Health Status and Health Care Access among Women Bidi Rollers in Bundelkhand, Madhya Pradesh

Thesis submitted to the Jawaharlal Nehru University
for the award of the degree of

DOCTOR OF PHILOSOPHY

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16.07.2019

DECLARATION

I, Pallavi Joshi, hereby declare that this thesis titled ''Health Status and Healthcare Access Among Women Bidi Rollers in Bundelkhand, Madhya Pradesh' submitted to the Jawaharlal Nehru University for the award of the degree of Doctor of Philosophy is my bonafide work. It has not been previously submitted in part or full, for any other degree of this or any other University.

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CERTIFICATE

It is hereby recommended that this thesis be placed before the examiners for evaluation.

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Dedicated to

My Mother,

My ultimate strength and inspiration

and

My Father,

My pillar of support and the driving force behind this work

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Pallavi Joshi

List of Abbreviations

C.I. Confidence Interval

CHC Community Health Centre

CSDH Commission on Social Determinants of Health

DALY Disabilities Adjusted Life Years

EMCONET Employment Conditions Knowledge Network

EPRES Employment Precariousness Scale

ESIC Employee State Insurance Corporation

FGD Focus Group Discussion

GOI Government of India

NCO National Classification of Occupations

NFHS National Family Health Survey

NIC National Industrial Classification

NSS National Sample Survey

NSSO National Sample Survey Organization

OHS Occupational Health and Safety

OP Out-Patient

OPE Out of Pocket Expenditure

PA Index Precariousness Accessibility Index

PDR Pressures, Disorganization, and Regulatory failure model

PF Provident Fund

PHC Primary Health Centre

PHC Primary Health Centre

PI Index Precariousness Illness Index

R.R. Relative Risk

SDH Social Determinants of Health

SER Standard Employment Relationship

WHO World Health Organisation

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Chapter 1

Introduction

1.1 Introduction

The occupational health field is amidst an era of transformation. The traditional approaches to assess and control exposures with linear view of disease prevalence or absence are slowly becoming obsolete.[1] These are giving way to a more socio-deterministic view of worker's health with a greater recognition to the structure of employment conditioning health outcomes in workers.[2] The changing nature of work and work environments led by the macro level economic, social, technical and political changes are necessitating this transition.[3]

With the advent of globalization and emergence of neoliberalist regimes, the world is witnessing a greater flexibility in labour markets, declining power of unions and gradual degradation of social protection.[4] This development is exasperating a 'race to the bottom' for cheap labour, limited rights and weak regulatory accountability.[5] It is accompanied with changes in work organization due to greater work fragmentation over geographies and increasing insecurity and instability in work.[6] As the workforce continues to diversify in terms of gender, age, race/caste, the economic disparities within the workforce is also growing drastically.[7]

These macro economic changes are drastically changing the nature of health risks, expanding them to greater share of workforce and blurring the historical distinction between work and

[1] Peckham, T., Baker, M., Camp, J. (2017). Creating a Future for Occupational Health. *Annals of Work Exposures and Health*, 2017, 61(1), 3–15.

[2] Clougherty, J. E., Souza, K., and Cullen, M. R. (2010). Work and its role in shaping the social gradient in health. *Annals of the New York Academy of Sciences, 1186(1), 102–124.*

[3] Benach J, Muntaner C, Solar O *et al*. (2007). *Employment, work, and health inequalities: a global perspective*. WHO, Geneva, Switzerland.

[4] Benach,J., Vives, A., Tarafa, G., et al. (2016).What we should know about precarious employment and health in 2025? Framing the research agenda for the next decade of research. *International Journal of Epidemiology*, 45(1),232–238

[5] Peckham, T., Baker, M., Camp, J. (2017) Op cit. p. 2

[6] Kim, I.-H., Muntaner, C., Vahid Shahidi, F. et al. (2012). Welfare states, flexible employment, and health: A critical review. *Health Policy*, 104(2), 99–127.

[7] Benach, J., Vives, A., Amable, M., et al. (2014). Precarious Employment: Understanding an Emerging Social Determinant of Health. *Annual Review of Public Health*, 35(1), 229–253.

non-work exposures.[8] These altering working conditions and work relations are also bringing along a general increase in disparities in both health and wealth domains.[9] Simultaneously, the health divide along the socio- economic gradient continues to advance.[10]Socio-economic status and health disparities being caused or mediated by work conditions, the need for occupational health to engage into a larger context of social determinants[11] of health is being re-emphasised.[12]

Bringing in the social determinants perspective demands a change in the lens with which work and health have been traditionally seen. Occupational health needs to reshape for a comprehensive view of health, beyond physical health & absence of disease to account for well-being; which besides physical health encompasses environmental factors affecting psychological health, features of social support and self determination and autonomy.[13] At the same time, the view of work in relation to health has to change to a more multi-dimensional

[8] Schulte, P.A., Pandalai, S., Wulsin, V. et al. (2012). Interaction of occupational and personal risk factors in workforce health and safety. *American Journal of Public Health*, 102, 434–48.

[9] Peckham, T., Baker, M., Camp, J. (2017) Op cit. p. 2

[10] Kaplan, G.A., Haan, M.N., Syme, S.L., et al. (1987). Socioeconomic status and health. In: Amler RW, Dull HB (eds.). Closing the gap: the burden of unnecessary illness . Oxford University Press, New York

[11] There are two perspectives in which health inequalities are explained. One as a result of inevitable differences in biological traits and behavioural characteristics. Others as avoidable outcomes needing remedy, based on the premise of health equity and social justice i.e. the social determinants perspective.

"The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels." WHO

As In: Employment Conditions Knowledge Network (EMCONET). (2007). Final Report to the WHO Commission on Social Determinants of Health (CSDH)Employment Conditions and Health Inequalities, Barcelona, Spain.

World Health Organisation. (2019). About Social determinants of Health Retrieved From: https://www.who.int/social_determinants/sdh_definition/en/

[12] Brand, J.E., Warren, J.R., Carayon, P. et al. (2007) Do job characteristics mediate the relationship between SES and health Evidence from sibling models. *Social Science Research*; 36: 222–253.

[13] Schulte, P. and Vainio, H. (2010). Well-being at work—overview and perspective. *Scandinavian Journal of Work Environment and Health*, 36, 422–429.

perspective. One, that also accounts for quality of work and work-related psychosocial[14] factors than mere singular dimensions of formality, presence of hazard, job security etc.[15]

This focus on social determinants of workers health and employment conditions as determinants of health have culminated into rise of the 'Precarious Employment'[16] approach. 'Precarious Employment' has emerged as a important social determinant of health, denoting a type of employment condition affecting with a scoping effect on not only workers but also their families and thus communities in general.[17] The cause for the construct's popularity has been very much because of its ability to represent multiple dimensions affecting quality of employment conditions and even the power relations underlying employment relationships.[18]

The focus of much of the previous researches on this relationship between precarious employment conditions and workers health has been for labour and workplaces in the developed world.[19] The appalling work conditions and health & safety threats among workers in the developing countries have not received commensurate attention.[20] With factors such as bonded/child labour, huge informal sector, huge diversity of unregulated & hazardous

[14] Burgard, S. A., and Lin, K. Y. (2013). Bad Jobs, Bad Health? How Work and Working Conditions Contribute to Health Disparities. *American Behavioral Scientist*, 57(8), 1105–1127.

[15] Benach, J., Vives, A., Amable, M., et al. (2014) Op cit. p. 2

[16] Precarious employment is a multidimensional construct encompassing dimensions such as employment insecurity, individualized bargaining relations between workers and employers, low wages and economic deprivation, limited workplace rights and social protection, and powerlessness to exercise workplace rights.

As in: Vives, A., Amable, M., Ferrer, M. et al. (2010). The Employment Precariousness Scale (EPRES): psychometric properties of a new tool for epidemiological studies among waged and salaried workers. *Occupational and Environmental Medicine*, 67(8), 548–555.

[17] Benach, J., Vives, A., Amable, M., (2014). Op cit. p. 2

[18] Ibid.

[19] Ibid.

[20] Ibid.

operations, developing nations make for an urgent case for such a comprehensive enquiry into work and health. [21]

The occupational health and safety scenario in India presents one such complex and neglected case. The country has had a history of huge informal sector and the trend towards in-formalization has intensified in the post reforms period.[22] A massive informal sector with 81% workforce and 60% share to GDP, beyond the regulative and protective reach of the state forms a distinctive feature of the Indian economy.[23] Much of this sector functions on casual and unskilled labour, working for poverty wages. While the work in this sector is unregulated by the state, the markets for their labour are organized through social institutions of caste and gender. [24]Although a sizeable literature draws attention to the concentration of such disparate, fluid and irregular labour systems especially in the lower rungs of the informal economy, little research is directed towards occupational health implications of this trend. [25]

One such lowest ranking sector which works primarily on informal work arrangements is the Bidi industry. Bidi the principal by product of this industry is a crude indigenous hand rolled form of tobacco smoke. The manufacturing process to make this smoke is entirely manual and labour intensive.[26] Majority of the production takes place under home-based contractual work systems.[27] The poor, unskilled and cheap women labour with an advantage of deft fingers,

[21] Benach, J. and Muntaner, C. (2007). Precarious employment and health: developing a research agenda. *Journal of Epidemiology and Community Health*, 61, 276–277.

[22] Harriss-White, B. (2003) India Working: essays on Society and Economy. Cambridge University Press, Cambridge, UK.

[23] Ibid.

[24] Ibid.

[25] Benach, J., Vives, A., Amable, M., et al. (2014). Op cit. p. 2

Breman, J. (1996) Footloose labor Working in India's Informal Economy. Cambridge University Press, Cambridge

[26] Budlender, D. (2013). Informal Workers and Collective Bargaining: Five Case Studies. Women in Informal Employment Globalizing and Organizing (WIEGO):Organizing Brief 9, 1-29

[27] Sudarshan, R., and Kaur, R. (1999). The tobacco industry and women's employment: old concerns and new imperatives. *Indian Journal of Labor Economics*, 42(4), 675-685.

women constitute the largest share of workers in the industry.[28] With hazardous work, marginal social status and unjust livelihood, women form an indispensable yet invisible part of the Bidi industry worth thousands of crores.[29]

According to the International Labour Organisation, the home-based women Bidi rollers constitute one of the most vulnerable labour segments in India.[30] Their position as waged labour is riddled with vulnerabilities at multiple planes i.e. their subordinate gender position, invisible and unregulated work relations, lack of skills and alternate livelihoods, unawareness about labour rights and hazardous work exposure. However, occupational health studies have seldom gone beyond epidemiological profiling of Bidi rollers, to evaluate psychosocial health effects of Bidi rolling closely linked with the nature of employment conditions.[31]

The present study takes a comprehensive approach to study work and health relationship in the Bidi rolling sector. With this premise, a thorough assessment of health is attempted, studying components of physiological health, psychological and psychosocial well-being and also characteristics of ailments. The access to health care is evaluated with an equally broader view of factors affecting at the individual, societal and institutional level. This leads to a discovery of multi-dimensionality in work related determinants affecting the health and health access sphere.

These range beyond the presence of a physical hazard to powerlessness & incapacity to exercise their basic labour rights of minimum wages and social protection. These work right from their subordinate position in the family, society and work organization with least scope of bargaining power and employee accountability. These multiple elements are modelled into a multidimensional 'precarious work' construct, to evaluate their effect and uncover the

[28]Ramakrishnappa, V., Kumari, P., Vishwanatha. (2014). Unorganized Workers in Beedi Industry: A Study on Women Beedi Rollers of Karnataka, India. *International Journal of Social Science*, 3, 325-334.

[29] Rout, S., Narayana, K., Sahu,K. et al. (2017). Poverty and Health Status of Bidi Workers in Andhra Pradesh, *Economic and Political Weekly*. 52 (10), 54-59

[30] Best Practices Foundation. (2001).The ILO Bidi Sector Programme, the Bidi Industry in India: An Overview for ILO- Department of Labor, Karnataka, Bangalore.

[31] Kumar, P. and Kumar, S. (2016). Occupational Health Hazard of Women Bidi Workers in Rural India. *International Journal of Science, Engineering and Technology Research*, 4(5), 1496-1502.

pathways and mechanisms they take to affect health status and health care access. An inverse relationship between precarious employment elements and the health sphere with definite effectual routes is deciphered.

This chapter provides a background to contextualize the study, presents the statement of the problem, outlines the significance of the study and states the research questions and hypotheses.

1.2 Background

An extensive literature documents effect of socio-economic inequality and population health outcomes.[32] In both developed and developing nations, higher socio-economic and occupational status has been associated with higher life expectancy and lower morbidity than their poorer counterparts.[33] Such health inequalities denote "systematic differences in the health status and health determinants of people occupying unequal positions in the society" [34] The determinants of health inequalities have been primarily studied and attributed to material, income and occupation; while other important background determinants such as unequal distribution of political power, cultural assets, social assets and human capital remain less researched.

There are two perspectives in which health inequalities are explained. One as a result of inevitable differences in biological traits and behavioural characteristics. Others as avoidable outcomes needing remedy, based on the premise of health equity and social justice i.e. the social determinants perspective. The belief that population health is influenced by non-medical and non-behavioural characteristics, i.e. the social determinants factors, is now well accepted

[32] Kawachi I. (2000) Income inequality and health. In: Berkman LF, Kawachi I, eds. Social epidemiology, Oxford University Press, New York.

Kaplan, G.A., Haan, M.N., Syme, S.L. et al. (1987). Socioeconomic status and health. In: Amler RW, Dull HB (eds.). Closing the gap: the burden of unnecessary illness. Oxford University Press, New York.

[33] Lynch, J.W. and Kaplan, G.A. Socioeconomic position. In: Berkman LF, Kawachi I (eds.) (2000). Social Epidemiology . Oxford University Press, New York.

[34] Graham,H.(2004).Tackling health inequalities in England: remedying health disadvantages, narrowing gaps or reducing health gradients. *Journal of Social Policy*, 33, 115-131.

to explain the avoidable and unjust health inequalities.[35] This framework has shown enough evidence and relevance in explaining health inequalities in and across nations. The wide ranging socio-economic differences in health have further confirmed how sensitive health remains to these determinants. [36]

The health inequalities resulting from employment are closely linked to background social inequalities such as wealth, political participation and education. This is because, employment conditions are a key factor controlling distribution of resources affecting social stratification, life and well being of different social groups, exposure to health risk elements and even access to health care. [37] Owing to this intersection with multiple background determinants, a holistic sociological perspective i.e. the social determinants approach to occupational health studies becomes both feasible and imperative.

Work is a single activity occupying majority of people's waking time.[38] The associated pressures, strains and stressors, whether emanating from the employment, employment relations or the employment conditions are important factors of health and wellbeing.[39] While estimates of employment related injuries and illnesses suffer from challenges, research attempts in their evaluation have already been made. Whereas, the work-related psychosocial factors that influence health directly or mediated through work conditions resulting from an interplay of other social inequalities pose a greater challenge in understanding. [40]

[35] Solar O, Irwin A. (2010). A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice), WHO, Geneva. Retrieved From:https://www.who.int/sdhconference/resources/ConceptualframeworkforactiononSDH_eng.pdf

[36] Clougherty, J. E., Souza, K., and Cullen, M. R. (2010). Op cit. p. 2

[37] Employment Conditions Knowledge Network (EMCONET). (2007). Final Report to the WHO Commission on Social Determinants of Health (CSDH)Employment Conditions and Health Inequalities, Barcelona, Spain.

[38] Faragher, E.B., Cass, M., Cooper, C.L. (2005).The relationship between job satisfaction and health: a meta-analysis. *Occupational and Environmental Medicine,* 62,105-112.

[39] Ibid.

[40] Peckham, T., Baker, M., Camp, J. (2017). Op cit. p. 2

There have been number of ways work with its forms and elements have been studied in association with health outcomes in population.[41] Most of which see aspects of occupation and health discretely making explanations on work and health relationship incomplete. Such attempts in public health literature have taken up studies on employment forms like formal or informal, temporary or permanent, employed or unemployed.[42]

However, multidimensional work constructs like 'precarious employment' framework have gained prominence over unidimensional frameworks.[43] 'Precarious employment' is generally considered "a multidimensional construct encompassing dimensions of employment insecurity, individualized bargaining relations between workers and employers, low wages and economic deprivation, limited social protection and powerlessness to exercise workplace rights."[44]

This has gained popularity as a research concept as it has the advantages of absorbing multiple dimensions of the labour, work and health sphere. It is considered superior over the unidimensional approaches as it makes scope for a sociological perspective to occupational health studies.[45] Such a model gives the flexibility to bring and study multiple facets of work conditions and hidden power structures to study their effect on health of the workers.

This is an advancement in the occupational health field, as it overcomes the linear view of not only work environment but also the dependent facets of health sphere beyond mere presence and absence of disease. In short, the precarious work conceptualisation to health outcomes helps study effect and interplay of several background social determinants in the occupational health domain.

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[41] Benach, J. and Muntaner, C. (2007) Precarious employment and health: developing a research agenda. *Journal of Epidemiology and Community Health*, 61(4), 276–277

[42] Benach, J., Vives, A., Amable, M., et al. (2014). Op cit. p. 2

[43] Ibid.

[44] Vives, A., Amable, M., Ferrer, M. et al. (2010). Op cit. p. 4

[45] Benach,J., Vives, A., Tarafa, G., et al. (2016). Op. cit. p. 2

The importance of employment determinant from the social determinants spectrum has increased in light of the fast changing global labour dynamics. Post globalisation, deregulation of labour markets accompanied with rapid technological changes, the labour economics is undergoing a fast change. Work practices are becoming more automated and inflexible, employees losing control over their work spheres with a tilt towards flexible, contract and out sourced jobs.[46] These events may have a economic rationale behind but they are a perceived threat to the workers. These may potentially reduce the work productivity, create insecurity and have detrimental health impact on the employees with huge societal costs.

With 93% of the world's informal workforce and unregulated work arrangements, the manifestations are stronger felt in the developing countries. In countries such as India, labour markets present conditions where workers are more likely to earn poverty wages and be employed in complex forms of precarious working environments including agriculture and production of primary goods.[47] Despite which, less research has explored health consequences of employment conditions on this section of workforce. The reasons of which lie in the challenges in terms of extremely diverse labour markets and employment conditions difficult to surmise in standard definitions and lack of representative and regular data systems.[48]

1.3 Statement of Problem

Low job security, temporary work, precariousness in work have been repeatedly found to be associated with somatic and minor psychiatric morbidity, poor self rated health and adverse occupational health/safety, greater likelihood of injuries and even risk factors of cardio vascular diseases. The mental health indicators and psychological morbidity factors have markedly

[46] Kalleberg, A.L. (2009). Precarious work, insecure workers: employment relations in transition. *American Sociological Review*, 74(1),1–22.

[47] Benach, J., Vives, A., Amable, M., et al. (2014). Op cit. p.2

[48] Chung, H., Muntaner, C., Benach, J. (2010). Employment relations and global health: a typological study of world labor markets. *International Journal of Health Services*, 40(2), 229–253.

