest pain, 9.13 % of tired on exertion, 7.76% of anemia, 7.31% of sore in mouth and asthma respectively, 3.65% of pain in abdomen and 2.74% and 2.28% of burning throat/heart and micturation respectively. Uma[51] supported that majority (30%) of respondents did not know their health problems of cough, lungs diseases, 1.25% times higher than non-smoking. But the result of table 17 indicates that 80% have had reported more health problems during pregnancy with smoking habit. Dr. S. Shanmugananda and Maniyosai[52] presented paper showing that 43% of smoking youth admitted with complication problems of respiratory complications, 21% of dental discoloration, 17% suffer from cough at intermittent levels and various digestive disorders, and also shortness of breath. This result revealed that cough is much more common in those who smoked regularly at least one cigarette a day.

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[51] Uma Ram Nath, 1986, op.cit.

[52] S. Shamuganandan.; and R. Maniyosai. Madurai Kamaraj University, Madurai, India, at the 10th world conference on tobacco, Beijing, China, August 1997.

TABLE 16

Distribution of respondents according to their previous history of pregnancy complications due to smoking.

Pregnancy complications	No	Percentage
1. Bleeding	2	2.7%
2. Abortion	14	18.0%
3. Still Birth	11	14.8%
4. Neonatal death	11	14.8%
5. Prolonged Labour	4	5.4%
6. Retained Placenta	2	2.7%
7. Congenital abnormalities	1	1.3%
Total	45	60%

Information was gathered on previous history of pregnancy complications among the smoking mothers. There were 74 respondents with multi-gravida Table 16 reveals that among the 74 multi- gravida respondents were asked about there complications, the majority (60%) of smoking respondents had previous pregnancy complications. Most of them (18.0%) had history of abortion followed by neonatal death, (14.8%). 14.8% of them had still birth, 5.4% of them had prolong labour, 2.7% of them had retained placenta and 2.7% of them had bleeding and the knowledge of congenital abnormalities was expressed by 1.3% only.

Karen Salma (1998)[3] estimated that more pregnancy complications and perinatal mortality could be reduced by 25% if women did not smoke during pregnancy. Smoking increases the risk of spontaneous abortions, placenta previa, and stillbirth and exacerbated poverty and malnutrition on mother and baby. A small amount of health information is essential for cessation intervention at least during pregnancy. It is useful to create or reinforce and motivate to stop and repeat a health message each time of visit.

Likewise, Saral Krishna Murthy (1997)[4] observed that cigarette smoking by pregnant mothers actively or passively increase 3 fold still birth, 2 fold higher perinatal mortality, furthermore increasing bleeding, and prolonged labour. This might be reduced to 30 percent if pregnant women did not smoke during pregnancy. The studies indicate that the health education on smoking plays an important role to minimize the identified expected complications. Thus the chances of pregnancy complications are very high in respondents.

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[3] Karen Salma: smoking is a risks during pregnancy. Tobacco Control and Prevention Aachen, Germany. 1998. P(16)

[4] Saral Krishna Murthy (1997). Op.Cit

TABLE 17

N=100

Distribution of respondents according to their last pregnancy outcome during survey period.

	No	Percentage
1) Gravida		
a) Prime	26	26%
b) Second	35	35%
c) Third and above	39	39%
Total	100	100%
2) Birth Outcome		
a) Normal Weight		
i) Male	17	-
ii) Female	10	-
Total	27	47.3%
b) Low birth weight		
i) Male	17	-
ii) Female	13	-
Total	30	52.6%
3) Pregnancy lost		
a) Abortion	1	-
b) Still Birth	2	-
c) Neonatal death	2	-
Total	5	8.4%
4) Complications		
a) Bleeding	2	-
b) Eclampcia	1	-
c) Premature Labour	3	-
d) Obstructed Delivery	5	-
e) Face and Cord Presentation	2	-
f) Retained Placenta	2	-
g) Post Portum Haemorrhage	1	-
h) Cervical Cancer	1	-
i) Ovarian Mass	1	-
Total	18	28.3%

Table 17 show that 60% of the respondents have had pregnancy outcome and 40% still continue pregnancy up to the survey period. Among 60% respondents, the majority (52.6%) delivered low birth weight babies (2.5 kgs. or less) and 47.3% delivered normal birth weight babies (above 2.5 kgs.). Analysis revealed that 8.4% of the respondents have lost pregnancy, i.e. 1 respondent had abortion, 2 respondents had still births and another 2 respondents had neonatal death. Likewise, (28.3%) respondents have had pregnancy complications such as bleeding, eclampsia, premature labour, obstructed delivery, face and cord presentation, retained placenta, post portum haemorrhage,cervical cancer and ovarian mass. It seems that smoking women do have higher chances of high-risk pregnancy, and this can be minimized by educational inter vention.

WHO Expert Technical Report on Smoking Control[5] indicates that smoking during pregnancy reduces weight of the baby in average 200 gms less then that of the baby born to non-smoking mother, if other factors that tend to reduce birth weight remain the same. The weight of the baby varies according to the number of cigarette smoked before pregnancy and the number of cigarette smoked during pregnancy.

The Literature presented by Saral Krishna Murthy[6] support that smoking during pregnancy is a preventable cause of obstetric complications and adverse effects on pregnancy outcomes like spontaneous abortion increasing still births, nearly 3 fold, female are in greater risk of low birth weight, than male. 30% male fetus wastage, 2 fold higher perinatal mortality. Karen Salma[7] support all these perinatal mortality could be reduced by 25% if women did not smoke during pregnancy.

[5] Report of WHO Expert Committee on Smoking Control, Technical Report Series 636, Geneva WHO 1979; 2374.

[6] Saral Krishna Murthi, 1997, op.cit.

[7] Karen Salma, 1998, op.cit.

TABLE 18

Association of different Variables on pre-test and post-test knowledge.

N=100

No.	Variables	Correlation Coefficient	
		Pre-test Knowledge (r1)	Post-test Knowledge (r2)
1.	Age	0.1426	0.0548
2.	Ethnicity	-0.1326	-0.1271
3.	Education	0.3632**	0.2785
4.	Occupation	-0.1382	-0.0984
5.	Income	-0.0384	-0.1173
6.	Gravida	0.0825	0.0204
7.	Number of cigarette	-0.0086	-0.1760
8.	Reason for Smoking	0.0014	-0.1066
T1		Pre	0.5227**

**Significance at 0.01 level.

It was expected that selected independent variables would be positively or negatively associated with certain level of knowledge of the respondents. The results depicted on table 18 indicate that education is significantly and positively associated with the pre-test and post-test knowledge of the respondents. The co-rrelation coefficient between pre-test and post-test knowledge of the respondents was also observed to be significant with a positive relationship.

The possible relation for the significant relationship might be that the respondents with relatively higher level of education will have better exposure for and against smoking habits. The present findings have direct bearings on

the effects of smoking. Many studies in UK[8] and Canada[9] established and confirmed a firm casual relationship between cigarette smoking and lung cancer. The risk is directly related to the number of cigarettes smoked and the age at which smoking commenced. The finding is also justified with the observation of over 20 years in developing countries suggesting that smoking during pregnancy has an adverse effect not only on the fetus but also on the health of the new born baby and its future development.

The remaining factors- age, ethnicity, occupation, income, gravida, number of smoking sticks and reason for smoking did not exhibit any significant relationship with the knowledge of the respondent. The relationship of this kind indicates that these selected factors had little association with the knowledge of the respondents. Further it indicates that the respondents happened to be from various areas of the country and did not have any consistency based on their socio-cultural patterns. It means income level weather high or low do not have effect or assertion with the knowledge of the smoking mothers. Likewise, age, ethnicity and occupation also observed to have the similar relationship.

However, the positive significant relationship between the pre-test and the post-test knowledge, that is before and after educational intervention is clear. The result clearly shows that there is a constant need of educational intervention program to improve the knowledge of the smoking mothers about the effects of smoking, especially during pregnancy.

[8] R.Doll. and A.B.Hill. Mortality in relation to smoking; 10 years observation of British Doctors. British Medical Journal; 1399, 1460 (1964).

[9] EWR best. A Canadian study of smoking and health. Department of National health and welfare, Ottawa, 1966.

TABLE 19

Distribution of knowledge on smoking mothers before and after educational intervention

N=100

No	Pre Test	Post Test	Difference	
1-100	Range 0-9	Range 0-9	(d)	(d2)
	271	735	464	2310
Mean	2.71	7.35	4.64	
S.D	1.43	1.10	1.182	
C.V	52.77%	14.97%	"t" = 39.424	

The data presented in table 20 on distribution of knowledge among the smoking respondents revealed that the mean of pre-test score is 2.71 as compared with the post-test score of 7.35. The mean difference is observed to be 4.64.