Muntaner, C., Chung, H., Benach, J. et al. (2012). Hierarchical cluster analysis oflabor market regulations and population health: a taxonomy of low- and middle-income countries. *BMC Public Health*, 12(286), 1-15.

found to be more responsive to work variables. [49] Furthermore, different countries and demographic groups have been found to be particularly vulnerable to the negative consequences of job insecurity.[50]

Despite the important results regarding the effect of insecure and precarious on health, the question has not been taken ubiquitously around the world. The studies have concentrated in the developed countries, especially few wealthy nations such as Spain, United Kingdom, Canada, Italy and Norway.[51] Whereas, in developing nations like India, where 81% of the workforce is concentrated in insecure informal jobs[52], such occupational health studies are limited. This irony is when the informal sector with livelihood insecurity and precariousness holds one of the biggest challenges to the goal of health equity and universal health coverage in these developing nations. [53]

The Bidi sector in India is one sector where women are concentrated and which operates majorly in the unorganised structure. Majority of the Bidi production happens in home-based setting outside of any factory premises[54]. A large share of Bidi finally coming for retail is through a maze of unregistered and unbranded local Bidi manufacturers. [55]This is also a sector where women are concentrated in the backend and manual segment of the production chain.

[49] Ferrie, J. E., Shipley, M. J., Stansfeld, S. A. et al. (2002). Effects of chronic job insecurity and change in job security on self reported health, minor psychiatric morbidity, physiological measures, and health related behaviours in British civil servants: the Whitehall II study. *Journal of Epidemiology and Community Health*, 56, 450–454.

[50] Men´endez, M., Benach, J., Muntaner, C. et al. (2007). Is precarious employment more damaging to women's health than men's? *Social Science and Medicine*, 64(4), 776–781.

[51] Muntaner, C., Lynch, J.W., Hillemeier, M. et al. (2002). Economic inequality, working-class power, social capital, and cause-specific mortality in wealthy countries. *International Journal of Health Services*, 32(4),629–656

[52] Ahmad, N., and Aggarwal, K. (2017). Health shock, catastrophic expenditure and its consequences on welfare of the household engaged in informal sector. *Journal of Public Health*, 25(6), 611–624.

[53] Sarker, A. R., Sultana, M., Mahumud, R. A. et al. (2017). Determinants of enrollment of informal sector workers in cooperative based health scheme in Bangladesh. *PloS one*, *12*(7), e0181706. doi:10.1371/journal.pone.0181706

[54] Best Practices Foundation. (2001). Op.cit. p.6

[55] Nandi, A., Ashok, A., Guindon, GE. *et al (2015).* Estimates of the economic contributions of the bidi manufacturing industry in India. *Tobacco Control,* 24 (4), 369-375.

[56]There position in many ways is precarious. There have been previous studies into occupational hazard of Bidi work exposure but none looking at health and healthcare access from the broad vantage point of employment conditions and other employment characteristics.

1.4 Conceptual Framework

Theory based conceptual models are essential to explain the complex links between employment conditions and health of workers. [57] These may help understand the social mechanisms linking employment and health inequalities and thus identify main 'entry points' (exogenous factors) to direct policy interventions. Figure 1-1 depicts the conceptual framework under which this research proceeds. The elements and links are explained as follows:

- The upper left in the diagram connotes the two population health paradigms 1) the medico paradigm which sees disease and health status a function of organ functioning/ physiology, genetics and pathology. 2) The social determinants paradigm which sees health as a factor of effects embedded in the social processes and overarching social environment. These include class, caste, food security, nutrition status, early life, neighbourhoods, work and gender etc. Out of the other elements in the social determinants spectrum, work is labelled as the determinant of determinants as it has the potential to affect all other major co-determinants.[58]

- The bottom left section denotes the employment relations as a derivative of the larger institutional structure. It represents the macro economy, which from the regional resources, regional development and state policies. These interplay into nature of labour processes, success of labour regulation and policies and most importantly the nature of work contracts available. These can be either regulated and welfare oriented or highly disorganised and unregulated, with labour at mercy of market forces.

[56] Ansari, M.S. and Raj, A. (2015). Socio-Economic Status of Women Bidi Workers in Bundelkhand Region of Uttar Pradesh: An Empirical Analysis. *UTMS Journal of Economics*, 6(1), 53-66

[57] Benach, J. and Muntaner, C. (2007). Op cit. p.5

[58] EMCONET (2007). Op cit. p. 3

- The right section denotes the micro framework of sub-determinants through which employment relations can make health impacts. These are the routes and mechanisms employment characteristics would take to measurably affect health outcomes. These include other factors than exposure to a single hazard but also demographic characteristics, livelihood related asset creation, bargaining power and even social capital generated.

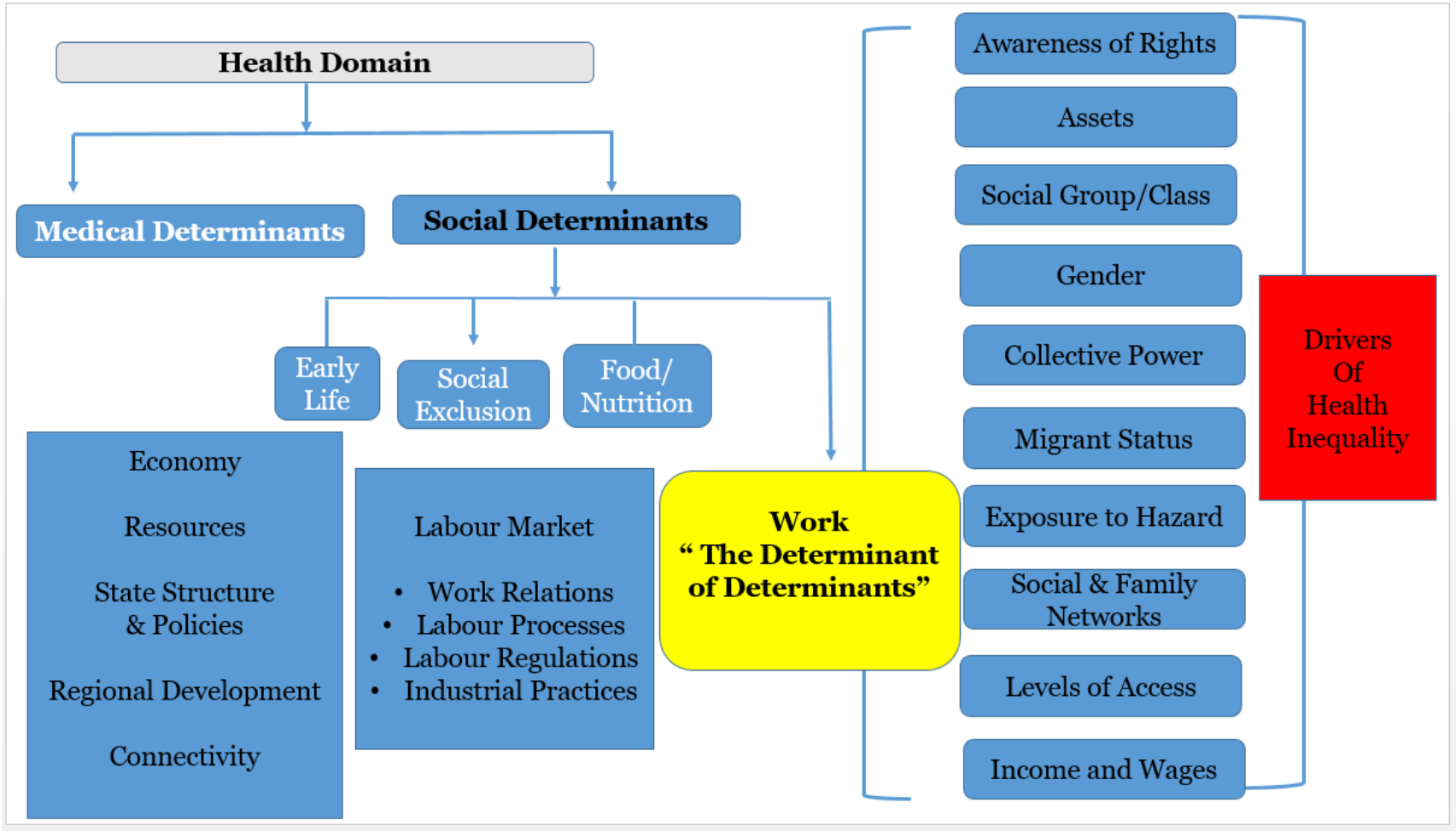


Figure 1-1 Conceptual Framework to the Study

Adapted from: Muntaner, C., Chung, H., Solar, O., et al. (2010). A Macro-Level Model of Employment Relations and Health Inequalities. *International Journal of Health Services*, 40(2), 215–221.

Benach, J., Solar, O., Santana, V., Castedo, A., et al. (2010). A Micro-Level Model of Employment Relations and Health Inequalities. *International Journal of Health Services*, 40(2), 223–227.

1.5 Research Gaps

- A geographical asymmetry in research on work & health association. Most of the quality of work or work dimensions relationships have been studied in the populations of the developed world. There is a clear dearth of studies on precarious work studies in the public health context for the developing countries like India.
- Much of the research has relied on secondary data sources to trace health effects of employment conditions. Such secondary data sources are unavailable in the developing nations, presenting a challenge at the outset. Since the work domain has intersections with other social contexts like caste, class, gender etc., qualitative studies for enquiry into pathways and processes should prove more insightful.
- It is a recognized need to research the pathways and mechanisms work/employment relations take to affect health, both physical and psychological. As the mechanisms are more than material/socio-economic, with under the skin effects, the scope enquiry has to be broadened. This is important to understand the root causes for precarious employment and how and why it works to create health inequalities.
- The concept in question i.e. of precariousness in work is broad, contextual and multidimensional. But a number of studies have restricted to empirical observations in establishing links with health of workers. To capture the fine and interplaying factors, the need is to develop theoretical models which can not only depict complex links but also identify & test key social mechanisms for policy action on health inequalities.
- In spite of the recognition that precariousness in work has a demographic disadvantage for women, there is dearth of literature looking at the gender mechanisms creating such differences and in having an effect on health. This has to become an area of enquiry for further occupational health studies that take up sociological approach to work-health studies.

1.6 Aims and Objectives

The aim of this work is to make a comprehensive occupational health analysis for the Bidi rolling sector. With this purpose, the study seeks to delineate the multiple, profound and hidden work related determinants of health in the Bidi rolling sector. The aim is to understand how and through what pathways and mechanisms these multifarious risk elements affect health, well-being and health care status among women workers in the sector. These elements stretch

from the individual labour characteristics to externalities from the employer side and the interactions in between.

The specific objectives are following:

- To study the health status, ailment characteristics and health risk among women Bidi rollers
- To evaluate the status of health care access among women Bidi rollers
- To map the barriers to health care access and related issues among Bidi rollers
- To identify the determinants of health and health care access in the Bidi rolling sector
- To model the health and health care access determinants in the Bidi rolling sector into a work framework for a relational analysis with health status and health access outcomes.

In the context of the stated objectives, the following hypotheses has been raised, which will be examined by the following study:

H1: Engagement in Bidi rolling affects health status and health care access amongst women Bidi rollers.

H 2: The work related determinants of health and health access in the Bidi rolling sector are multi-dimensional.

1.7 Data Sources:

- **Census of India: 2001 and 2011**

  The B18 series on Industrial classification of main and marginal workers other than cultivators and agricultural laborers by sex, division, group and class was used to estimate the proportion of main and marginal workers engaged in Tobacco manufacturing industry in the districts of Madhya Pradesh Bundelkhand. Tobacco manufacturing industry is taken as a proxy of Bidi manufacturing due unavailability of Bidi industry specific data in Census 2011.

- **National Sample Survey Round 71st 'Social Consumption on Health:**

  The National Sample Survey 71st Round Survey data on Social Consumption: Health was used to calculate the ailment and health care metrics of households with primary

industrial occupation as Bidi rolling. The NSS 71st Round, Block 3 takes details about the Principal Industry of the household according to the National Industrial classification 2018. The NIC 2018 has a division (Division 12) dedicated to manufacturing of tobacco products which subsumes Bidi rolling (Code 12002). The households with principal industry as Bidi rolling were filtered out for an analysis at national and state level for Madhya Pradesh.

- **Primary Data through Field Survey**

  A primary data collection was performed by way of a structured questionnaire schedule enquiring on aspects of health, work relations and other socio-economic details. Besides, which, in depth interviews, FGD's were conducted and narratives of the respondents were recorded.

1.8 Sampling

Bundelkhand region of Madhya Pradesh is a hub of the Bidi industry in India. In addition, the industry is primarily unorganised and home based with high concentration of women workers. This made the Bundlekhand Bidi setup, a natural choice for a case study on employment and health relationship. The geographical characteristics and detail of Bundelkhand economy are discussed in Chapter 3. Out of the districts falling under the Bundelkhand region, the Sagar district in Madhya Pradesh has the highest share of Bidi units and Bidi workers in the state and also nationally. This data is verified by both Labour Bureau Reports and Census data. Hence, Sagar was selected as the study location a representative of Bidi sector in the whole of Bundelkhand.

This research employed multilevel sampling and chose village as units for primary survey:

- *First Step*- Selection of District: Sagar, Madhya Pradesh

The basis for selection of District Sagar was a Government of India report brought out by The Labour Bureau, Ministry of Labour and Employment in the year 2015. It is titled "Evaluation Study on the Implementation of Minimum Wages Act, 1948 in Bidi Making Industry in Madhya Pradesh". *Map 1-1* depicts political boundary of Sagar district.

Since the study was based in Madhya Pradesh, its chapters on Distribution of Bidi Workers, Distribution by Work and Gender and Characteristics of Employees were useful in assessing

the district level situation of Bidi work. According the report, there are approximately, 36,007 Bidi workers in the state of Madhya Pradesh with 23,422 Bidi workers alone in the Sagar district. About 92% of the workers are found to be home based workers and 8 % of the workers are reported to be working in the establishments/factories. In the Sagar district, 93.4% of the workers are doing homebased work and 99.74% of the women's mode of work is through Sattedar.

- *Second Step*- Selection of Sub- Districts/ C D Blocks: Banda and Sagar

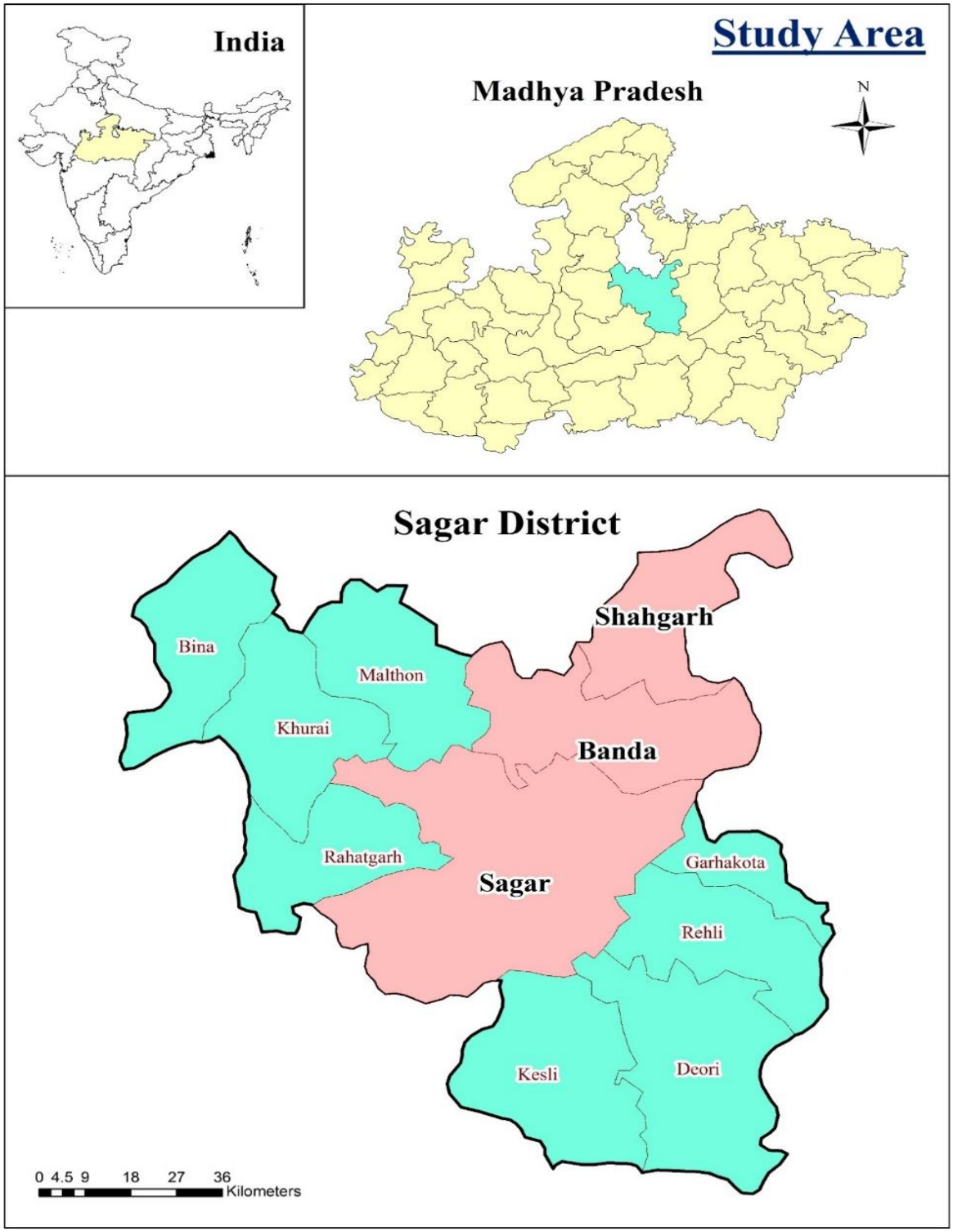
The workers count data of the Bidi Branches was collected from the Office of Assistant Labour Commissioner, Sagar. This was used to select the C D blocks for the survey. The data gave Sub-District level branch strength of workers, categorised as working in establishments and those as homebased workers. *Table 1-1* depicts the block wise distribution of Bidi Branch

Table 1-1 Block distribution of Bidi workers in Sagar District

C D Blocks	Sum of Home-Based Workers	Count of Workers in Factory
Banda	4876	21
Bina	160	2
Deori	985	5
Garhakota	965	6
Kesli	566	2
Khurai	754	9
Malthon	1561	4
Rahatgarh	1655	12
Rehli	2197	9
Sagar	6375	39
Shahgarh	1305	5
(blank)	56	1
Grand Total	21455	115

Source: Office of Assistant Labour Commissioner, Sagar, MP

workers in Sagar district. As per the data furnished, BANDA and SAGAR blocks stood out with the highest figures in homebased workers, hence chosen to go for village level selection.