In the statistical analysis from the paired "t" test on pre-test and post-test knowledge, the "t" value was observed to be 39.424. The result indicated statistical significance demonstrating the impact of educational intervention in changing knowledge. Therefore, the Null hypothesis is rejected. The result clearly evinced that there is a significant change in knowledge among the respondents due to educational intervention. The change in knowledge was also observed to be more consistent as noted from the coefficient of variation.

Vaidya[10] et al 1998 from their study on " Influence of sports sponsorship by cigarette companies on adolescent minds, A national survey, India" indicated similar results. They found that the knowledge of the respondents had a significant effect in lowering the smoking rate, due to educational intervention among the grade 'X' in India. Likewise David[11] in his experimental surveys which were taken before and after screening of the film entitled "42 year old man dying of lung cancer" observed that there was a considerable (12%) increase in knowledge among the smoker respondents, 2% gave up smoking and there was a great demand for information on how to give up smoking similar to this findings.

[10] G. S. Vaidya, V. D. Naik and J. S. Vaidya 1998, Influence of sports sponsorship by cigarette companies on adolescent minds - A national survey, India, Institute of Surgical Studies, University College, London (UK).

[11] Ellistein, D. T. V. Workshop on smoking and health, Medikinate, International, Murburg (1978).

TABLE 20

Degree of consistency among the respondents based on their selected characteristic.

Characteristic	Mean	S.D.	C.V.
1. Pre-test knowledge	2.71	1.4376	52.77%
2. Post-test knowledge	7.35	1.1044	14.97%

Table 21 indicates that the mean knowledge among the smoking respondents revealed that the pre-test score is 2.71 as compared with the post-test score is 7.35. The mean difference is observed to be 4.64 of high knowledge after educational intervention.

C.V. (Coefficient of Variation) was used to identify the relative magnitude of variation of knowledge present in pre-test observation with respect to the mean. CV of the pre-test knowledge variation is 52.77%. After educational intervention the magnitude of knowledge variation is 14.97%. The result indicates that CV is more consistent in post-test knowledge.

Table 21

Impact of educational intervention reported by respondents on next follow-up visit

Number of smoking respondent who changed their smoking behaviors after educational intervention.

Behaviour	No	Percentage
1. Gave-up	9	16.36%
2. Reducing	35	63.64%
3. No change	11	20.00%
	55	100%

Table number 22 demonstrate that 80 percent respondents changed their smoking habit after receiving educational intervention. Among them 80 percent, it was observed that 16.3 percent of the respondents gave-up their smoking habit and 63.64 percent were reducing smoking after receiving anti-smoking information. It was also observed that 20 percent of the respondents did not respond to educational intervention. At the time of their post-test 45% of the respondent said that they have strong desire to change their smoking habit and they will try to reduce or quit smoking habit. They realized education is essential against smoking in relation to safe pregnancy. Due to limitation of time, the investigator could not conduct follow-up visit to assess further feedback from those rests of respondents.

Above table revealed that 80 percent of respondents changed their smoking habit after educational intervention. Hence Null hypothesis there is no significant of smoking habit after educational intervention is rejected and alternative hypothesis is accepted.

Vaidya et al (1998)[12] from their study on influence of sponsorship by cigarette companies indicate that strong desire to give up smoking - 40 percent before and 55 percent after knowledge screening. Further more 2 percent of smokers actually gave up smoking. They had to support a ban all advertisement of cigarette. Great demand for information on how to give up smoking. This result showed that the impact of film made on smokers, non-smoker alike.

CHAPTER V

CONCLUSIONS, IMPLICATION, RECOMMENDATION, PLAN FOR DISSEMINATION.

CONCLUSION

This descriptive and intervention study was conducted among the mothers knowledge on smoking habit during pregnancy attending ANC clinic and admission room of the Maternity Thapathali Hospital. In the study only those who were willing to participate and co-operated respondents. According to investigator observation, the smoking respondents were 26% from Kathmandu, 74% from different districts of Nepal. The majority of smoking respondents was Chhetri ethnicity in between the age of 20-24 years. Among them 75% smoking mothers are illiterate and belong to nuclear family, 66% and 34 % joint family. Other characteristics indicated that they belong to 35% housewife, labour, daily wages occupation with very low income in between NRs. 3,000 to NRs. 4,000 per month, which are very low socioeconomic standards. The 35% smoking mothers were second gravida, 26% Prime and 19 % Third gravida status. The majority 45 % smoking mothers have multigravid history of pregnancy complications.

They consumed different type of tobacco consumption - smoking cigarette are 92%, tobacco leaf 4% Bidi 2% and chewing tobacco (Khaini) 2% respectively. Majority (82%)of smoking mothers were light smokers - 1-5 sticks per day. The majority (18%) of smoking were heavy smokers, 6-10 sticks and above. 8.7 is a mean stick per day. Majority of smoking started at the mean age of 18. 4 years before the age of 20 years - the pregnant mother already started tobacco consumption due to low knowledge, peer pressure and family influence make them exposed of the smoking habit resort and exposed long duration of smoking during pregnancy.

Fifty-two percent have decreased (nutritional status) in appetite - than before pregnancy. Majority 56% has less than 2 ANC visit - 21% have no antenatal visit - during pregnancy.

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[12] Vaidya et al 1998 op.cit.

Fifty-two percent have decreased (nutritional status) in appetite - than before pregnancy. Majority 56% has less than 2 ANC visit - 21% have no antenatal visit - during pregnancy.

Likewise, the investigator observed the last pregnancy outcome of 60% of the responding with pregnancy complications, loss, still birth (8.3%) neonatal death, placenta previa, post partum haemorrage, leaking retained placenta, prolong laboured and fifty-two percent low birth weight babies.

The investigator observed that smoking respondents have health problems like cough, chest pain, and asthma were much more common associated with tobacco consumption.

The result depicted that education is significantly and positively associated with the knowledge of the respondents and also observed significant positive relationship with education among the selective variables.

The most of smoking respondents possessed low level knowledge before educational intervention. After educational intervention knowledge was found to be increased in the post-test. The researcher found the feedback response 80% positive impact of educational intervention by changing their smoking habit.

After educational intervention eighty percent (80%) of the respondents stated that they would change their smoking habit hence it a preventable cause of pregnancy complications. Therefore, the investigator advocates that timely preventive measures of educational intervention should be adapted and integrated with other comprehensive health services. Hence educational intervention is regularly introduced which aims bridging the gap between health knowledge and smoking habit during pregnancy. After educational intervention, knowledge substantially increased in post test knowledge of the same respondents and also changed in practice of smoking to a greater extent. Educational intervention will prevent potential smoker as well as alleviate the consequences of smoking during pregnancy.

IMPLICATIONS OF THE STUDY

5.3.1 The findings of this study will help the decision maker to formulating policies for preventing the incidence of smoking habit, and for reducing or cessation of smoking at least during pregnancy. Because this study revealed that the majority of smoking mothers quit or reduced their smoking habit after receiving education, and information. Hence regular, continuous, formal educational intervention, against tobacco consumption is necessary especially during antenatal period in relation to safe pregnancy.

5.3.2 This study serve as a basis for a further longitudinal study regarding complications of pregnancy in smoking mothers.

5.3.3 The study will help to develop IEC material for educational intervention in a reproductive health program incorporating more information and instruction for cessation intervention for smoking women against tobacco consumption, especially focused on target group of women and young girls.

5.3.4 This study will help community based health programs designed to benefit women's health and development and smoke–free life. The health educational intervention against tobacco consumption should be integrated with other health care systems.

5.3.5 Nurses have the key role of providing information, education and communication about harmful effects of tobacco smoke, the most prevalent complications caused by tobacco use, and effects of parental smoking on their children. Hence, all responsible health care providers should pay special attention to hidden problem of pregnancy complications, low birth weight, and birth defects to save the lives of babies and those of smoking mothers in third world countries.

RECOMMENDATIONS

Taking into consideration the present findings of this study, the following recommendations are strongly suggested in order to achieve healthy behaviour during pregnancy.

5.4.1 There is an urgent need to take timely corrective measures of educational intervention for smoking prevention and control of the smoking habit during pregnancy for a safe and healthy pregnancy and outcome.

5.4.2 Similar studies should be done on a large scale in different rural settings with community leaders, TBA's mother's groups, health workers, and school teachers, political and religious leaders to make them aware of smoking consequences during pregnancy and to train them as trainers in order to teach others to decrease or lower the consequences of smoking.

5.4.3 An educational intervention study is proposed for each health care setting to educate women as to the high risk that smoking and alcohol consumption, pregnancy and its outcome.

5.4.4 This study may be replicated on a national basis to cover a larger sample in a different setting in order to make the findings more conclusive.

5.4.5 A Similar study can be done involving parents and adolescent girls for the prevention of smoking habits influenced by peer pressure.

5.4.6 Raise the general awareness among community members of the consequences of smoking on pregnancy through IEC package. This will help Nepali women of reproductive age to increase their knowledge of the harmful effects of smoking and thus prevent them from smoking habits.

5.4.7 An intervention study is proposed for a follow-up, longitudinal study of smoking related to pregnancy complications in the maternity hospital.