Map 1-1 District Sagar : CD Block Boundaries

- *Third Step*- Selection of survey villages in the selected blocks

The Census Administrative Atlas of Madhya Pradesh, Volume 1 and Census Village Level Amenities Data 2011 were used for the selection of survey villages. The village data for Sagar and Banda blocks were selected and sorted on three main parameters as depicted in *Table 1-2*. Lastly, the shortlisted villages in both blocks were handpicked on the basis of their spatial representation and connectivity by road to reach them.

Table 1-2 Filter Conditions for Village Selection

Sorting Parameter	***Defining Condition***
a) Number of Households in the Village	More than 300
b) Distance from District Headquarters	More than 30 Kms
c) Distance from Sub District Headquarters	More than 20 Kms
d) Percentage of Scheduled Caste Population	Atleast 15 % and should be more than ST population

Source: Census Village Level amenities Data 2011

Besides, a sample of 49 women Bidi rollers in the urban slums of Sagar city was also collected. For the health risk assessment through this cross sectional study, a sample of women who were non-Bidi rollers by occupation was also collected. This sample was collected from the same or nearby villages as the Bidi rollers. To complete the non- Bidi roller sample, some data was also collected from nearby CD Block of Shahgarh from villages known as Tinsi and Tinsua.
The survey locations in the three C D Blocks are represented in *Map 1-2*, 1-3 and *1-4*. The village wise distribution of surveyed Bidi rollers and non- Bidi rollers sample is given in *Table 1-3*

1.8.1 Inclusion and Exclusion Criteria for Respondents in the Study

The inclusion criteria for a woman in the household was having Bidi rolling as the primary occupation. Only a single female was sampled from one household. The non- Bidi rollers were all those women who had not done the Bidi rolling work in their lifetimes. The households for survey were selected randomly across the village geographical spread, covering households in all direction and clusters. The questionnaire schedule (attached in the appendix) had three sections. The first and third sections were compulsory for all respondents. The second section

with questions about the Bidi rolling work and work relations was only scheduled to the Bidi roller samples.

Table 1-3 Village Wise distribution of Bidi roller and Non- Bidi Roller sample

Survey Location/Village	CD Block	Bidi Rollers	Non- Bidi Rollers
Bhainswahi	Sagar	64	5
Karaiya	Sagar	45	27
Gambhiria Slums	Sagar (U)	16	2
Shankargarh Slums	Sagar (U)	32	1
Peelikothi Cantt	Sagar (U)	1	10
Sahawan	Banda	49	27
Pipariya Illai	Banda	54	9
Charaudha	Banda	0	24
Boda Pipariya	Banda	0	20
Tinsi	Shahgarh	0	14
Tinsua	Shahgarh	0	5

Source: Primary Survey in Sagar (December 2016)

1.9 Research Methodology

The purpose of this occupational health study was to comprehensively evaluate health and well-being in the Bidi rolling sector. The identification of work related health determinants in such detail required an in depth study of surface and sub-surface processes affecting the labour. These elements of the work domain were certain to be at intersections with the socio-economic, political, regional, historical and institutional milieu. Health, access to health and the work processes were not to fit in a linear construct.

In the Bidi rolling work setup, the position of women labour in the labour process is a converging point of a multitude of such intersectionality. To understand these subtle and complex processes, the standard quantitative enquiry was not going to be enough. The women's position in the work-labour process, society, family domains had to be understood and ingrained. All this was difficult to capture in statistics to make acceptable arguments. There was an attempt to capture both objective and subjective opinions about health and work in the form proxy indicators and for an enriched understanding they were backed with narratives, interviews and Focus Group Discussions (FGD) of and with women and other stakeholders

such as health personnel, doctors, and Sattedars[59].In principle the work relied on the triangulation[60] of quantitative and qualitative methods.[61] Although, the two techniques differ epistemologically and ontologically, both when combined help neutralize flaws of each other and strengthen research results and arguments.[62]In this work the triangulation[63] and mixed approach drawing from data trends and building the analysis with the interviews and narrative leads, was used. [64] Using both, a framework was developed, for better understanding of the hypotheses.

The list of methods used is as follows:

Statistical tools

- The responses on nature of ailment within a recall period of 365 days were coded into broad ailment types. These were ailments of the respiratory, musculoskeletal, endocrine and gynaecological system; and eye related, skin related, cancers and other ailments, The prevalence rates of each type were calculated using the formulae:
  Number of Ailment Cases Reported / Total Number of Respondents * 100
- To assess the differences in terms of ailment characteristics between Bidi rollers and Non- Bidi rollers, bivariate tables with chi square test of independence were used.

[59] Representatives of the Bidi manufacturers, these Bidi contractors also called as Sattedar in Bundelkhand region are the middlemen who supply raw material to women rollers and collect finished Bidi's from them.

[60] Triangulation is a research method that uses of multiple methods or data sources to develop a comprehensive understanding of phenomena (Patton, 1999). It is a research strategy to test validity of findings through the convergence of information from different sources. There are four types of triangulation: (a) method triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) data source triangulation.

[61] Denzin, N. (1978). Sociological Methods: A Source Book, Mc Graw Hill, New York.
Patton, M.Q. (1999). Enhancing the Quality and Credibility of Qualitative Analysis, *Health Services Research*, 34(5), 1189-1208

[62] Hussein, A. (2009). The use of Triangulation in Social Sciences Research: Can qualitative and quantitative methods be combined. *Journal of Comparative Social Work*,1, 1-12.

[63] Denzin, N. (1978). Op cit. p.22

[64] Denscombe, M. (2008) Communities of Practice: A Research Paradigm for the Mixed Methods Approach. *Journal of Mixed Methods Research, 2*(3), 270–283.

- To assess health risk association with Bidi rolling work, Relative Risk (RR) estimations comparing Bidi rollers and Non- Bidi rollers were made and interpreted as per significance level 0.05, with corresponding confidence level of 95%.
- To create a synthesised picture of precarious elements in work, health status and health care access, composite indices were created using proxy indicators of each. The formula used was as below:

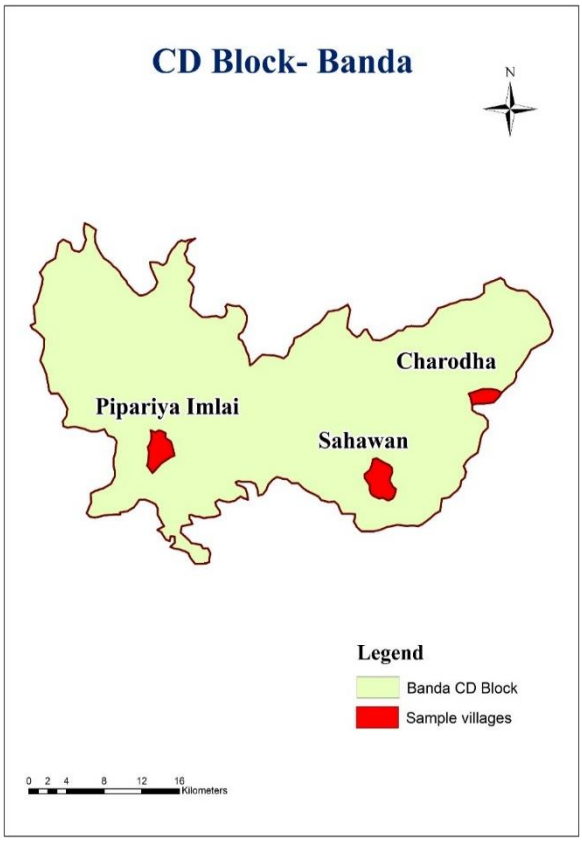
  Composite Index formula= (Indicator 1+ Indicator 2+ Indicator 3……Indicator n) / Number of indicators (n)
- Spearman Correlation and Simple Linear Regression was used to see association strength between precarious work, illness and health access indices. Then interpreted as per significance level 0.05, with corresponding confidence level of 95%.
- To evaluate the effect of single precarious elements on health and health care access, within the Bidi rollers, intra group t tests were performed and interpreted as per significance level 0.05, with corresponding confidence level of 95%.

Qualitative tools

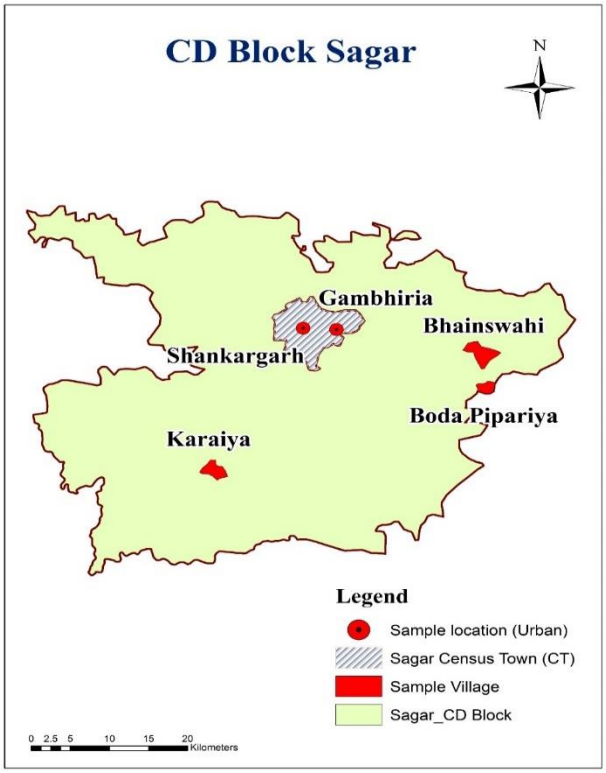
- In Depth interviews: Detailed interviews with questions about Bidi rolling work, work practices, interaction with employers, illness symptoms, self perception of health and general socio-economic details were put to women Bidi rollers. Besides the interviews were also conducted with the health personnel like doctors at the Bidi hospital , Sattedar, Sarpanch etc.
- Focus Group discussion: One FGD each in rural and urban setting was attempted during the field survey.
- Field Notes: These were the random observations, details and self understanding notes that were scribbled in the field diary.
- Inductive Concept Mapping/Framework method[65]: The inductive understanding from both kinds of data analysis was organised into concept maps to elaborate the understanding of the central phenomena hypothesised.

[65] Mapping the range and nature of phenomena, create typologies and find associations between themes with a view to providing explanations for the findings.

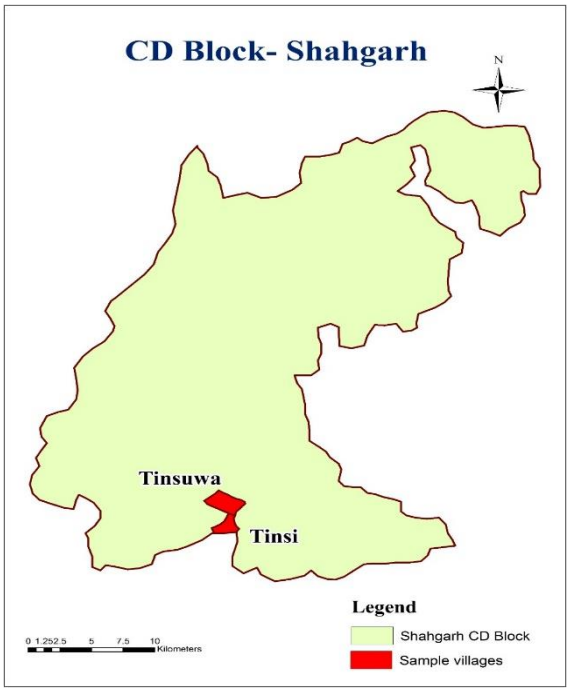
As in: Pope, C., Ziebland, S., Mays, N. (2000). Qualitative research in health care Analysing qualitative data. *British Medical Journal,* 320, 114–116



Map 1-3 Survey Locations in C D Block Banda



Map 1-2 Survey Villages in C D Block Sagar



Map 1-4 Survey Locations in CD Block Shahgarh

1.10 Significance of the Study

The significance of this work lies in its attempt to see the relationship between work and health holistically. The fact that this analysis is done on a set of informal women workers which are one of most vulnerable labour segments in India makes it all the more important. The Bidi rolling work has been a scientifically proven health hazard, but this hazard has never been seen in its entirety. The previous studies have brought out the hazard in the working conditions and exposure to hazardous chemicals. These studies have identified certain specific disorders commonly linked and caused by the exposure to nicotine.

However, this study evaluate aspects of not only nature of ailments but also characteristics of ailments among women Bidi rollers to assess their overall effect on physical and psychological well being. It goes on to gather the other subtle health affecting processes embedded in work, work relations and working conditions. So work also is seen in its entirely carefully identifying all direct and indirect health determining elements in it and making correlative analysis with health and access status. This study also highlights the need for occupational health domain to broaden horizons of how work and health is seen. India is a country with a vast unorganised sector with varying levels of precariousness in occupations it offers to the poor and vulnerable. Good health, well being and access to good health care facilities is a recognised right of the poor. The precarious work and informal work settings can come in way of the cherished goal of health equity. Better understanding of this determinant of health is thus very important.

1.11 Limitations of the Study

This study suffers from the following unavoidable limitations:

- The financial and time constraints did not allow for a true case control study design to offer precise cause and effect relationships. The study being a cross sectional one could only find out associative relationships between exposure to work (independent) and health status (dependent variable) .
- The comparability between the Bidi roller cohort and Non- Bidi Roller cohort suffers from limitations. These could not be avoided as the region had profuse dependence on Bidi occupations and it became a practical difficulty to find non- Bidi roller women of exactly matching age group and location.

- Since the target population was a illiterate and unaware lot, the use of sophisticated health scales on physical and mental health was not attempted.
- The binary coded proxy indicators for creating composite indices of precariousness and health aspects are sector and case specific. They have not been validated.
- The state level computation of health and health access data on Bidi rolling households in Madhya Pradesh, from the National Sample Survey 71st Round is based on relatively small sample size and the trends out of this data cannot be conclusively asserted.

1.12 Organization of Chapters

The thesis is divided into 7 chapters.

The first chapter makes an introduction to the research study and defines the need and significance of such a study. It develops a conceptual framework for the upcoming research discussion, sets out the objectives and hypothesis of the study along with a brief on sampling and research methods.

The second chapter provides the theoretical base for this research study. It provides an intensive review of theories and research in the area of Social Determinants of Health. This is followed by an in depth analysis of how employment is a cross-cutting and one of the most important determinant of health. It goes on to deliberate the 'Precarious Work' construct of employment fitting the socio- deterministic trend in occupational health, its advantages and complexities such as a gender bias in effect and exposure.

The third chapter elaborates on the Bidi manufacturing process in the regional setting i.e. Sagar district in Bundelkhand. The chapter ends with the socio-economic and demographic profile of the women Bidi rollers surveyed in Sagar.

The fourth chapter presents a comprehensive analysis of health status amongst women Bidi rollers in Sagar. The trends of nature and characteristics of ailments are corroborated with those in the households dependent on tobacco manufacturing industry at national and state level. The data results are backed by work and health narratives of Bidi rollers in the field. The chapter concludes by establishing the health risk associated with Bidi work by way of a case-control analysis, comparing Bidi rollers and Non-Bidi rollers.

The fifth chapter in progression discusses the general health care access conditions among the women Bidi rollers and the major barriers they face to access health provisions and facilities. This chapter also discusses the special health provisions for the Bidi workers and evaluates their successes and failures.

The sixth chapter delineates the multidimensional precarious work determinants of health and healthcare access embedded in the Bidi rolling work ecosystem. The precarious elements in work, illness characteristics and health access features are developed into composite indices to assess associations. The chapter concludes the research in establishing the pathways and mechanisms of precarious elements in work affecting health and the access conditions among Bidi rollers.

The seventh chapter closes the study with list of salient conclusions and related suggestions.

Chapter 2

Theoretical Background: Review of Literature

2.1 Introduction

Health is a basic human need and a universal human aspiration. Quality health and its fair distribution is the fundamental objective of every public health research. Since the dawn of modern societies, health inequalities have been questioned and their causes researched. The scope of these explanations have slowly surpassed the medico-biological to the complex socio-behavioural explanations.

There is already a vast pool of independent and institutionally backed research that has recognised the significance of social explanations to health inequalities. The social determinants to health approach however faces challenges in terms of creating concrete evidence interventions, tracing precise causal mechanisms and dis-entangling the complex inter-related effects of social elements. Moreover, such studies substantiate health scenarios for the developed world, majorly missing the developing nations facing pressing public health disparities.

Such theoretical explanations in public health field with their major findings and limitations are discussed in this chapter. This literature review provides the core theoretical background under which the present study is based. Out of the other determinants, the significance of employment as a determinant of determinants in health domain is highlighted. The precarious denomination of employment conditions is then discussed, for its advantages and disadvantages in encompassing employment characteristics with complex effects on health. The emerging gender bias against women and its peculiar health implications in the precarious work domain are discussed in continuation.

2.2 Social Determinants of Health Inequalities

Throughout the world, there exist systematic differences in the health of people occupying unequal positions in society.[66] The vulnerable and socially disadvantaged bearing the greater burden of disease and illness than those in more privileged positions.[67] These health differences

[66] Kawachi I. (2000). Op cit. p.7

[67] Graham,H.(2004). Op cit. p. 7

have acquired the research denomination of the 'social gradient in health.[68] Health inequalities are neither inevitable nor immutable[69] and the social gradient presents the greatest challenge to health equity goals.

The health inequity has grown despite the unprecedented wealth and technological progress. Although clinical/ medical care is vital for well being of human population, it is now recognised that it is not enough to overcome health inequity.[70] Medical care is like an ambulance waiting at the bottom of the cliff[71], the cliff surmising all social, political and economic milieu that surrounds individuals, affecting their health. The greater share of health problems is attributable to these social conditions where people live and work, what constitutes the social determinants of health.[72]

The research on Social determinants causing health inequalities has a long and organic history. By early nineteenth century, physicians such as Villerme and Virchow started identifying poverty, social class and working conditions as crucial determinants of health.[73] The hint towards social factors affecting health became quite profound with the classic study by Durkhiem, who related social experience & social integration with mortality, especially suicide. [74] The establishment of WHO in the 1940's brought hope for action on health equity and social causes of health. However, the medical breakthroughs of the time kept reinforcing the belief in the biological-technological solutions to addressing health issues. In the post

[68] Marmot, M. (2007). Achieving health equity: from root causes to fair outcomes. *The Lancet*, 370(9593), 1153–1163

[69] Bleich, S. N., Jarlenski, M. P., Bell, C. N. et al. (2012). Health inequalities: trends, progress, and policy. *Annual Review of Public Health*, 33, 7–40.

[70] Berkman, L., Kawachi, I., Glymour, M. (Second eds). (2014). Social Epidemiology. Oxford University Press, New York

[71] Daniels, N,, Kennedy, B.P., Kawachi, I. (1999). Why Justice is Good for our Health: The Social Determinants to Health Inequalities, *Daedalus*, 128 (4), 215-25.

[72] Berkman, L., Kawachi, I., Glymour, M. (Second eds). (2014). Op cit. p.30

[73] Virchow, R. (1848). Collected essays on public health and epidemiology. Science History, Canton MA

[74] Durkhiem, E. (1897). Suicides: A Study in Sociology, Free Press, Glencoe, IL

World War II era, the developed world saw further fading of the social factor approach to health. [75]

However, the continued poor health crisis among the developing nations and socially disadvantaged of the developed world, despite bio-tech advances brought back the focus on social determinants of health. Then, the Alma Alta Declaration of 1978 came as a magna carta for health equity in global health policy, with focus on primary health care (PHC) for all. The PHC movement called for a better understanding of social determinants and more people centered action. But the coming of neo liberal era in the 1980's to 1990's impeded this focus on equity agenda.

In the 1980's, new work raised the profile of research on social conditions to health. Among the prominent studies were works of McKeown and Illich, who challenged the biomedical paradigm to better population health.[76] This mounted pressure on the states, especially in the developed world to focus on health equity based approaches and even national enquiries on social determinants to health. It was in the 1980's that UK's Black report on 'Inequalities in Health' that became a landmark in the understanding of health as a social phenomena. The Report argued that reducing gaps in health would require work on the social aspects such as education, housing, social welfare etc.[77] Another landmark study on similar lines was the Whitehall Studies of Comparative Health Outcomes among British civil servants which further clarified the pervasive effects of social gradients on health.[78]

The interest in social determinants continued in the next decade and into the new century. The Latin American Social Medicine Movement and the People Health Movements pointed that

[75] Friel, S. and Marmot, M.G. (2011). Action on the Social Determinants of Health and Health Inequities Goes Global. *Annual Review of Public Health*, 32, 225–236

[76] McKeown, T., Record R.G., Turner, R.D. (2011). An interpretation of the decline of mortality in England and Wales during the twentieth century. *Population Studies: a Journal of Demography*, 97(3),391-422.

[77] Gray, A. M. (1982). Inequalities in Health. The Black Report: A Summary and Comment. *International Journal of Health Services, 12*(3), 349–380.

Bouchard, L. Albertini, M., Batista, R. et al. (2015). Research on health inequalities: A bibliometric analysis (1966- 2014). *Social Science and Medicine*, 141, 100-108

[78] Marmot, M.G., Smith, G.D., Stansfeld, S. et al. (1991). Health inequalities among British civil servants: the Whitehall II study. *Lancet*, 337(8754),1387–1393

the developing world was not untouched by this wave.[79] The adoption of the Millennium development goals (2000) and the debate on Right to Health kept the fire in the issue alive.[80]

The rediscovery of social determinants as a research discipline happened by way of Kawachi's pioneering approach '"Social Epidemiology".[81] The persistent patterns of health inequalities and the growing evidence of social drivers working as the causes of the causes augured in the discussion on social epidemiology. The branch of epidemiology dedicated to study how social structures, institutions and relationships influence health; the way societies are organised to impede or promote good health in population. The vast explosion in the research interest on social epidemiology was drawn in by the realisation that individual level factors were only explaining a small fraction of disease. Any intervention in the individual factors was going to be only partially successful as they would not target the root cause of risk. This approach provided a new perspective to epidemiology with focus on family, neighbourhoods and society. In this context, the role of social capital[82] in accentuating or reducing health inequalities was emphasized. [83]

In this backdrop, the WHO Commission on Social determinants of health was constituted. The Commission gave Social determinants its conceptual meaning with social justice at the heart of it. It included upstream drivers of health including upstream political, economic and socio-cultural factors as well as intermediate conditions of daily living.[84] At the heart of the social determinants/social epidemiology approach lied empowerment, the concern for people's

[79] Yamada S. (2003). Latin American social medicine and global social medicine. *American journal of public health, 93*(12), 1994–1996.

[80] United Nations. (2000). *Millennium Development Goals*. United Nations, New York

[81] Berkman, L., Kawachi, I., Glymour, M. (Second eds). (2014). Op cit. p. 30

[82] Social capital is a measure of civic engagement, mutual trust in community members, social networks etc, shapes the quality of living space. As in: Putnam, R. D.(2001).Social Capital: Measurement and Consequences. *Canadian Journal of Policy Research*, 2, 41-51.

[83]Berkman, L. F., and Glass, T. Social integration, social networks, social support, and health. In : L. F. Berkman and I. Kawachi (Eds.) (2000)., *Social Epidemiology*, Oxford University Press, New York

[84] Commission on Social Determinants of Health. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization, Geneva

freedom to lead flourishing lives.[85] It put forward health gradients as a result of social hierarchies in social & economic resources with power & prestige, which are concentrated unequally.

With this philosophy it bridges the gap between technical and social interventions, showing the significance of both. It positively rebalances between preventive and curative as well as individualised and population based interventions. Its focus on the fundamental structural conditions, the 'causes of the causes' to inequity, fore bears more equitable and sustainable social outcomes.[86]

Within the broad framework lie the two competing explanations to health inequalities. These are structural deprivation and psychosocial mechanisms. The structural theories are identified as the most robust in explaining health inequalities. The structural theory builds its health inequalities explanation as a graded outcome of the socioeconomic circumstances and political processes of social groups across life stages. There are empirical evidences that show reduction in health inequalities on lowering of structural inequalities and health of communities bettering with a better resource distribution.[87]

However, there is more to material & social deprivation than just direct effects such as malnutrition, hazardous work & living conditions. There are associated psychosocial effects of these deprivations that act "under the skin". The distinction between direct effects of material & social deprivation and the psychosocially mediated health effects of relative deprivation is also significantly important for the policy domain. [88]

There is now increasing evidence towards the health effects of these psychosocial factors which play out in the form of anxiety, bullying, stress, depression, social isolation, lesser control over

[85] Acheson, D. (1998). Independent inquiry into inequalities in health : The Acheson Report. The Stationery Office , London, HMSO

[86] Commission on Social Determinants of Health .(2008). Op cit. p.32

[87] Marmot, M. (2007). Op. cit. p. 30

[88] Adler, N.E., and Snibbe, A.C. (2003). The Role of Psychosocial Processes in Explaining the Gradient Between Socioeconomic Status and Health. *Directions in Psychological Science*,12(4), 119-123.

Marmot, M. and Wilkinson, R.G. (2001). Psychosocial and material pathways in the relation between income and health: a response to Lynch et al. *British Medical Journal*, 322(7296),1233-1236.

one's life etc. There prevalence is controlled by socio-economic structures in the society and the position of people within those structures. Such as wealth marks social status & accords respect, whereas poverty conditions are stigmatizing. These act in combination with the direct effect of deprivations in explaining health gradients.[89]

The basic philosophy of how health inequalities are perceived in a society depends on the political ideology. They can either be considered inevitable as a result of individual differences in biology & choice behaviour or be seen as avoidable and remediable. Despite this, the dimension of political economy mechanisms to health inequalities have not received enough attention in research. The focus on material deprivation over shadows the other important aspect of political economy factors in the structural explanations.[90] In this area, the work of Navarro (2002)[91] and Muntaner[92] (2004) is notable. Their analysis makes an empirical link between political economy and health. They assert that egalitarian ideologies aimed at reducing social inequalities such as state & labour market policies have a salutary effect on health indicators and thus are important to consider. [93]

Other than the explanations bias, the social determinants of health framework also suffers from two inherent problems. One that the evidence base is heavily relying on descriptive epidemiological studies with the ability to bring out mere associations without adding much in terms of effective intervention or entry points for policy. This is particularly because such survey derived studies have limitations in terms of explaining complex social explanations for health inequalities. The critique draws particular attention to the limitations of survey-derived data and the dangers of using such data to develop complex social explanations for health

[89]Ibid. p.33

[90] Ybarra, V., Sanchez, G., Medeiros, J. (2011). The Missing Link in the Social Determinants Literature: The Impact of Political Factors on Health Status and Health Disparities in the United States. APSA 2011 Annual Meeting Paper, Retrieved from: https://ssrn.com/abstract=1901062

[91] Navarro, V. (eds) (2002). The Political Economy of Social Inequalities: Consequences For Health and Quality of Life. New York: Baywood

[92] Navarro, V., Muntaner, C., Borrell, C., et al. (2006).Politics and health outcomes. *Lancet*, 368(9540),1033-1037.

[93] Ibid.

inequalities.[94] Further, there is lack of evidence in terms of effectiveness of interventions except in fields like housing and work environment.[95]

The way out is understanding health inequalities within the complexity of the social world, modelling cases down to the community and individual levels using actual or proxy measures. Also there is a strong case for including qualitative component for fuller appreciation of complex social milieu in to their research. Such studies are required for better explaining population health differences and health inequalities.[96]

2.3 Employment as a Determinant of Health

The scholars of health inequalities and their social drivers have long recognised the centrality of employment and working conditions as important determinants of individual's quality life and well being. [97] Employment is seen linked to health in both positive and negative ways. Engagement in a good employment has positives for health while sub-standard employment or being unemployed conditions may contribute to poor health.[98] In positive role, it is a predominant mode of material benefits and a source of social integration, prestige and status. [99] For which it needs to satisfy some basic criteria of minimum quality, decent living wage, opportunity for growth, flexibility to balance work & family life and certain level of social protection. [100] In negative role, workers could be exposed to physical and psychosocial stressors.

The obvious evidence of this link is the comparative health studies between employed and unemployed. A large body of research shows that the unemployed or those who face job

[94] Bambra, C., Gibson, M., Sowden, A., *et al*. (2010).Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. *Journal of Epidemiology and Community Health.*64, 284-291.

[95] Forbes, A. (2001). On the methodological, theoretical and philosophical context of health inequalities research: a critique. *Social Science and Medicine*, 53, 801–816.

[96] Ibid.

[97] EMCONET. (2007). Op cit. p.3

[98] Ahonen, E.Q., Fujishiro, K., Cunningham, T. et al. (2018). Work as an Inclusive Part of Population Health Inequities Research and Prevention. *American Journal of Public Health*, 108 (3), 306–311.

[99] Burgard, S. A., and Lin, K. Y. (2013). Op cit. p. 4

[100] Ibid.

insecurity are worse on self rated health, mental health and mortality than those who are employed. This generalisation of course excludes population who is exercising their right of not to work, by their own choice.[101]

The health enhancing effects of employment are routed in multiple ways. First and the most obvious is earnings through employment which are the major source of financial resources to maintain healthy and safe lives.[102] Although, employment should not be considered only as a mere route to pay check. Employment conditions play access and social capital building roles, all having health enhancing effects. Beyond improved social status, other benefits could include positive career growth trajectories, job satisfaction, creative self expression etc.[103]

At the same time, a long line of social science research has highlighted the exploitative, alienating and hazardous effects of work. A range of research has focused on the negative health exposures related with work and workplace. These exposures are supposed to get under the skin to affect health from direct physical exposure to, psycho-pathological and even psycho-social stressors. [104]

This body of research includes studies on chemical, biological and physical hazards in the occupational health domain. [105] Further, other health exposures are attributed to workplace and task arrangements, regularity of working hours, job insecurity, job strain and work-family spill overs.[106] These are found to be associated with a range of health problems such

[101] Krueger, P.M. and Burgard, S.A. Income, Occupations and Work. In: Rogers, RG.; Crimmins, EM., (eds). (2011). International Handbook of Adult Mortality. Springer, New York

[102] Burgard, S. A. and Lin, K. Y. (2013) Op cit. p. 4

[103] Mirowsky, J. and Ross, CE. (2003). Education, Social Status and Health, Aldine De Gruyter, Hawthrone

Mirowsky, J. and Ross, C.E. (2007). Creative Work and Health. *Journal of Health and Social Behavior*, 48(4), 385–403.

[104] Burgard, S. A. and Lin, K. Y. (2013). Op cit. p. 4

[105] Ahonen, E.Q., Fujishiro, K., Cunningham, T. et al. Op cit. p.35

[106] Aerden, V., Barrachina, V., Bosmans, K. et al. (2016). How does employment quality relate to health and job satisfaction in Europe? A typological approach. *Social Science and Medicine*, 158,132-140.

as psychiatric morbidity, musculoskeletal symptoms, worse-self rated health , risky health behaviours and cardio-vascular complications etc.[107]

Besides these micro level processes, the political economy and macro labour markets have a significant role in altering the employment condition and health relationships. The periodic changes in the state and economic environment is supposed to affect health in three significant ways. Firstly, through staff cuts and resulting unemployment. Secondly through lowering of job quality with lower wages, worse working conditions and growth in flexible & precarious employment arrangements; most likely to affect the already deprived sections. Thirdly, this leads to downsizing and restructuring leading with more of outsourcing and temporary jobs.[108]

The shift from Keynesian era of standard employment relations with capital & labour accord to the neo liberal era of 1970's of flexible and individualization of labour marked has accelerated the above trends.

In the labor market restructuring at the time of Great Recession in 2008, attention was directed to health implications from macro factors such as austerity cuts and downsizing.[109] Like earlier, much of this research evidence appeared in the developed countries, especially USA, Canada and European Union.[110] The developing nations with the large unprotected informal workforce, poverty wages, precarious and hazardous working environments, remained a missing link in such evidence producing studies.[111] This skewed nature of research, was

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[107] Ferrie, J.E., Shipley, M.J., Stansfeld, S.A. et al. (2002). Op cit. p. 11

Kivimaki, M., Leino-Arjas, P., Luukkonen, R. et al. (2002).Work Stress and Risk of Cardiovascular Mortality: Prospective Cohort Study of Industrial Employees. *British Medical Journal*, 325, 857–861

[108]Quinlan, M., and Bohle, P. (2009). Overstretched and unreciprocated commitment: reviewing research on the occupational health and safety effects of downsizing and job insecurity. *International Journal of Health Services,* 39(1), 1-44.

Benach, J., Vives, A., Amable, M., et al. (2014). Op cit. p. 2

[109] Ibid.

Horton, R. (2009). The global financial crisis: an acute threat to health. *Lancet,* 373(9661), 355–356

[110] Benach, J., Vives, A., Amable, M., et al. (2014). Op cit. p. 2

[111] Ibid.

Alfers, L. and Rogan, M. (2015). Health risks and informal employment in South Africa: does formality protect health?. *International Journal of Occupational and Environmental Health*, 21(3), 207-215.

attributed to methodological and technical challenges. The dearth of disease and occupational data for informal workers and the co founding factor of low living & poverty conditions of the labor presented roadblocks.[112]

Besides the geographical asymmetry, there is also a theoretical challenge to the employment-health premise and that is the theory of health selection. This views ill health as a factor selecting workers into sub-standard working conditions, further reflecting in poor health outcomes due to their earlier health deficits. Other question that is posed that employment conditions could vary over time spans and therefore there precise health effects not so easily traceable in point health outcomes. It is also difficult to draw a clear distinction between the impact of employment and general low living standards on health outcomes.[113]

The possible solutions to overcome these have been sought, by way of longitudinal studies and adjusting early lives. The recent trend has been to model reciprocal causation between work and socio-economic positions.[114] Besides, the significance of health causation, health selection etc. are suggested considerations for all future studies on work and health.

Overall, work as a factor of health is a complex concept with numerous inter-connections with education, caste, ethnicity, socio-economic status. A parallel science on occupational health and population health disparity deflects a research attention on this important link. Despite its importance in the lives of working population, there remains huge scope for research on pathways & mechanisms linking work and health. [115] A better understanding of this determinant of health is crucial for a complete understanding of health disparities.

The discussion on this theme in literature was seen to be relevant in three aspects: 1) the empirical evidences to health effects on work 2) the type of health effects and 3) the

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[112] Clougherty, J. E., Souza, K., and Cullen, M. R. (2010). Op cit. p. 2

[113] Benach, J., Muntaner, C., Solar, O. *et al*. (2007). Op cit. p. 2

[114] Mulatu, M. S. and Schooler, C. (2002). Causal connections between socioeconomic status and health: Reciprocal effects and mediating mechanisms. *Journal of Health and Social Behavior*, 43, 22–41.

[115]Muntaner, C., Borrell, C., Vanroelen, C. et al. (2010). Employment relations, social class and health: a review and analysis of conceptual and measurement alternatives. *Social Science and Medicine*, 71(12), 2130–2140.

employment classifications to evaluate effects on health . The next section takes up one such employment condition in detail and deliberates it public health significance.

2.4 Precarious Work in Public Health Domain

There are two components to how research links employment with health. The first are job features, directly related to the tasks performed, i.e. job control, job strain and resources etc. The health associations of these job features are well documented in research.[116] The second component is that of quality in terms of employment conditions and relations. These are the characteristics of contract, working hours and level of representation etc. forming the framework around work tasks. The health associations with these quality features are gaining research impetus, yet under investigated.[117]

There are two kind of studies. First, that study health associations with job quality parameters. Job quality is evaluated in terms of the SER features ranging from stability, organisation, opportunities, interpersonal relations, rights from the ideal point of reference. [118] The other kind of studies see work quality in the 'Precarious' framework. Both the concepts, however, have a common philosophy that accumulation of adverse quality/ precariousness leads to general disempowerment in employment situation. [119]

The Precarious employment framework has received a recent popularity surge in public health research. It is increasingly being considered as a important social determinant of health in populations. [120] This popularity is lead by three main developments: 1) the trend towards "flexibility and labour market competitiveness post globalization, technological advancement

[116]Aerden, V., Barrachina, V., Bosmans, K. et al. (2016). Op. cit. p. 36

[117] Underhill, E. and Quinlan, M. (2011). How Precarious Employment Affects Health and Safety at Work: The Case of Temporary Agency Workers, *Industrial Relations*. 66(3), 397-421.

[118] Aerden, V., Barrachina, V., Bosmans, K. et al. (2016) Op cit. p. 36

[119] Benach, J., Vives, A., Amable, M. et al. (2014) Op cit. p. 2

[120] Benach, J., Benavides, F.G. and Platt, S. et al. (2000). The health- damaging potential of new types of flexible employment: a challenge for public health researchers. *American Journal of Public Health*, 90 (8), 1316-1317.

and economic recession; associated erosion of standard employment relationships (SER)[121] 2) the growing interest in social determinants of health3) the increasing availability of data and information systems. [122]

The term precarious employment is a broad one and has been broadly used for decades in sociology, economics, and political sciences, as well as in the media.[123] The importance of it in the public health domain, however, has grown rapidly over the past decade.[124] Although there is still no full consensus on its definition, precarious employment has been considered as "a multidimensional construct encompassing dimensions such as employment insecurity, individualized bargaining relations between workers and employers, low wages and economic deprivation, limited workplace rights and social protection, and powerlessness to exercise workplace rights." [125]

Defining what is precarious and what is not, becomes difficult as the boundaries between the two are fuzzy. Most attempts towards a definition have done so by listing the various "dimensions" that precarious work can constitute. Hence, the very definition of it sets out the multidimensionality involved. Some definitions could differ in the sense that they would give weight to one single dimension over the other. None, refuting its multi- facets.