5.4.8 An educational intervention study is proposed to be integrated with other rural, adult, literacy classes in comprehensive health program, and formal health education classes in all school levels, against tobacco consumption and prevention of its consequences.

Health Policy Recommendations

1. Health planners and health services should prepare with educational program that deliver continued and regular interventional counseling against tobacco consumption, focusing on the same target group.

2. A health tax on tobacco revenue should be set aside for educational intervention for smoking prevention and tobacco control activities.

3. A national health policy should be favorable toward increasing maximum tobacco taxation leading to lower tobacco consumption, especially for young girls and women.

4. Legislation should be made to ban direct and indirect advertisement of tobacco products in all electronic media, and sponsorship by tobacco companies and promotion of sports events by tobacco companies should be prohibited.

5. A non-smoking policy should be implemented in public areas such as health institutions, schools, airplanes, transportation vehicles, cinema halls, and libraries.

6. Highly visible health warnings on the dangers of smoking should be mandatory on every cigarette packet sold.

7. A law should be passed and enforced to substitute other crops for tobacco production and to encourage tobacco companies to diversify with other products that will benefit the public health.

Plan for Dissemination of Findings

- Present the research report at professional workshops and seminars.
- Submit these to research committee at Nursing Campus Maharajgunj.
- Give a copy of research report to Nursing Campus Maharjgunj Library.
- Give 5 copies of research report to reproductive health programme NUFU. Maharjgunj.
- Give a copy of research report to Prasuti Griha, Maternity Hospital.
- Give research report to Samjhana Medical Trust.
- Publish the research report as an abstract form in current journals and plan to keep in internet and midline search nursing journal.
- Development of a program targeted toward school children to prevent the onset of smoking habits.
- Give research report to Educational programs for nurse students, Health care providers and teachers.
- Recommend that part of prenatal care be directed toward the prevention of smoking start by pregnant mothers.

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APPENDIX II

Tribhuvan University Institute of Medicines Nursing Campus
Maharajgunj, Kathmandu.

Before interview, identify the smoking mothers
Observation of the following signs of smoking during pregnancy

a. Tobacco smell
b. Tobacco stained on the lips and jaws.
d. Tobacco stained on teeth.
d. Aged (Wrinkle face).

Name -

1. Ethnicity
2. Residence
   a. Permanent
   b. District
   c. Municipality/VDC, Ward No.
   Temporary Address
3. Age
   15–19 ☐
   20–24 ☐
   25–29 ☐
   30–34 ☐
   35–39 ☐
   40–45 ☐
4. Education:
   a. Illiterate ☐
   b. Literate ☐
   c. Under S.L.C. ☐
   d. S.L.C. Passed ☐
   e. Campus ☐

5. Occupation:
   a. House–wife
   b. Laborer
   c. Farmer
   d. Business
   e. Service of other specify

6. Type of Family
   a. Nuclear
   b. Joint

7. Family income per month
   a. L 2000 per month
   b. 2400–3000 month
   c. 3000–4000 month
   d. 4000–5000 month
   e. 5000 and above

8. What is your appetite of food during pregnancy ?
   a. Increase than before pregnancy.
   b. Decreased than before pregnancy.
   c. Constant.

9. Gravida ..... L.M.P ..... E.D.D.(18 Dutta D.C.)

10. How many times do you have antenatal check–up to this visit ?
    a. Less than 2 times
    b. Less than 3 times
    c. Less than 4 times and more

11. What types of tobacco do you consume ?
    a. Cigarette/Bidi
    b. Surti / Khaini
    c. Others (Specify) .....

12. How many sticks do you smoke per day ?
    a. Less than sticks per day.
    b. Less than 10 sticks per day.
    c. Less than 15 stick per day.
    d. More than 15 sticks per day.