The recent works consider precarious employment as a continuum with degrees ranging from high to low, depending on how it fares on characteristics of employment such as wage work, regulatory protection, stability etc. Accordingly, less protected and risky work situations

[121] 'Standard Employment Relationship' (SER) denotes the normative model of employment, evolved during the post Second World War phase of ideal labor- capital accord. It is a condition where the worker has one employer, works full-time, year-round on the employer's premises under his or her supervision and regulated working hours, enjoys extensive statutory benefits and entitlements, and expects to be employed indefinitely with possibilities of career progression.

As in:Vosko, L. F. (1997).Legitimizing the Triangular Employment Relationship: Emerging International Labor Standards from a Comparative Perspective. *Comparative Labor Law and Policy Journal*, 19 (43).

[122] Benach, J., Vives, A., Amable, M. et al. (2014). Op cit. p. 2

[123]Kalleberg, A.L. (2009). Op cit. p. 10

[124] Benach, J., Vives, A., Amable, M. et al. (2014). Op cit. p. 2

[125] Ibid.

without stability and benefits are considered highly precarious and vice versa.[126] Most of the definitions of "precarious employment" have thus justified this continuum nature by incorporating multiple dimensions and characteristics attached to it.

The most common definition by Rodgers and Rodgers (1989) [127] characterizes "precarious employment across several dimensions, including working wages, work intensity, the presence of a union, or statutory protection, job stability, and access to personal or family benefits." This definition is an advancement to previous definitions classifying work as standard & non-standard, as it brings in the aspect of "quality" as well.

Meanwhile, Ross writes of "precariousness as a disputed zone between competing versions of flexibility in labour markets."[128] Guy Standing demarcates a new class of workers as the 'precariat', the one's facing chronic uncertainty and insecurity. Moreover, Standing defines the 'precariat' as having certain demographic properties of gender and age and not just certain employment conditions.[129] Ulrich Beck (2000) sees precariousness as a key aspect of a broader trend towards a 'world risk society' with a insecure political economy.[130] He situates this in the context of Post 2008 period, where western countries are taking on more features of informal economies. Benach and others of the Knowledge network on employment conditions as determinant of health, advocate the term as a multidimensional construct with components of temporality, powerlessness, lack of benefits and low income. [131]

Likewise, the ILO (2012) definition puts weight on security dimension, defining precarious employment as where employment security lacks; it includes within it home based work, sub contracting, temporary term contracts etc.[132] The European Commission focuses on a

[126] Benach, J., Muntaner, C., Solar, O. et al. Op cit. p. 2

[127] Rodgers, G. and Rodgers, J. (eds) (1989). Precarious Jobs in Labor Market Regulation: The Growth of Atypical Employment in Western Europe. *International Institute for Labor Studies*. Geneva.

[128] Ross A. (2009). Nice Work if You Can Get It: Life and Labor in Precarious Times. New York University Press, New York.

[129] Standing G (2011) The Precariat: The New Dangerous Class. Bloomsbury Academic. London
[130] Beck, U. (2000). The Brave New World of Work. Polity Press, Cambridge, UK.

[131] Benach, J., Vives, A., Amable, M. et al. Op cit. p. 2

[132] ILO – International Labor Organization (2012). 'From precarious work to decent work: outcome document to the workers' symposium on policies and regulations to combat precarious employment', International Labor Organization, Geneva, 2012. Retrieved From:

combination of aspects like growth prospects, of insecurity in work, access to training, job security etc.[133] The commonality between different definitions is the same broad brush approach, characterized by risky, unpredictable, low paying, uncertain and insecure type of employment engagement.

The consequences of precarious work are equally multi-dimensional, not restricted work and workplace but also non- work domains. These are likely to affect family formations, social life and societal equity & security. [134] The usefulness of the term lies in the way it broadens the scope of, otherwise narrowly focused emphasis, on psychological work environment by bringing in space for a more sociological approach to work and health. A lens of precarious puts the workplace social psychology in a contextual perspective, in this way it becomes possible to see workers health as a consequence of work relations than a by product of any other exogenous determinant of health.[135]

Through the above studies, there is a consistent evidence that precarious work settings lead to negative health outcomes. For temporary workers, this is attributed to the hazardous working conditions, painful, tiring & repetitive work, noisy work environments, less control over work safety and other rights and resulting in more occupational injuries. In other studies, the health outcomes are measured in terms of death and disability years of life lost (DALY) and found higher in informal workers than counterparts. [136]

Most of the other studies based in the developed world, find higher chances of mental illness, poor self perception, psychological stress and negative physio-pathological changes, mainly as

https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/meetingdocument/wcms_179787.pdf

[133] McKay, S., Jefferys, S., Paraksevopoulou, A., et al. (2012) Study on Precarious Work and Social Rights, Report for the European Commission.Working Lives Research Institute, London Metropolitan University, London.

[134] Kalleberg, A.L. (2011) Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s. Russell Sage Foundation, New York.

[135]Muntaner, C. and O'Campo, PJ. (1993). A critical appraisal of the demand/control model of the psychoso- cial work environment: epistemological, social, behavioral and class considerations. *Social Science and Medicine*, 36(11),1509–1517

[136] Alfers, L. and Rogan, M. (2015). Op cit. p. 37

they evaluated precariousness in terms of job security and satisfaction.[137] In fact, in the western studies, mental health comes out as the most sensitive health outcome responsive to precarious work.[138] The crux is that authors have contextualized their proxy health outcomes depending upon the development setting of study regions.

All the works analyzing health impact of precarious work come down to a set of approaches. One approach is taking into account the dimensions of precariousness separately and evaluating their interactions on health outcomes. [139]Second, is constructing scales where dimensions contribute jointly for measurement of health impact.[140] Third is applying a qualitative approach to understand effects of precariousness dimensions. [141] The multidimensional constructs with mix of qualitative studies are suggested over the former unidimensional approaches. [142]

To most multidimensional approaches, the reference point is the Rodger's scale, which incorporates elements of low wages, working hours, social protection and treatment at work as precariousness factors. The specific dimensions put to use range from work-role status, uncertainty, risk of exposure to physical hazards, social support at work, and training and career-advancement opportunities. [143]

Other important approach is the GREDS-EMCONET (Health Inequalities Research Group, Employment Conditions Knowledge Network) employment precariousness validated construct and scale. It incorporates multiple dimensions thus moving beyond one-dimensional indicator of job insecurity. It also takes into account the power relations underlying the work

[137] Pirani, E. and Salvini, S. (2015). Is temporary employment damaging to health? A longitudinal study on Italian workers. *Social Science and Medicine*, 124 (C), 121-131.

[138] Benach, J., Vives, A., Amable, M., et al. (2014). Op cit. p. 2

[139] Ruiz,E., Vives, A., Martínez, S. et al. (2017). How does informal employment impact population health? Lessons from the Chilean employment conditions survey. *Safety Science*. 100, 57–65.

[140] Vives, A., Amable, M., Ferrer, M. et al. (2010). The Employment Precariousness Scale (EPRES): psychometric properties of a new tool for epidemiological studies among waged and salaried workers. *Occupational and Environmental Medicine*, 67(8), 548–555.

[141] Young, M. (2010) .Gender Differences in Precarious Work Settings. *Industrial Relations*. 65(1), 74-97

[142] Benach,J., Vives, A., Tarafa, G., et al. (2016). Op. cit. p. 2

[143] Rodgers, G. and Rodgers, J. (eds) (1989). Op cit. 41

arrangements. EPRES scale is operationalized in the form of a structured questionnaire, validated among waged workers.[144] It comprises 26 items with six subscales: "instability" (type of contract and its duration), "disempowerment" (individual-level bargaining power), "low wages" (salary, capacity to cover contingency expenses), "rights" (entitlement to labour rights like sick leave, leisure break etc.), "vulnerability" (no defense to protect from unfair, violent and arbitrary treatment), and "capacity to exercise rights" (maternity/paternity break etc.).[145]

Some of them, like the Quinlan and Bohle 'PDR' model may not use 'precariousness' as the central concept, yet a powerful tool. They were developed to explain effect of precarious employment on Occupational Health and Safety (OHS).[146] The PDR model groups precariousness into 3 primary factors: economic and reward pressures; disorganization at the workplace; and regulatory failure.

The beginnings and state of the art conceptualization of the precariousness in different work forms and labour markets have now been discussed. But there are more intersectionality to any such conceptualization like a demographic bias in presence & manifestation of precarious work. This can have significant and unique effects on its links and effects on public health outcomes and hence important to account for.

2.5 The Gender Bias in Precarious work: Effects on Women's Health

The precarious work forms thrive on demographic selection. The groups falling under the category form the 'Precariat'. The gendered nature of this precariat is well documented today. A growing body of research now accepts that women carry the largest burden of precarious employment conditions and the trend is rising. The literature widely identifies that precarious work tends to burden certain vulnerable groups, among which are women workers, migrants, young workers, old workers and agency workers.[147] In fact, the gender bias in precarious work

[144] Vives, A., Amable, M., Ferrer, M. et al. (2010). Op cit. p. 43

[145] Ibid.

[146] Quinlan, M., and Bohle, P. (2015). Job Quality: The Impact of Work Organisation on Health. In Angela Knox, Chris Warhurst (Eds.), Job Quality in Australia: Perspectives, Problems and Proposals, Federation Press, Sydney

[147] Menéndez, M., Benach, J., Muntaner, C. et al. (2007). Is precarious employment more damaging to women's health than men's?. *Social Science & Medicine, 64(4), 776–781.*

settings is so obvious that they have acquired phrases such as "gender of precarious employment" and "feminization of temporary employment"[148]

There are numerous studies recognising the gender gap in concentration of precarious work forms. These studies highlight the gendered differences in wages, security, work hours, and union protection. Studies in the developed countries suggest how women are more likely to work in part time positions compared to men. The findings are further strengthened by research on gender-wage gap, income differences among men & women in similar job titles and tasks. Women are also less likely to work in bigger firms, enjoy permanent & high positions and have union protection than their male counterparts.[149]These differences make women prone to a greater degree of precariousness in various types of employment.

There were 3 dimensions in which these health differences were usually studied: work conditions, work health related problems and employment conditions. An interesting contradiction is observed. The male workers have greater exposure to work related psychosocial hazards, long work hours, high physically demanding work and noise. But more women than men experience high job insecurity. But overall, the employment conditions are invariably found to be less favorable for women.[150]

In the occupational health context, there are more studies on male-female differences in health outcomes rather than work-gender related health inequalities. [151]In a meta analysis of studies on health effects of precarious work on women, women fair worse on both physical and mental health indicators. Such analyses find poor self perceived mental and physical health amongst women than men. The differences result from the poorer working and living conditions. Men

[148] Cranford, C., Vosko, L. and Zukewich, N. (2003). The Gender of Precarious Employment in Canada. *Industrial Relations*, 58 (3), 454-482.

[149] Ibid.

Kalleberg, A.L., Reskin, B.F. and Hudson, K. (2000). Bad jobs in America: standard and non-standard employment relations and job quality in the United States. *American Sociological Review*, 65(2), 256-278

[150] Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L. et al. (2013). Gender inequalities in occupational health related to the unequal distribution of working and employment conditions: a systematic review .*International Journal for Equity in Health*. 12 (57), doi: 10.1186/1475-9276-12-57.

[151] Ibid.

may experience physically demanding work but women experience more musculoskeletal issues, psychosomatic complaints and self- reported occupational stress.[152]

These are attributed to the biological differences, dual load of exposure in home & workplace and workplace & tools designed more conducive to men anthropometry. The health implication on women move beyond self to family and dependents, mostly in case of home-based work. Thus, an important link between work life balance and precarious employment needs to be given attention. Whether precarious conditions in work affect women's health more than men in similar conditions is still a fluid question. [153]

Despite documentation of higher representation of women in precarious employment conditions, there has been less research on why women are likely to occupy such positions.[154] One such work by Young, tries to fill in this gap by catering to this enquiry directly. In trying to explain the "why" question, two competing theories are applied: 1) rational choice theory/human capital theory[155] and 2) gender stratification theory[156]. The human capital theory assumes individual choices and human capital investments as the crucial factors in obtaining secure and lucrative job positions. Whereas, the stratification theories account this difference as a result of discrimination by employers against particular population groups.

The former puts the cause on women themselves who do not invest adequately in work related capital. These are mainly because they remain trapped in the family sphere with higher share of care giving and domestic work responsibilities, what is also called the sticky floor

[152] Hooftman W.E., van der Beek. A.J., Bongers, P.M. et al. (2009).Is there a gender difference in the effect of work-related physical and psychosocial risk factors on musculoskeletal symptoms and related sickness absence? .*Scandinavian Journal of Work Environ Health*, 35(2), 85–95.

Gadinger, M.C., Fischer, J.E., Schneider, S. et al. (2010).Gender moderates the health-effects of job strain in managers. *International Archives Occupational Environmental Health*, 83(5), 531–541.

[153] Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L. et al. Op cit. p. 45

[154] Young, M. (2010) .Gender Differences in Precarious Work Settings. *Industrial Relations*. 65(1), 74-97

[155] Becker, G. (1994). Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education. University of Chicago Press. Chicago.

[156] Blau, F. (1972). Women's Place' in the Labor Market. The American Economic Review, 62 (1-2), 161-166.

phenomena[157].[158]The latter puts the blame on the employer who discriminate and lead to unjust gender segregation. In the labour market, women fall prey to both horizontal and vertical segregation and also excluded from decision making power, the glass ceiling[159] phenomena.[160] The stratification theory goes on to say that women are not able to avail equal opportunity in getting to better job positions, despite their human capital investments. Both theories provide explanations for a growing representation of women in precarious work settings but neither can explain the patterns completely, rather each provides a unique insight into this understanding.

Another explanation to this gender inequality in precarious work environment is "structural" which flows from the prevailing patriarchy and androcentric in the society and hence into the labour market. It goes on to say that in a period where new groups of workers are entering the labour market whose imagination of ideal employment is itself fuzzy, employers have an opportunity to develop flexible employment regime. There is evidence to prove that more gender egalitarian states have less hazardous employment conditions and hence less gender inequalities. Again supporting the structural theory to causes of gender bias in precarious. Overall, the three "why" perspectives could have interplaying implications. [161]

Gender is a social construct and in itself an important determinant of health. [162]Gender interacts with other determinants of health such as employment and working conditions to influence health states. The importance of the social context in defining gender roles and dimensions of health inequalities is emphasized in literature. Studying the gender dimension in its intersection

[157] Sticky Floor Pattern refers to a low mobility discriminatory condition in the job markets which holds back a certain groups of workforce, like women in the lowest of job profiles.

[158] Chodorow, N. Glass ceilings, sticky floors, and concrete walls: internal and external barriers to women's work and achievement. In Seelig, B., Paul, R., Levy, C. (eds) (2002). Constructing and deconstructing woman's power. Karnac. London.

[159] Glass ceiling phenomena denotes a kind of artificial discriminatory barrier that keeps women to progress and advance to higher rung jobs.

[160] Ibid.

[161] Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L. et al. Op cit. p. 45

[162] Hosseinpoor, A. R., Stewart Williams, J., Amin, A. et al. (2012). Social Determinants of Self-Reported Health in Women and Men: Understanding the Role of Gender in Population Health. PLoS ONE, 7(4), e34799.

with key social dimensions such as social class, educational attainment, migrant status, ethnicity, age and territory can help identify the at risk populations.[163] Moreover, research on gender inequalities in occupational health should also attempt towards explaining complex pathways by which these social contexts impact on health of the workers. [164]

2.6 Conclusions

With the above discussion, the significance of everyday social factors such as employment conditions in explaining health inequalities has emerged. The discussion has also brought out the challenges to this study in terms of the complex web of social elements and the sub-surface psycho-social pathways work takes to affect health of workers. In this background, 'precarious' work/employment conditions construct has appeared as one of the practical approaches to encompass the multi-dimensional & complex health related work attributes. It has been inferred that the social relations of gender, particularly put women at unique precarious positions in the work sphere, which has peculiar health implications on their bodies & mind. In line with the research leads and keeping in mind the evident gaps, the further chapters in this research take up a comprehensive occupational health enquiry into the Bidi sector where women are disadvantageously positioned at multiple levels .

[163] Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L. et al. Op cit. p. 45

[164] Benach,J., Vives, A., Tarafa, G., et al. (2016) Op cit. p.2

Chapter 3

Introduction to the Bidi Industry

3.1 Introduction

India ranks third in terms of tobacco production and also fares among the top ten exporters of tobacco products in the world. [165] Tobacco is consumed in mainly two ways, either by smoking or in a non smoking form. Bidi is a local, leaf rolled, crude and indigenous form of tobacco smoke of the Indian subcontinent. It is one of the most popular tobacco smoking form in India, with a current market share of 85%.[166]

Bidi manufacturing is the largest tobacco industry in India. [167] Bidi manufacturing is highly labour intensive with Bidi rolling as the major occupation. Bidi rolling employs the largest number of persons, as the entire rolling is done manually.[168] There exist varying estimates on the strength of bidi workers in the country. According to the Government of India estimate in 2011, there are about 4 million full time workers and another 4 million engaged in bidi industry related jobs.[169] Whereas, the trade unions claim this figure at a total of 70-80 lakh bidi workers.[170] Women and children constitute the largest proportion of labour force in the Bidi sector.[171] The All India Bidi, Cigar, and Tobacco Workers Federation estimates that women constitute 90 – 95% of total employment in Bidi manufacturing sector. [172]

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[165] WHO SEARO. (2001).Report of the International Meeting on Social, Economic and Health Issues in Tobacco Control Retrieved From : http://www.searo.who.int/indonesia/topics/kobe_report.pdf

[166] Nandi, A., Ashok, A., Guindon, G.E., *et al*.(2015). Estimates of the economic contributions of the bidi manufacturing industry in India. *Tobacco Control,* 24, 369-375.

[167] Sen, V. and Patel, M. (2014). Contribution of Bidi Industry in the Economic Development of Madhya Pradesh. *Madhya Pradesh Journal of Social Sciences*. 19 (1),66-75.

[168] Public Health Foundation of India (2017) Bidi Industry in India: Output, Employment and Wages. WHO Country Office of India, New Delhi Retrieved From: http://www.searo.who.int/india/topics/tobacco/bidi_industry_in_india_output_employment_and_wages_highlights.pdf

[169] Ministry of Labor and Employment (2011) Standing Committee on Labor (2010-11): Welfare of Beedi Workers Seventeenth Report. Lok Sabha Secratariat, New Delhi.

[170] Ramakrishnappa V, Kumari P and Vishwanatha (2014).Unorganized Workers in Bidi Industry: A Study on Women Bidi Rollers of Karnataka. *India International Journal of Social Science*, 3, 325-334

[171] Ministry of Labor. (2001). Annual Report 2000–2001. Ministry of Labor New Delhi, India

[172] Chauhan, Y. (2001). History and struggles of Bidi workers in India. All India Trade Union Congress, New Delhi

In India, majority of the Bidi is produced as home-based cottage industry. Only, 10 % of the total production takes place in factories.[173] The work is so fragmented that its difficult to estimate the actual numbers who are engaged in the Bidi sector. This unorganised nature of the industry gives ample scope for manufacturers to skip legal obligations towards labour. Hence, the Bidi workers constitute one of the most vulnerable segments of the Indian labour force.

This chapter elaborates on the Bidi manufacturing process and the industry's work organisation in the initial sections. The next section discusses the place of Bidi industry in the state of Madhya Pradesh. Further sections presents the regional characteristics of Bundelkhand, where the study is based. The last section details the general profile of Bidi rollers and Non-Bidi rollers surveyed in district Sagar.

3.2 Bidi Manufacturing : The Process

In the whole Bidi production process, there are five important activities namely plucking of tendu, raw material distribution, Bidi rolling, furnacing, wrapping/labelling/bundle making and Taraiwala/Sorting/Checking.[174] Bidi rolling work out of the other activities is the most labour intensive and the backbone of the industry. Yet, it is the least paid among other jobs in the sector. The rollers share more than 88 percent of the total workers of the industry. Another characteristic of Bidi rolling work is the piece rate system[175] of wage payment .[176]

The manufacturing process starts with procurement of tendu[177] leaf in the state auctions, which is done by factory representatives or agents. There is a large amount of tendu leaf which also enters the trade through a black market outside of government auction. The Bidi manufacturers are also of two types, the registered brands which produce more than 20 lakh Bidi annually,

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[173] Nandi, A., Ashok, A., Guindon, G.E., et al. (2015). Op cit. p. 50

[174] Labor Bureau, Government of India (2015). Evaluation Study on the Implementation of Minimum Wages Act, 1948 in Bidi Making Industry. Labor Bureau, Ministry of Labor and Employment Chandigarh.

[175] A wage payment system where wages are calculated as per fixed piece rate for each unit of output produced, irrespective of the time spent.

[176] Labor Bureau, Government of India (2015). Op cit. p. 51

[177] Tendu or Diospyros melanoxylon is floral species of Central India whose leaves are used to wrap bidi.

pay excise duty on production and come under the purview of labour regulations. On the other hand, there are several unregistered, small scale manufacturers who in books produce less than 20 lakh Bidi annually and hence are out of the ambit of tax and labour regulation. Figure 3-1 is graphical representation of work relations under registered and unregistered Bidi manufacturers.

Under the registered Bidi manufacturers the rolling work could either involve directly hired factory or homebased workers, or rolling work sub contracted to home-based workers through middlemen/ contractors. On the other hand, the unregistered companies do not have any factory setup and hire workers either directly or through contractors or middlemen.

In both types of manufacturing setup, the tendu leaves and raw tobacco is first stored in go downs for distribution to workers or rolling contractors/ village branches. The raw material i.e. tobacco, thread and tendu leaves are distributed to homebased women rollers by these contractors or branches. Bidi branches are decentralised depots in the village premises for distribution of raw material and collection of rolled Bidi. There may be mix of branch system and contractor system coexisting at places.

The rollers get raw material either through the contractors or at times directly from the branch/factory. The Bidi rollers follow six steps in the preparation of Bidi viz. soaking, drying and cutting of tendu leaves before filling the leaf with tobacco, rolling the leaf and finally, tying the Bidi with a thread. The average number of Bidi rolled by a family / woman is 700-800 per day, as per her time devoted to other domestic chores. The finished green Bidi delivered by the Bidi Rollers are collected, checked and supplied to the principal employers. The women rollers return the rolled Bidis to the contractor/ branch/factory and in return gets a rate per 1000 of Bidis rolled. The contractor if in the process, retrieves his commission per 1000 Bidi's on deposition of these rolled Bidi's to the manufacturer. At the manufacturing unit, finishing of the final product takes place. The process involves roasting, packing, branding and labelling for readying the Bidis for retail.

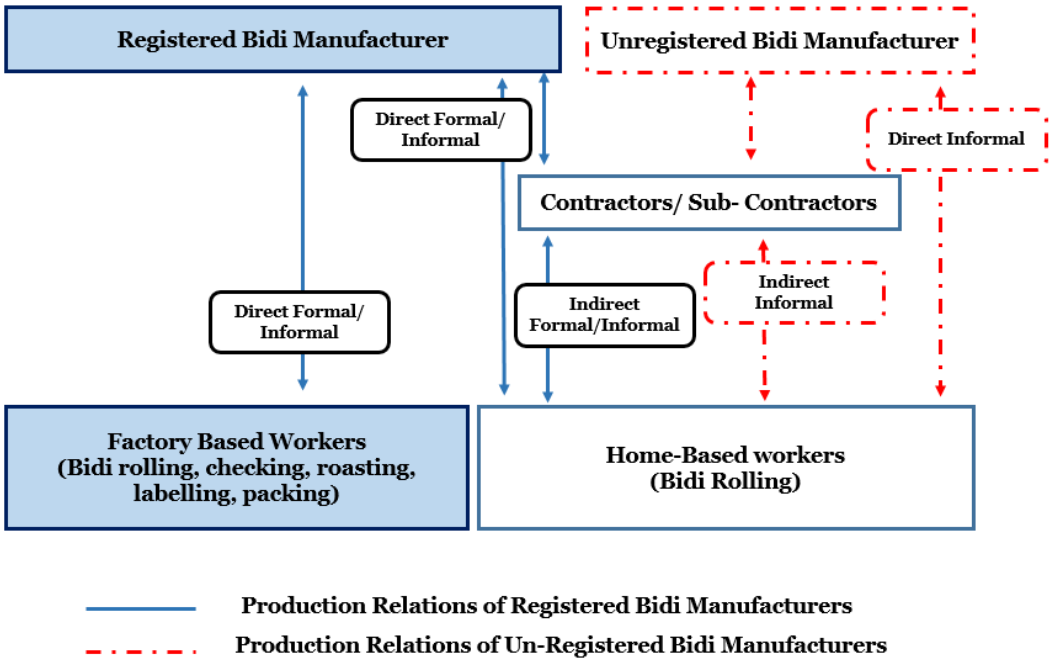

Figure 3-1 Work relations under Registered and Un-Registered Bidi Manufacturers

Adapted : Best Practices Foundation. (2001).The ILO Bidi Sector Programme, the Bidi Industry in India: An Overview for ILO- Department of Labour, Karnataka, Bangalore.

3.3 Work Organization in the Bidi Industry

The production of Bidi takes place in two forms: factory and contractual system. In the factory system, production is carried out in the factory premises with workers coming in everyday. The rolling work of the Bidi factory is sometimes outsourced to branches and contractors which employ labour and operate on behalf of the factory.

The factory system is restricted to the big trade mark brands which constitute only 10% of the Bidi production. The majority is formed by small scale manufacturers and contractors who produce bulk of the Bidi. The market share of Bidi is dominated by unbranded Bidi produced out of small scale manufacturers. These small scale manufacturing primarily works on a contractor mediated work distribution to home-based workers.

The southern states like Karnataka, Tamil Nadu and Kerala have a factory based organised setup of Bidi industry.[178] Unlike that, in the Bundelkhand region Bidi is produced through thousands of small scale manufacturers/ sub contractors involved in the process. In Sagar-Damoh region, 93.4% of the Bidi production takes place in home based contractual system.[179] The industry is completely unorganised operating through a hierarchy of middlemen contractors. Although in total there are 115 registered Bidi units, but a bulk of production and workers are a invisible work force beyond the government statistics.[180]

There is a parallel industry running in a clandestine manner, where the unbranded Bidi manufacturers operate through contractors completely exempt of all excise and labour regulations. In this system, the contractors working for brand establishments engage a much larger contingent of workers getting a large number of Bidis rolled in a clandestine manner. A clear-cut excise evasion enhances the profitability and viability of such businesses and gives them an edge over the branded Bidi brands. [181]

3.4 Welfare Provisions for the Bidi Workers

Besides, the social security legislations that apply for the general industrial environment in India, there are Bidi sector specific legislations, enacted especially for the Bidi workers. These are: the Bidi and Cigar Workers (Conditions of Employment) Act, 1966, the Bidi Workers Welfare Cess Act, 1976, and the Bidi Workers Welfare Fund Act, 1976. The Bidi and Cigar Workers (Conditions of Employment) Act, 1966 remains the major protective legislation for this sector. This act regulates the welfare and working conditions of workers in the Bidi and Cigar establishments, setting out specifications for working hours, maternity leaves, weekly breaks, welfare amenities, labour inspection etc. It also set out a threshold of rejection rate by the employer or contractor.

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[178] Rajasekhar D. and Anantha K. H. (2006). Benefits to the Bidi Workers of Karnataka: Role of Trade Unions. *Indian Journal of Industrial Relations*, 41(3), 376-406.

[179] Labor Bureau, Government of India (2015). Op cit. p. 51

[180] Ibid.

[181] Centre for Health and Social Justice. (2016). Bidi Indutsry and Welfare of Workers in India A review of Policy and Literature. Centre for Health and Social Justice, New Delhi.

Another important legislation, The Bidi Workers Welfare Fund Act, 1976, created the Bidi Workers Welfare Fund to be used for the welfare of home based, informal Bidi labour. The funds to this are to be by way of an cess/excise duty on registered Bidi manufacturers, who produced more than 20 lakh Bidi in a year. Besides, which the Bidi workers are entitled to the regular Employee Provident Fund, Minimum Floor Wages, Maternity Benefits and Employee insurance.

These legislations are applicable to both factory and home based workers but of the registered enterprises. The registered enterprises are those that produce above 20 lakh Bidi annually and come under the excise tax net and labour laws. However, much larger and undocumented production happens in the homebased unregistered form. These setups do not pay excise duty and are not bound by any of the above labour laws. [182]

3.5 Bidi Industry in Madhya Pradesh

The leaf rolled form of tobacco i.e. today's Bidi, is said to have originated from Gujarat, where the natives used local leaves to make tobacco smoke.[183] It was after a severe drought in Gujarat 1899, that the industry gravitated towards the Madhya Pradesh region.[184]

The Madhya Pradesh region and its tropical deciduous forests with abundance of 'tendu' species eventually became a strong base for the industry.[185] The tendu leaves make excellent wrapping due their leathery texture, bigger size and blended taste with tobacco on burning. [186] This discovery of 'tendu patta' as a wrapper for crude tobacco led the Gujarat entrepreneurs to shift base and establish industries in this region. With this, the first Bidi factory was setup in

[182] Ibid. p.54

[183] Lal, P. (2009) Bidi: A short history. *Current Science: Special Issue on Tobacco Control*, 96(10), 1335-1337.

[184] Ibid.

[185] Sen, V. and Patel, M. (2014). Op cit. p. 50

[186] Lal, P. (2012). Estimating the size of tendu leaf and bidi trade using a simple back-of-the-envelop method. *Ambio*, *41*(3), 315–318.

Jabalpur, Madhya Pradesh in the year 1911.[187] It was from here that the industry spread to other regions of India, such as Vidarbha, Telangana, Orissa, Bengal and Madras. [188]

Today, the Bidi industry is spread across the country, yet shows a few pockets of concentration. According to the Census 2011, a state wise distribution of main workers in the tobacco manufacturing industry shows the largest concentration in West Bengal (23%), Andhra Pradesh (19%), Karnataka (12.8%), Tamil Nadu (11.8%) and Madhya Pradesh (9.4%). *Table 3-1* shows the state wise distribution of tobacco manufacturing main and marginal workers in India.

Interestingly, these state wise figures of workers in tobacco manufacturing industry show change in distribution when marginal workers are accounted for. According to the Census 2011, for the marginal workers in tobacco manufacturing industry, the concentration takes a shift to the northern states of West Bengal,(39.7%) Madhya Pradesh (12.7%), Uttar Pradesh (8%), Bihar (6%) and only Andhra Pradesh (8.5%) in the south. Another source i.e. the latest figures from NSSO 71st Round which furnish data up to primary industry of households, also show the largest number of households in Bidi rolling industry concentrated in West Bengal (18.9%) ,Karnataka (10.2%), Tamil Nadu (10.4%), Telangana (10.3%), Uttar Pradesh (14%), Andhra Pradesh (7.9%), Bihar (12%)and Madhya Pradesh (8.5%).

Madhya Pradesh does not claim the top position but fares in the top states with concentration of Bidi workers in India. It holds a much more important place in terms of marginal workers in the tobacco industry. The place of Madhya Pradesh in the Bidi map of India is noteworthy because the Bidi industry holds a significant position in the state's economy. It is a major industry in the state and tops the chart in the list of unorganised industries in the region.[189] The industry constitutes 1.2 per cent of total industrial institutions of the state. In fact, in the Bundelkhand region of Madhya Pradesh, it is the single modern non-agricultural enterprise.

[187] Lal, P. (2009) Op.cit. p. 55

[188] Sen, V. and Patel, M. (2014). Op cit. p. 50

[189] Ibid.

Table 3-1 State-wise percentage of main and marginal workforce engaged in tobacco manufacturing, India

States	Percentage of Main workers in Tobacco Manufacturing	Percentage of marginal workers in Tobacco Manufacturing
Jammu & Kashmir	0.0	0.0
Himachal Pradesh	0.0	0.0
Punjab	0.0	0.0
Chandigarh	0.0	0.0
Uttarakhand	0.0	0.1
Haryana	0.0	0.0
Delhi	0.0	0.0
Rajasthan	1.3	0.9
Uttar Pradesh	5.3	8.1
Bihar	4.2	6.1
Sikkim	0.0	0.0
Arunachal Pradesh	0.0	0.0
Nagaland	0.0	0.0
Manipur	0.0	0.0
Mizoram	0.0	0.0
Tripura	0.1	0.2
Meghalaya	0.0	0.0
Assam	0.2	0.5
West Bengal	23.1	39.7
Jharkhand	3.9	4.6
Odisha	2.0	5.0
Chattisgarh	0.5	0.2
Madhya Pradesh	9.4	12.7
Gujarat	0.6	0.2
Daman & Diu	0.0	0.0
Maharashtra	3.6	1.5
Andhra Pradesh	19.0	8.5
Karnataka	12.8	6.0
Goa	0.0	0.0
Lakshadweep	0.0	0.0
Kerala	1.8	1.7
Tamil Nadu	11.8	4.0
Puducherry	0.0	0.0
Andaman & Nicobar Islands	0.0	0.0

Source: General Economic Tables (B-18), Census 2011

Table 3-2 Main workers in non-agricultural occupations in Bundelkhand districts of Madhya Pradesh

Main Workers									
Districts	**Madhya Pradesh**	**Datia**	**Tikamgarh**	**Chhatarpur**	**Panna**	**Damoh**	**Sagar**	**Total**	**Percentage of Total**
Total Main Workers	**7858549**	**61614**	**93131**	**165040**	**69736**	**146608**	**348966**	**885095**	
Employed in:									
Agriculture Related Services Activities	183087	2168	2781	5852	1902	3740	6408	22851	2.6
Forestry	41239	406	558	824	1492	1406	2236	6922	0.8
Fishing	13337	2	175	304	52	288	296	1117	0.1
Mining and Quarrying	135810	446	679	1132	3678	562	2378	8875	0.0
Manufacturing Other than Tobacco	1119151	7727	11767	20824	9256	16170	34534	100278	11.3
Tobacco Manufacturing	236813	1531	1903	3672	874	38322	97908	144210	16.3
Construction	1006514	8189	18317	36782	13458	20500	40938	138184	15.6
Trade and Repair	1370147	11939	14389	28290	8854	17578	46260	127310	14.4
Hotels and Restaurants	165980	869	1406	3324	1142	2782	6822	16345	1.8
Financial Intermediation	179179	1181	1455	2830	862	1708	4142	12178	1.4
Transport, Storage and Communications	585154	4693	4982	10078	3122	7232	22490	52597	5.9
Other Business Activities	214049	680	1213	2444	730	1434	3872	10373	1.2
Public Administration and Defence	633146	5781	6554	10930	4764	7048	23992	59069	6.7
Education	624658	6161	9135	13518	8376	9034	19578	65802	7.4
Health and Social Work	223765	1767	3431	5092	2544	3604	7868	24306	2.7
Other Sectors	1126520	8074	14386	19144	8630	15200	29244	94678	10.7

Source: B18 Series, Census 2011

Table 3-3 Marginal workers in non-agricultural occupations in Bundelkhand districts of Madhya Pradesh

Marginal Workers									
Districts	**Madhya Pradesh**	**Datia**	**Tikamgarh**	**Chhatarpur**	**Panna**	**Damoh**	**Sagar**	**Total**	**Percentage of Total**
Total Marginal Workers	**948972**	**6835**	**32421**	**47276**	**16132**	**62154**	**73866**	**238684**	
Employed in:									
Agriculture Related Services Activities	46634	535	1723	3908	610	2036	2134	10946	4.6
Forestry	6480	11	236	372	382	976	472	2449	1.0
Fishing	2821	0	113	104	18	102	36	373	0.2
Mining and Quarrying	15164	98	146	146	1210	180	584	2364	1.0
Manufacturing Other than Tobacco	138210	1043	5849	7154	2288	6548	7112	29994	12.6
Tobacco Manufacturing	19781	15	1001	3994	102	28200	36372	69684	29.2
Construction	294706	2027	12723	16780	7000	10782	9804	59116	24.8
Trade and Repair	104707	852	1968	3242	1136	2626	3480	13304	5.6
Hotels and Restaurants	15759	102	187	436	208	364	546	1843	0.8
Financial Intermediation	5483	53	83	126	24	36	216	538	0.2
Transport, Storage and Communications	67873	610	1241	1714	658	1266	2082	7571	3.2
Other Business Activities	6641	18	72	134	30	98	204	556	0.2
Public Administration and Defence	14628	74	211	340	148	232	326	1331	0.6
Education	14516	188	502	840	290	392	814	3026	1.3
Health and Social Work	3910	28	189	164	58	158	244	841	0.4
Other Sectors	191659	1181	32421	7822	1970	8158	9440	60992	25.6

Source: General Economic Tables (B18) , Census 2011

The census figures for non agricultural occupations in the Bundelkhand districts of Madhya Pradesh show that tobacco manufacturing occupies a significant place in the non agriculture sector of the region Tables 3-3 and 3-4 show the distribution of main and marginal workers in non agricultural occupations in the Bundelkhand region of Madhya Pradesh respectively. In terms of the share of main workers, the tobacco industry has the highest i.e. 16% share of workers. In terms of marginal workers, the share of workers remains highest in the tobacco industry, even higher in percentage i.e. 29% than the main workforce. However the shares have slightly declined since 2001 showing a gradual diversification trend to other sectors in Bundelkhand. In 2001, the share was even higher when the tobacco industry constituted 25% of the main workers and 52% of the marginal workers in the Madhya Pradesh region of Bundelkhand.[190]

In the beginning, employment in the industry was mostly concentrated in the factories, but now most of the Bidi workers are home-based workers and contractual labour. In fact, the labour regulations in 1960's and 70's catalysed this trend towards in formalization. [191] The political lobbying over the years, especially in this region have created favourable conditions for small scale firms who operate on the home-based contract system only. As the industry is highly fragmented, it is difficult to estimate actual Bidi production in the state. The past studies show that the industry contributes significantly to the state economy through tax and cess even when 50-70% of the production remains out of the purview of tax net. [192]

A recent trend towards a decline in availability of raw material and the work is being reported in Madhya Pradesh.[193] As also seen in the field, the work is slowly becoming a subsidiary livelihood. Still, large number of households are dependent upon Bidi livelihoods especially in the marginalised social groups and poor sections. In the advent of this decline and competition from cigarettes, the Bidi production process is taking the un-registered and sub-surface route to sustain itself.[194]

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[190] General Economic Tables, Series B18, Census 2001

[191] Sen, V. and Patel, M. (2014). Op cit. p. 50

[192] Lal, P. (2012). Op cit. p. 55

[193] Centre for Health and Social Justice (2017). Ground Realities of Beedi workers in Madhya Pradesh, Centre for Health and Social Justice, New Delhi.