13. What is your age when you started smoking ?

    Age ☐☐

14. Years

15. What is your reason of smoking ?

    a. Influenced by friends ☐

    b. Parents ☐

    c. Anxiety ☐

    d. Others ☐

16. Did you feel any of the following health Problem during this pregnancy.

    a. Cough ☐

    b. Chest pain ☐

    c. Asthma ☐

    d. Tired on exertion ☐

    e. Sore in mouth ☐

    f. Addiction on smoking ☐

    g. Other specify ☐

17. Did you notify your previous his any of the following pregnancy complications ?

    a. Bleeding ☐

    b. Abortion ☐

    c. Still birth ☐

    d. Neonatal death ☐

    e. Others specify ☐

18. What is your last pregnancy out during survey period ?

    a. full term birth ☐

    b. Premature birth ☐

    c. Still birth ☐

    d. Abortion ☐

    e. Neonatal death ☐

    f. Other specify ☐

APPENDIX IV

	Knowledge	Pre–test		Post–test	
		Yes	No	Yes	No
1.	Do you know the smoking is injurious to health?				
	What are the health problems you felt in relation to smoking ? 2. Cough 3. Chest Pain 4. Dependent on smoking (addiction)				
5.	Do you know smoking affect on pregnancy ?				
6.	Do you know any other specific problem ? a. Bleeding b. Abortion c. Low birth weight baby d. Birth defect e. Sudden infant death				
7.	Do you know smoking shortening of life span ?				
8.	Do you know smoking affects cancer of lungs uterus, cervix and breast ?				
9.	Do you know smoking affect your children a. Pneumonia b. Ear problem				
	Total				

APPENDIX V

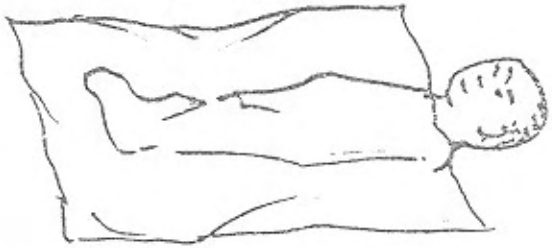
Knowledge on smoking (Facts and informations)

1. Tobacco contains very harmful toxic substances, e.g. Nicotine, Tar, (CO) Carbon monoxide, which effect directly or indirectly on the health of smokers and non smokers–like children.
2. Hacking cough commonly occurs due to irritation after inhalation of tobacco smoke.
3. Smoke directly effects lungs, brain. Heart and other vital organs. Smoker reduces oxygen supply and may cause angina or chest pain, and incentive for dependent on smoking habit.
4. Nicotine content in a cigarette if injected intravenously would be enough to kill an adult man.
5. Each one cigarette shorten and life span–by 5 seconds to 5.5 minutes.
6. Tobacco causes 85 percent more chances of lungs, breast, uterus and cervix cancer.
7. Risks of smoking during pregnancy:
   Smoking increases the risk of bleeding, spontaneous abortion, placenta previa, still birth, greater risk of low birth weight, birth defect with cleft–lip, palate, limb reduction, neonatal death, sudden infant death syndrome, childhood Pneumonia, otitis–media, delay in physical growth and mental development.
8. The ways to reduce or cessation of smoking (Instructions)
   a. Leave a longer stub
   b. Use filter cigarette
   c. Only smoke when sitting down
   d. Try chewing gum or sucking pepper mints or lwang, sukumel
   e. Smoke, but do not inhale
   f. Cut out the first cigarette a day the last one at night.
   g. Make concern near by non–smokers.
9. Demonstration of pictures of smoking hazards in pregnancy.
10. Expression of respondents
    a. Try to reduce smoking.
    b. Try to quit smoking.
    c. Not reducing or cessation of smoking.
    d. Others.
11. Feed back of the respondents
    a. Gave up smoking during pregnancy from that day of discussion.
    b. Reducing smoking from that day of discussed.
    c. Tried to reduce smoke but could not.
    d. Other specify–facts.

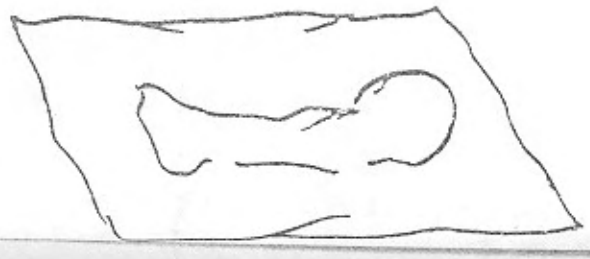
Smoking during pregnancy & its consequences