[194] Sen, V. and Patel, M. (2014). Op cit. p.50

3.6 The Study Region: Sagar District in Bundelkhand region

There are certain pockets in the state where the industry is concentrated. These are the districts of Sagar, Damoh, Narsinghpur, Burhanpur, Gwalior, Guna, Datiya, Jabalpur and Satna. Table 3-1 shows the district wise distribution of Bidi workers (approx.) in Madhya Pradesh State 2015. The Sagar district tops both in terms of number of workers i.e. 23,422 registered workers and number of bidi units at 115. [195] According to Census 2011, as seen in Table 3-2, Sagar and Damoh constitute the highest share of tobacco workers in Bundelkhand region, 52% and 40 % respectively.

Sagar district of Madhya Pradesh is one of the 13 districts that fall under Bundelkhand. Bundelkhand is a cultural-geographic region in Central India. According to the Census of India 2011, Bundelkhand has a total population of 18.3 million (seven districts in UP having a population of 9.6 million, and six districts of MP with 8.6 million.[196] Map 3.1 shows the district wise map of Bundelkhand.

This once rich region is now one of the poorest parts of the country .[197] All the districts of Bundelkhand region figure in the 200 most backward districts by the Planning Commission.[198] [199] This region holds a notorious place on the development map of India. It fares high on all major regional vulnerability criteria such as illiteracy, proportion of Scheduled castes & scheduled population, unemployment, proportion of marginal workers and the proportion of rain-fed agricultural land. [200]

The economy of this region is primarily based on agriculture, which is rain fed, underinvested and hence risky and vulnerable. The extreme weather conditions, like the recurring droughts

[195] Labor Bureau (2015) Op cit. p. 51

[196] Chavan, S.B., Uthappa,,A.R., Sridhar,K.B. et al. (2016). Trees for life: creating sustainable livelihood in Bundelkhand region of central India. *Current Science*. 111(6), 994-1002

[197] Verma, A. K. (2011). Farmers' Suicides and Statehood Demand in Bundelkhand. *Economic and Political Weekly*, 46(29), 10–14

[198] Ibid.

[199] Ahluwalia, M. S. (2011), Regional Balance in Indian Planning. Retrieved from: http://planningcommission.nic.in/aboutus/history/spe_regional1206.pdf

[200] Purushottam, P. and Sarangi, B. (2016) Strengthening Rural Livelihoods in Bundelkhand. *Journal of Rural Development*. 35(1). 1-16.

Table 3-4 District wise distribution of Bidi units and Bidi workers (approx.) in Madhya Pradesh

S.No.	District	No. of Units	Approximate Number of Workers
1	Reeva	7	234
2	Datiya	8	269
3	Shyopur	4	120
4	Indore	1	70
5	Burhanpur	2	2500
6	Vidisha	5	28
7	Devas	3	434
8	Hoshangabad	1	12
9	Gwalior	15	1122
10	Damoh	39	658
11	Ujjain	1	23
12	Satna	20	750
13	Jabalpur	18	829
14	Narsinghpur	10	190
15	Tikamgarh	3	40
16	Raisen	4	438
17	Guna	6	2093
18	**Sagar**	**115**	**23422**
19	Katni	6	2733
20	Khargone	1	26
21	Chattarpur	1	16
	Total	**270**	**36007**

(Data Source: Government of Madhya Pradesh)

and variable rains, add to the uncertainties. [201] [202] Even the irrigated parts fall short on adequate water supply. [203] The scarcity of water with poor soils of low productivity aggravate the problem of food security.[204]

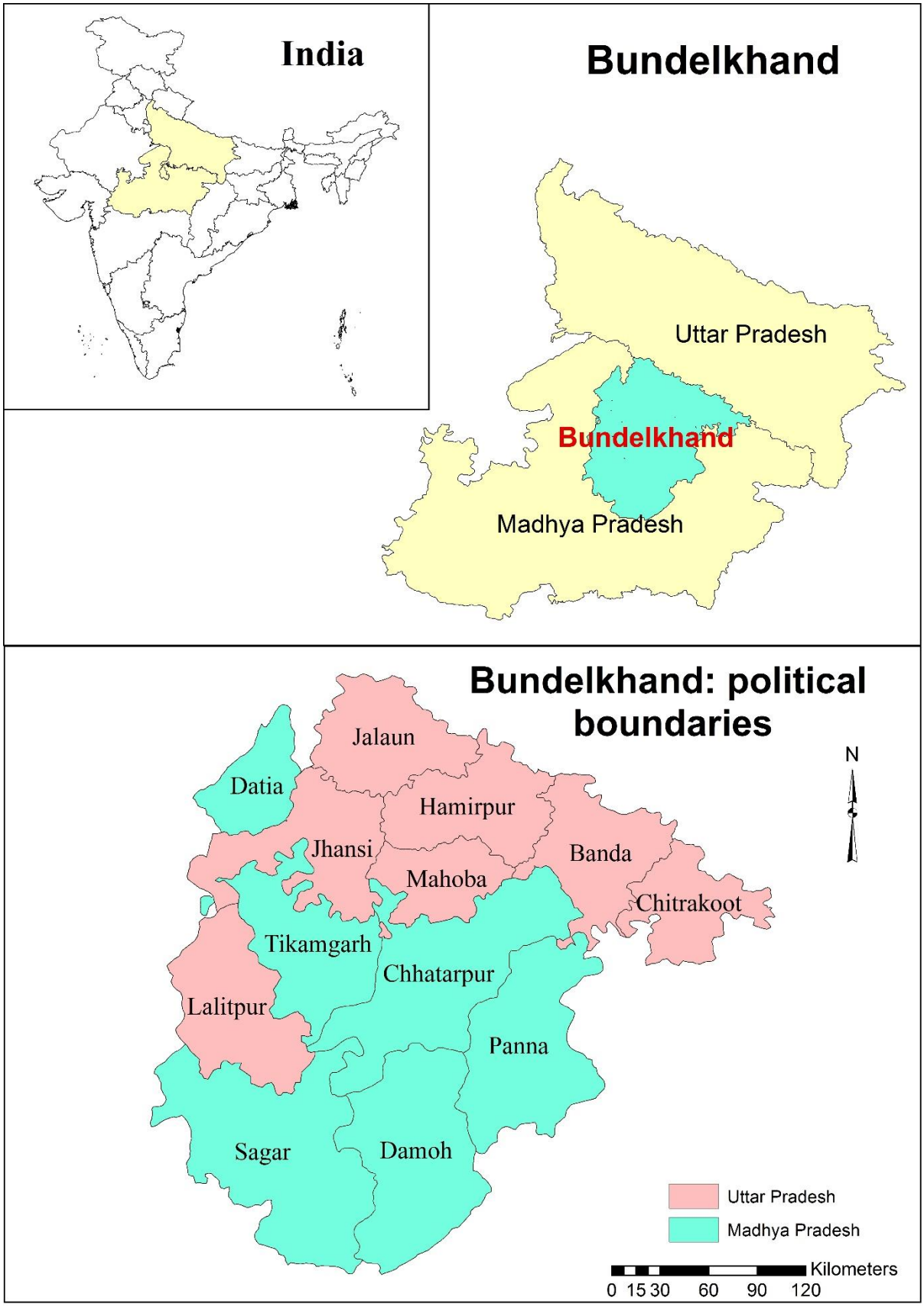
Unproductive agriculture is unable to fulfil the subsistence requirements of majority, especially the lower castes, landless and the poor. Over that, there are virtually no industries or

[201] Gupta, A.K., Nair, S.S., Dey, S. (2013) Vulnerability Assessment and Mitigation Analysis for Drought in Bundelkhand Region. Indian Council for Social Science Research, New Delhi.

[202] Verma, A. K. (2011). Op cit. p. 61

[203] Gupta, A. K., Nair, S.S., Ghosh, O. et al. (2014). Bundelkhand Drought: Retrospective Analysis and Way Ahead. National Institute of Disaster Management, New Delhi

[204] Shakeel, A. (2012). A regional analysis of food security in Bundelkhand region (Uttar Pradesh, India). *Journal of Geographical and Regional Planning*, 5(9):252–262. Retrieved from: http://www.academicjournals.org/jgrp/abstracts/abstracts/Abstracts 2012/4 May/Shakeel et al.htm



Map 3-1Bundelkhand: political boundaries

employment opportunities outside of agriculture.[205] There is no significant industrial growth in the region except pockets in Jhansi, Sagar and Damoh. Except for the Bidi industry , no modern industry has emerged as non agricultural source of employment in the region.[206] As seen in Table 3-2., the Bidi industry is the single largest source of non- agricultural employment in Bundelkhand.

In Bundelkhand, caste is an important determinant of access to natural resources like forests, land and water, and to political and social power. The caste and class based hierarchies are deep rooted to the extent they permeate every aspect of social and economic life of the people from access to water resources, landholdings, government schemes like PDS and MGNREGA.[207]

There is low level of urbanization and industrialization. Around 80% of the total population lives in rural villages. The poverty situation in the region has also become extremely critical in the recent years, with more than one third population living below poverty line. [208] This is owing to the lack of employment opportunities.

The region is also in news for large scale out migration of local population, starvation deaths, farmer suicides and even mortgaging of women.[209] It is estimated that almost 6000 people are migrate out from this region every day. About 60% of the households in rural Bundelkhand have at least one member migrating out annually or permanently. Majority of those who migrate are devoid of productive land resource in the villages. [210] The mass migration is to the extent that the rural villages are devoid of young, able bodied male members. [211]

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[205] Perspectives (2010). Drought By Design: the Manmade calamity in Bundelkhand, *Economic and Political Weekly*, 45(5), 33-39.

[206] NITI Aayog (2012) Human Development Report Bundelkhand 2012. NITI Aayog, New Delhi. Retrieved from: https://www.undp.org/content/dam/india/docs/human-development/District%20HDRs/Bundelkhand%20Report_23Jan2018.pdf

[207] Perspectives (2010). Op cit. p. 64

[208] NITI Aayog (2012) Op. cit. p. 64

[209] Perspectives. (2010). Op cit. p. 64

[210] NITI Aayog (2012) Op. cit. p. 64

[211] Perspectives. (2010). Op cit. p. 64

The MGNREGA scheme of livelihood security has been a complete failure in Bundelkhand, unlike the other parts of India. [212] There is little effective employment being provided under the scheme in the rural areas of Bundelkhand.

3.7 Study Population: A General Profile

A representative sample of Bidi roller women were surveyed in the Sagar district which has the highest concentration of this industry.[213] The survey took details about their socio-economic background, Bidi related work relations and aspects of health and access to health care. Besides, women engaged in Bidi rolling, a sample of non-Bidi worker women was also collected. The total sample of 405 women is divided into 261 Bidi rollers and 143 non Bidi roller women. The sample of non- women Bidi rollers was collected with the objective to bring out a comparative health status analysis between two groups differentiated by a single exposure factor i.e. Bidi rolling as the primary occupation.

The sample of Bidi rollers were women who had done Bidi rolling for at least 2 years and for whom Bidi rolling was the primary occupation. Whereas, the sample of non Bidi roller women were the one who had not engaged in Bidi rolling any time in their lives and whose households were free of Bidi rolling. This group included women who were non-workers, agriculture labour, domestic workers, basket weavers, petty traders etc. Table 3-5 shows the breakup of occupations in the sampled population.

The Bidi workers as reported in literature were found to be concentrated among scheduled caste sand other backward classes. Since the work was done primarily by women of these castes, the Non-Bidi rolling group would not have significant representation of these castes. This group constitutes mostly of tribal women and OBC's. To maintain comparability between the groups, both set of women were sampled from similar socio-economic and locational settings i.e. the same villages/slums or nearby villages. This was done to enhance the reliability of comparisons drawn out of their health profiles.

[212] Rai, P. (2010). Dalits of Bundelkhand Living with Hunger and Dying of NREGA Mafia. Centre for Environment and Food Security, New Delhi Retreived From: http://admin.indiaenvironmentportal.org.in/reports-documents/dalits-bundelkhand-living-hunger-and-dying-nrega-mafia

[213] NITI Aayog (2012). Op.cit. p. 64

Table 3-5 Occupations Represented in the Survey Sample

Primary Occupation of Respondents	Number of respondents	Percentage of the total
Bidi Rolling	261	64.4
Farming	65	16
Domestic Work	14	3.7
Agriculture Labour	43	10.6
Allied Agriculture	3	.7
Non- Agricultural Labour	3	.7
Petty Trade and Business	1	.2
Household Industry	1	.2
Others	13	3.2
Total	405	100

Source: Primary Survey in Sagar (December,2016)

The Bidi workers in Sagar district were mostly from the lower castes ie. the scheduled castes and the other backward classes. In the cross section of the Bidi rollers, the Ahirwar, Patel, Jatav, Kurmi, Patel and Gaurs dominated. In the Non-Bidi worker segment, there was a higher share of representation of Tribal Gonds and few other backward castes like Vishwakarma, Lodi's etc. There was a clear cut caste based segregation of population in different occupation groups Majority women in both groups are Hindu with a small share of Muslim women representation also. Table 3-6 and 3-7 represent the caste and religion profile of the Bidi rollers and non Bidi rollers sample.

Table 3-6 Caste Profile of the Study Population

Demographic Factors	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Social Group					89.477	<.05
Scheduled Castes	144	55.6	22	15.4		
Scheduled Tribes	7	2.7	36	25.2		
Other Backward Castes	104	40.2	76	53.1		
General	4	1.5	9	6.3		
Total	261		143			

Source: Primary Survey in Sagar (December, 2016)

Table 3-7 Religion Profile of the Study Population

	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Religious Group					12.812	<.05
Hindus	244	93.5	123	86		
Muslims	17	6.5	14	9.8		
Others	0	0	6	4.2		
Total	261		143			

Source: Primary Survey in Sagar (December, 2016)

Table 3-8 and 3-9 shows the education and income profile of the Bidi and Non- Bidi samples. The majority of Bidi women belonged to poor households who were either below poverty line or Antodaya families. The average monthly income from rolling Bidi came out to be about ₹1000 for 60% of the females. The figures matched with the non Bidi rolling group. The educational profile in the two cohorts were also similar with majority women in both groups remaining illiterate or merely primary pass.

Table 3-8 Education Profile of the Study Population

Socio-Economic Factors	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Educational Status					9.596	>.05
Illiterate	149	57.1	73	50.7		
Literate w/o formal education	15	5.7	5	3.5		
Primary	54	20.7	28	19.4		
Upper Primary	30	11.5	20	13.9		
Secondary	12	4.6	15	10.4		
Higher Secondary and above	1	0.4	3	2.1		
Total	261		143			

Source: Primary Survey in Sagar 2016-17

Table 3-9 Income Profile of the Study Population

Socio-Economic Factors	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Monthly Household Income in ₹					0.498	>.05
<2000	119	45.8	62	43.7		
2,000-5,000	111	42.7	63	44.4		
5,000-10,000	25	9.6	13	9.2		
>10,000	5	1.9	4	2.8		
Total	261		143			

Source: Primary Survey in Sagar 2016-17

The sample aggregated a representative data from all age groups. Table 3-11 and 3-12 show the demographic details of the sampled population. The minimum age criteria for consideration into the study was 25 years, for both Bidi rollers and non- Bidi rollers. However, in non Bidi roller group the representation of age group 25-35 is slightly higher. Majority of the women in both sample groups were married and Hindu. In both the groups, majority women were themselves non smokers, as seen in Table 3-10, hence, effects of smoking/smokeless tobacco as cofounding factor in health outcomes can be negated.

Table 3-10 Self Tobacco use in the Study Population

Tobacco Use	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
					1.357	>.05
Self User	101	40.2	44	34.1		
Non User	150	59.8	85	65.9		
Total	251		129	100		

Source: Primary Survey in Sagar (December, 2016)

Table 3-11 Age Group Distribution in the Study Population

Demographic Factors	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Age Group					25.998	<.05
25-35	67	25.7	72	50.3		
35-45	89	34.1	38	26.6		
45-55	46	17.6	15	10.5		
55 years and above	59	22.6	18	12.6		
Total	261		143			

Source: Primary Survey in Sagar 2016-17

Table 3-12 Marital Status of the Study Population

Demographic Factors	Bidi Rollers	In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Marital Status					6.276	<.05
Married	232	88.9	135	94.4	6.276	
Unmarried	1	0.4	2	1.4		
Widow/Seperated	28	10.7	6	4.2		
Total	261		143			

Source: Primary Survey in Sagar 2016-17

Table 3-13 and 3-14 shows location distribution of the survey sample. The differences in the two cohorts in terms of the sub districts and rural-urban characteristics are a matter of practical convenience in finding the subjects of two cohorts. But the two cohorts are overall similar in the other important characteristics of social and economic status.

Table 3-13 Location Distribution of the Study Population

Locations	Bidi Rollers	In Percentage	Non- Bidi Rollers	In Percentage	Chi Square	P value
CD Block					38.545	<.05
Banda	103	39.5	60	41.7		
Sagar	158	60.5	65	45.1		
Shahgarh	0	0.0	19	13.2		
Total	261		143			

Source: Primary Survey in Sagar 2016-17

Table 3-14 Rural-Urban Distribution of Study Sample

Locations	Bidi Rollers		In Percentage	Non-Bidi Rollers	In Percentage	Chi Square	P value
Place of Residence						6.77	<.05
Rural	212		81.2	131	91	6.799	
Urban	49		18.8	13	9		
Total	261		100	143	100		

Source: Primary Survey in Sagar 2016-17

Table 3-15 and 3-16 depicts the work characteristics among Bidi rolling sample. Out of the sample, more than 70% of the women had rolled Bidi's for more than 20 years. Going by the age structure of the sample, it implies that women start rolling Bidi's at very young age in this region. The average time they women spent rolling Bidi's was more 6 to 6.5 hours a day.

Table 3-15 Duration of Engagement in Bidi Rolling among Study Sample

Duration of Engagement in Bidi Rolling	Number of Respondents	Percentage
<5 years	8	3.1
5-9 years	27	10.5
10-19 years	39	15.2
>20 years	182	71.1
Total	256	100

Source: Primary Survey in Sagar 2016-17

Table 3-16 Number of Hours Spent in Bidi Rolling among the Study Sample

Number of Hours Spent in Bidi Rolling	Number of Respondents	Percentage
2-3 hours	58	22.3
4-5 hours	96	36.9
6-7 hours	42	16.2
7 and above	64	24.6
Total	260	100

Source: Primary Survey in Sagar 2016-17

Although most women reported working alone, there was a significant group those involved family members to do the job. For this work, women reported having no separate space or room and working in the same home premises. The nature of work was unorganised and subcontracted and 92% women were taking work from a sub contractor. There were no females encountered who worked for the Bidi factories. Owing to this, the level of welfare coverage for Bidi rollers was very weak. More than 65% of the women reported non- possession of Bidi welfare card which entitles them to free health services.