Spontaneous Abortion

Still birth



Neonatal death



Smoking mother

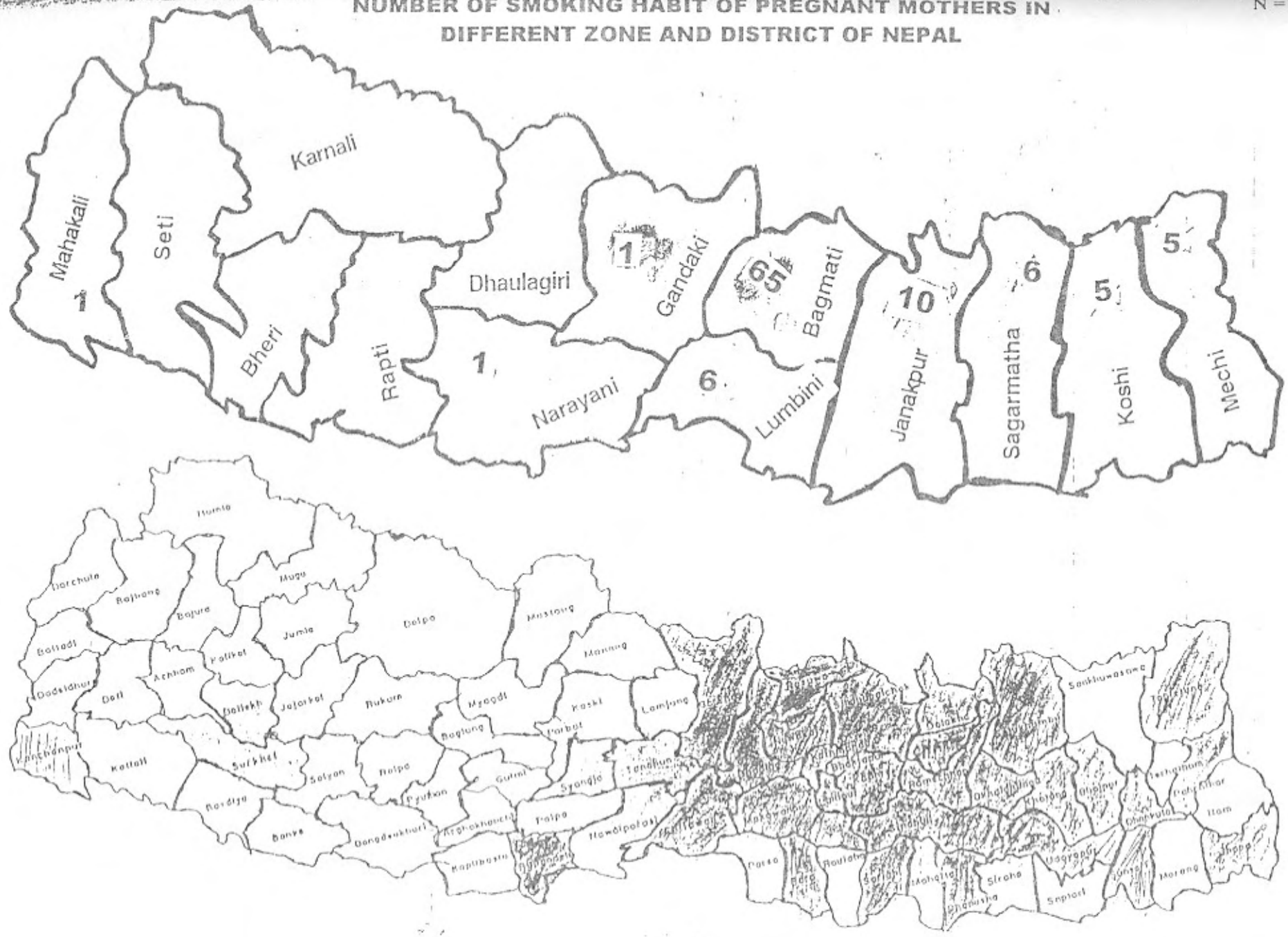
Low birth Weight baby

Cough & chest pain

Placenta

NUMBER OF SMOKING HABIT OF PREGNANT MOTHERS IN DIFFERENT ZONE AND DISTRICT OF NEPAL

N = 100



APPENDIX VI

Residence of smoking mothers.

N=100

Different Districts	No. of Clients	Percentage of Clients
1. Bara	1	1%
2. Bhaktpur	8	8%
3. Bhojpur	1	1%
4. Chitawan	1	1%
5. Charikot	4	4%
6. Dhading	6	6%
7. Dhanakuta	1	1%
8. Gorkha	1	1%
9. Jhapa	3	3%
10. Janakpur	1	1%
11. Kanchanpur	1	1%
12. Kabhre	12	12%
13. Kathmandu	22- (6 urban + 16 rural)	22%
14. Khotang	1	1%
15. Lalitpur	5	5%
16. Makwanpur	4	4%
17. Nuwakot	7	7%
18. Okhaldhunga	2	2%
19. Panchthar	1	1%
20. Ramechhap	1	1%
21. Rupendehi	1	1%
22. Rasuwa	1	1%
23. Sindhu-palchok	8	8%
24. Sindhuli	3	3%
25. Solukhumbu	1	1%
26. Sarlahi	2	2%
27. Taplejung	1	1%
28. Udayapur	1	1%
	100	100%

Different Zones	No.of Clients	Percentage
1. Mechi	5	5%
2. Koshi	5	5%
3. Sagarmatha	6	6%
4. Janakpur	10	10%
5. Bagmati	65	65%
6. Lumbini	6	6%
7. Gandaki	1	1%
8. Narayani	1	1%
9. Mahakali	1	1%
	100	100%

APPENDIX VII

Distribution of knowledge on Smoking Mother's knowledge before and after educational intervention.

No	Pre Test	Post Test	Difference	
			(d)	(d2)
1.	3	6	+3	9
2.	3	8	+5	25
3.	4	8	+4	16
4.	5	8	+3	9
5.	1	7	+6	36
6.	2	5	+3	9
7.	3	9	+6	36
8.	3	9	+6	36
9.	3	7	+4	16
10.	6	8	+2	4
11.	1	5	+4	16
12.	3	8	+5	25
13.	3	8	+5	25
14.	2	8	+6	36
15.	2	7	+5	25
16.	2	7	+5	25
17.	3	7	+4	16
18.	2	8	+6	36
19.	4	9	+5	25
20.	3	8	+5	25
21.	4	9	+5	25

22.	2	7	+5	25
23.	3	7	+4	16
24.	2	8	+6	36
25.	6	8	+2	4
26.	0	5	+5	25
27.	2	5	+3	9
28.	3	7	+4	16
29.	4	8	+4	16
30.	4	8	+4	16
31.	4	9	+5	25
32.	2	6	+4	16
33.	3	9	+6	36
34.	5	9	+4	16
35.	3	8	+5	25
36.	2	7	+5	25
37.	2	8	+6	36
38.	4	7	+3	9
39.	1	6	+5	25
40.	4	7	+3	9
41.	3	8	+5	25
42.	3	8	+5	25
43.	1	8	+7	49
44.	3	9	+6	36
45.	1	6	+5	25
46.	3	9	+6	36
47.	5	7	+2	4
48.	3	8	+5	25
49.	4	7	+3	9
50.	2	8	+6	36
51.	3	8	+5	25
52.	2	9	+7	49

53.	2	7	+5	25
54.	1	7	+6	36
55.	2	8	+6	36
56.	2	8	+6	36
57.	2	8	+6	36
58.	2	6	+4	16
59.	2	8	+6	36
60.	1	7	+6	36
61.	1	7	+6	36
62.	2	7	+5	25
63.	3	5	+2	4
64.	0	5	+5	25
65.	3	7	+4	16
66.	3	8	+5	25
67.	1	6	+5	25
68.	4	8	+4	16
69.	4	9	+5	25
70.	1	7	+6	36
71.	2	7	+5	25
72.	1	8	+7	49
73.	2	7	+5	25
74.	3	7	+4	16
75.	1	7	+6	36
76.	2	6	+4	16
77.	8	9	+1	1
78.	2	6	+4	16
79.	2	8	+6	36
80.	1	7	+6	36
81.	2	7	+5	25
82.	4	7	+3	9
83.	3	6	+3	9

84.	3	7	+4	16
85.	2	8	+6	36
86.	2	6	+4	16
87.	1	5	+4	16
88.	1	6	+5	25
89.	7	8	+1	1
90.	1	7	+6	36
91.	6	9	+3	9
92.	1	6	+5	25
93.	4	7	+3	9
94.	4	9	+5	25
95.	2	7	+5	25
96.	4	9	+5	25
97.	4	8	+4	16
98.	3	7	+4	16
99.	2	6	+4	16
100	4	7	+3	9
	271	735	464	2310
Mean	= 2.71	7.31	4.64	
S.D.	= 1.43	1.10	1.25	
Coefficient - Variation	=	52.77%	14.97%	t = 51.131

Table value at .05% Level of significance for 99 =1.96 .01% = 2.58

APPENDIX VIII

Research work plan for study

Date : 1997-1998

Months	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov	Dec.	Jan.	Feb.	Mar
Activities												
Literature Review		+++ +	++									
Problem Selection			++									
Proposal Writing				++								
Finalization of Proposal				+								
Pilot study				+								
Data study					+							
Data Collection					++++	++++						
Data Processing and Analysis							++++	++++				
Report Writing									++++			
Final Draft										++++		
Final Report Writing											++++	
Submission of Final Report	++											++++

Note:- + indicates one week.