3.8 Conclusions

Madhya Pradesh is one of the largest producers of Bidi in India. Bidi industry specifically in the Bundelkhand region of Madhya Pradesh remains the largest non- agricultural source of employment. By nature, this Bidi industry is a low capital and wage sensitive industry. The primary factors for Bidi production are raw material availability, cheap and poor surplus labour. The spatial metrics of the region with failing agriculture, lack of industrial development, subordinate and disempowered position of women and limited livelihood opportunities provides ideal conditions for it to survive and flourish.

The recent trends suggest that a huge share of production is taking the unregistered route to cut on taxes and avoid labour obligations. The work organization primarily operates by way of

sub-contracting rolling work to home-based women workers which makes fixing accountability on such unregistered manufacturers extremely difficult. Women workers in the production course of Bidi are at the intersection of multiple vulnerabilities which should be given due attention in their health sphere evaluation.

Chapter 4

Health Status of Bidi Rollers

4.1 Introduction

Scholars of social inequality and stratification have long recognised the importance of employment and employment conditions as determinants of individual health.[214] Workers spend approximately one third of their waking ours at work.[215] The physical, emotional, mental or social experiences at work also spill over to non- work domains affecting health and well being.[216] Besides, the material and status rewards, work shapes individuals' exposure to an array of physical, environmental and psychosocial factors, that are complex yet important determinants of health. [217] Whilst researches on health and illness as an entity or discrete aspects occupation related health and illness are many, a holistic understanding of occupation and health relationship are missing. [218]

This chapter discusses the health status of Bidi rollers by studying their self reported ailment profile and the characteristics of these ailments by way of secondary and primary data. The data findings are backed by the narratives of the women rollers and other important stakeholders. This is followed by a qualitative theme identification revealing levels of association between Bidi work and day to day well being. Lastly, it evaluates the health risk associated with Bidi rolling work and whether it poses any significant health differences between a group of workers exposed to this work.

The second section details the ailment profile and ailment characteristics among the population primarily dependent on Bidi rolling industry as their primary industry across India and in the state of Madhya Pradesh. The third section discusses the health status, including ailment profile and other health characteristics of surveyed women Bidi rollers in Sagar. The fourth section details the association between health and work characteristics for the women Bidi rollers. The fifth section brings out the health risks associated with Bidi rolling work by way of a case-control analysis. The sixth section closes and concludes the discussion.

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[214] Burgard, S.A. and Lin K. (2013). Op. cit. p. 4

[215] Conrad, P. (1988). Worksite health promotion: The social context. *Social Science Medicine*, 26, 485–489.

[216] Danna, K., and Griffin, R. W. (1999). Health and Well-Being in the Workplace: A Review and Synthesis of the Literature. *Journal of Management*, 25(3), 357–384.

[217] Burgard, S. A. and Lin K. (2013). Op. cit. p. 4

[218] Wilcock, A. (2007). Occupation and Health: Are They One and the Same?. *Journal of Occupational Science*, 14(1), 3-8.

4.2 Health Status in the Bidi Sector

The Indian occupational health scenario is complex and faces major challenges in terms of a huge informal sector.[219] The poor and marginalised facing livelihood crisis concentrate in this sector where the nature of work is mostly hazardous and risky. Such works are characterised by less control over work environment, poor to no training, ill defined working hours and are linked with higher injuries, psychosocial stress, poor mental health and lower self reported health status in workers.[220] Wherein, the poor preventive and protective occupational health coverage exacerbate the health situation.[221]

Bidi rolling is one such occupation where women of lower socio- economic background are concentrated. Out of the other activities, the rolling of Bidi is most labour intensive i.e. sedentary, manual, repetitive work.[222] Besides, which it involves direct exposure to raw tobacco & other volatile components such as nicotine. There are numerous studies dedicated to occupational health effects of Bidi rolling work. [223] Studies point towards high prevalence of respiratory ailments[224], such as bronchitis, allergic airway inflammation[225], burning eyes[226], conjunctivitis[227], occupational dermatitis[228], headaches[229], postural and bone-joints related

[219] Pingle, S. (2012). Occupational Health and safety in India: Now and Future. *Industrial Health*, 50, 167-171.

[220] Alfers, L. and Rogan, M. (2015). Op cit. p. 37

[221] World Health Organization. (2015). The challenge of extending universal coverage to non-poor informal workers in low-and middle-income countries in Asia: impacts and policy options. Retrieved from : http://iris.wpro.who.int/bitstream/handle/10665.1/12396/9789290617334_eng.pdf.

[222] Bidi rolling involves long hours of tedious sitting work, manually rolling tobacco powder into 'tendu' leaves and tying to finish off a single Bidi.

[223] Rout, S., Narayana, K., Sahu, K. et al. (2017). Op cit. p. 6

[224] Chattopadhyay, B. P., Kundu, S., Mahata, A. et al. (2006). A study to assess the respiratory impairments among the male bidi workers in unogranised sectors, 10 (2), 69-73.

[225] Ibid.

[226] Mittal, S., Mittal, A., Rengappa, R. (2008).Ocular manifestations in bidi industry workers. *Indian Journal of Opthamology*, 56(4), 319-322.

[227] Ibid.

[228] Bhatia, R. and Sharma, V. (2017).Occupational dermatoses: An Asian perspective. Indian Journal of Dermatology, Venerology and Leprology, 83(5), 525-535

[229] Rout, S., Narayana, K., Sahu, K. et al. (2017). Op cit. p. 6

complaints[230] among Bidi rollers.[231] In addition irregular to heavy menstruation, miscarriage and low birth weight in off-spring[232], susceptibility to cancer and tuberculosis[233] are common. [234]

These are attributed to the effects of cutaneous and sub-cutaneous absorption of tobacco dust and long hours of sedentary work.[235] Occupational sitting which is the main feature of Bidi rolling work, has often been associated with menstrual irregularities, gastric troubles and pelvic pain in women.[236] The continuous stretches of sitting in improper posture with forward trunk bent and excessive use of fingers are attributed as the cause of musculoskeletal and neurological problems.[237] Studies have correlated the high susceptibility to respiratory diseases with continuous exposure to tobacco dust.[238] Besides, Bidi rolling work which involves strenuous hand and eye coordination over long durations has been known to result in vision errors, watering, burning and strain in the eyes of women workers.[239]

These findings in literature about peculiarity in self reported ailments, were maintained in the analysis on national health statistics of Bidi rolling households. According to the NSS 71st

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[230] Ranjitsingh, A.J.A. and Padmalatha, C. (1995). Occupational illness of beedi rollers in south India. *Environmental Economics*, 13, 875-879.

[231] Senthil, N and Bharathi, P. (2010). A Study of Occupational Hazards among Women Beedi Rollers in Tamil Nadu. *International Journal of Current Research*, 11, 117-122.

[232] Sardesai, S.P., Shinde, N.S., Patil, S.B. et al. (2007) Tobacco handling by pregnant beedi workers: as hazardous as smoking during pregnancy. *Journal of Obstetrics and Gynaecology India*, 57, 335-338.

[233] Chattopadhyay, B.P., Kundu, S., Mahata, A. et al. (2006). Op cit. p. 74

[234] Ibid.

[235] Umadevi, B. (2003). Cytogenetic effects in workers occupationally exposed to tobacco dust. *Mutation Research*, 535(2), 147–154

Mahimkar, M. and Bhisey, R. (1995). Occupational exposure to bidi tobacco increases chromosomal aberrations in tobacco processors. *Mutation Research*, 334, 139-144

[236] Rajatsingh, A.J.A. and Padmalatha, C. (1995). Op cit. p.75

[237] Joshi, K. , Robins, M., Parashramlu, V. et al. (2013). An epidemiological study of occupational health hazards among bidi workers of Amarchinta, Andhra Pradesh. *Journal of Academic and Industrial research*. 1(9). 561-564.

[238] Chattopadhyay, B.P., Kundu, S., Mahata, A. et al. (2006). Op cit. p.74

[239] Mittal, S., Mittal, A. and Rengappa, R. (2008) Op cit. p. 74

Round, across states all over India, members of Bidi rolling households showed a characteristic trend in self reported ailment profile within recall period of 15 days. Table 4-1. depicts the nature of first reported ailments in ailing members from Bidi rolling households across India for a recall period of 15 days. The ailing members of Bidi rolling dependent households showed a high prevalence of psychiatric & neurological (8.7%), cardiovascular (7.6%), respiratory(11.6%), gastrointestinal (6%) and musculoskeletal (9.4%). The common ailments in terms of specific symptoms under these broad categories were headaches, epilepsy, weakness in limbs, memory loss & confusion, discomfort/pain in eyes, joints/bones/back/body aches, swelling in joints, pain or lumps in abdomen, peptic ulcer, pain in pelvic region and abnormality in urine.

Table 4-2 depicts the nature of first reported ailments among ailing members of Bidi rolling households in Madhya Pradesh for the last 15 days. In Madhya Pradesh, neurological (56.1%), gastrointestinal (8.3%) and musculoskeletal (5.7%) ailments dominated in the members from Bidi dependent households. At both national and state level in Madhya Pradesh, these findings matched previous research findings[240] on disease profile of Bidi rollers, having a common occurrence of musculoskeletal, gastrointestinal, neurological and respiratory complaints.

Table 4-1 Nature of Ailments among Bidi rolling households in India

Ailment Type reported in last 15 days of survey	**Percentage of cases**
Fever & Infection	24.5
Tuberculosis	0.4
Water Borne/Food Borne Diseases	7.3
Cancers	0.1
Diabetes	19.9
Psychiatric & Neurological (headache/ weakness in limbs	8.7
Eyes (Pain/Discomfort/Redness/Boils	0.1
Cardiovascular	7.6
Acute Respiratory Infections	11.6
Gastrointestinal	6.0
Musculoskeletal (Joints-Bones Disease/Pain Swelling)	9.4
Genitourinary	0.7
Injuries	3.5
Childbirth	0.3
Total	100

Source: NSS 71st Round On Social Consumption : Health 2014

[240] Rout, S., Narayana, K., Sahu, K. et al. (2017). Op cit. p. 6

Table 4-2 . Nature of ailments among Bidi rolling households in Madhya Pradesh

Ailment Type reported in last 15 days of survey	Percentage of cases
Psychiatric/Neurological	56.1
Gastro-intestinal	8.3
Musculoskeletal	5.7
Injuries	14.8
Childbirth	15.1
	100

Source: NSS 71st Round On Social Consumption : Health 2014

Besides the 15 days recall period, the NSS 71st Round gives out nature of ailments in hospitalization cases for the recall period of 365 days. The hospitalization cases are considered as a proxy indicator of severity of such self reported ailments. Table 4-3 depicts the nature of ailments causing hospitalization among members of households dependent on Bidi rolling industry across India. These are reported ailments in the reference period of 365 days. The neurological, psychiatric, gastro-intestinal, respiratory and musculoskeletal ailments fared most important after regular injuries, obstetric and fever/infections. Across India, the three major reasons for hospitalization in last 365 days for members of the households dependent on Bidi rolling emerged as : Respiratory (6.6%), Gastro-intestinal (14.7%) and Neurological (17.7%) Ailments.

In Madhya Pradesh, for members of Bidi rolling households, the causes of hospitalization in the last 365 days remained in line with the national trends. Table 4-4 depicts the nature of ailments causing hospitalization among members of households dependent on Bidi Rolling in Madhya Pradesh. These were reported ailments in the reference period of 365 days. The important ones were Bleeding Abnormalities (9.1%), Gastro-intestinal (9.1%), Respiratory (2.1%), Neurological (2.1%) and Musculoskeletal (3.5%) ailments. These were apart from the regular and non-specific infections, fevers, accidents and childbirth related hospitalization episodes.

Table 4-3 Nature of ailments causing hospitalization among Bidi rolling households across India

Cause Ailment for Hospitalisation in Last 365 days	Percentage of cases
Infection and Fevers	13.4
Cancers	2.5
Blood Disease	5.2
Endocrine	0.7
Psychiatric & Neurological	17.7
Eyes	2.0
Cardiovascular	1.5
Respiratory	6.6
Gastrointestinal	14.7
Musculoskeletal	2.5
Genitourinary	3.2
Obstetric	0.7
Injuries	5.5
Childbirth	23.7
	100

Source: NSS 71st Round On Social Consumption : Health 2014

Table 4-4 Nature of ailments causing hospitalization among Bidi Rolling households in Madhya Pradesh

Cause Ailment for Hospitalisation in Last 365 days	Percentage of cases
Fever & Infections	24.8
Cancers	2.4
Blood Diseases	9.0
Psychiatric & Neurological	2.4
Cardiovascular	2.4
Respiratory	5.2
Gastrointestinal	9.1
Musculoskeletal	3.5
Injuries	12.3
Child Birth	28.8
Total	100

Source: NSS 71st Round On Social Consumption : Health 2014

All the previous studies on occupational health in the Bidi sector restricted to enumerating the common diseases occurring among the workers and found identical trends. The National Sample Survey Round 71st is the only secondary source of data that presented an opportunity to analyze further into attributes of such ailments reported in the members dependent on Bidi

rolling industry. Such an analysis gave important insights into the characteristics like duration and frequency of ailments among Bidi rolling households.

Table 4-5, 4-6 and 4-7 depict the ailment characteristics of the first reported ailment of ailing members of households dependent on Bidi Rolling industry in India and Madhya Pradesh, for a recall period of 15 days.

Table 4-5 Chronicity of ailments among Bidi rolling households across India

Chronicity of Ailments	**Percentage of Cases**	
	India	Madhya Pradesh
Chronic	43.9	64.5
Others	56.1	35.5
	100	100

Source: NSS 71st Round On Social Consumption : Health 2014

Table 4-6 . Status of ailments among Bidi rolling households across India

Status of Ailments	**Percentage of Cases**	
	India	Madhya Pradesh
Started >15 days and continuing	57.4	79.2
Started >15 days ago and ended	.3	15.1
Started within 15 days and continuing	14.1	5.7
Started within 15 days and ended	28.2	0
	100	100

Source: NSS 71st Round On Social Consumption : Health 2014

Table 4-7 Duration of ailments among Bidi rolling households across India

Duration of Ailments (in days)	**Percentage of Cases**	
	India	Madhya Pradesh
Less than 30 days	46.5	35.5
More than 30 days	53.5	64.5
	100	100

Source: NSS 71st Round On Social Consumption : Health 2014

Table 4-5 and Table 4-7 depicts the chronicity and day duration of first reported ailments in ailing members of Bidi rolling households respectively. A high majority of self reported ailments were chronic in nature (43%), continuing more than 30 days (53.5%) at the national level. In Madhya Pradesh, more than 60% of members in the Bidi rolling households reported chronic and higher than 30 day ailment durations.

Table 4-6 depicts the frequency of first reported ailments in Bidi rolling households. There are more than 50% of the first reported ailments that had started more than 15 days before the

survey and were still continuing at the national level. At the state level in Madhya Pradesh, 79% of the reported ailments were older than the last 15 days and were still continuing.

Thus, besides repeated occurrence of specific ailments of musculoskeletal, neurological, respiratory and gastrointestinal category, the Bidi rolling households reported a chronic and frequent load of such ailments.

4.3 Health Status of Women Bidi Rollers in Sagar

The visible distinctness in nature of ailments and trends of chronic and frequent ailments characteristics provided strong reasons to replicate such a study at the micro level. A primary survey on the health status of women Bidi rollers in the Sagar district was conducted. This primary survey also revealed complementary trends as seen in the previous section.

Table 4-8 depicts the nature of ailments reported among women Bidi rollers in Sagar. An unusual high prevalence of musculoskeletal (52.1%) and eye related ailments (18.4%) were observed. Other significant issues were lungs/respiratory ailments (19.9%), nervous system (19.9%), Stomach-gastric ailments (14.9) and Gynaecological ailments (7.3%).

Table 4-8 presents the major categories of ailments which were formed by grouping specific reported symptoms and ill health issues in the surveyed women rollers. In terms of these disaggregated symptoms, women reported facing headache (16.1%) , breathlessness (7.3%) , joints pain (32%), cramps in the arms (21%), swelling in the limbs (8.8%) giddiness (9.6%), gastric trouble (10%) and strain in the eyes and poor vision (11.9%). Other problems reported were constipation, chronic cough, burning itchy eyes and stiffness in the body.

In the local dialect Bundeli, people refered to pain as ‘piraahana’. It became the most repeated term in the conversations with women who rolled Bidi. Aches and pain of the head and body were an echoing complain among these women. A large number of women repeatedly

Table 4-8 Nature of ailments reported amongst women Bidi Rollers

Nature of ailments	Number of cases	Percentage of cases
Lungs and Respiratory	52	19.9
Musculoskeletal	136	52.1
Stomach-Gastric	39	14.9
Gynaecological	19	7.3
Nervous System	52	19.9
Skin-Epidermal	2	0.8
Endocrine	4	1.5
Urinary Tract	4	1.5
Circulatory System	18	6.9
Cancers	2	0.8
Mental Disorders	2	0.8
Deficiency	4	0.8
Eye related	48	18.4
Others	15	5.7
Total	397	100

Source: Primary survey in Sagar (December, 2016)

complained "mud piraahana, ghoot piraahana… shareer piraahana", i.e. headaches, knees pain and body aches respectively. Most of them related it with the nature of their job which involved long hours of sitting and lumbar bending, which made their bodies stiff and achy. The Focus Group Discussions at the rural and urban sites, gave out matching and reiterating voices, revealing similar problems such as gastric trouble, loss of appetite, heavy menstruation, skin allergies, head aches, body ache and burning strained eyes which they faced after long hours of Bidi rolling work and tobacco dust exposure.

This trend also matched with findings from all previous epidemiological studies on Bidi rollers, as discussed in the previous sections. The usual health service provider for the rural women was a local quack or doctor on call. A conversation with one of such quack in Bhainswahi village, explained how he got complains of joints pain, muscle cramps for which he often prescribed painkillers and injections. The ASHA worker in the village drew attention to pregnant women who continued to roll Bidi in pregnancy and soon after child birth.

In a detailed interaction with the Chief Medical Officer at the Central Bidi Hospital in Sagar city, the doctor gave an account of health issues usually reported at their service. He explained how the dust of leaves and tobacco made women rollers susceptible to Chronic Obstructive Pulmonary Diseases, fibrosis of the lungs, compromised lung function, risk of cancers and orthopedic conditions with aggravated risk of slip disk. It was very evident that these conditions

that the hospital would receive had a disease prognosis originating in these very day to day symptoms the Bidi women reported. These common reported ailments if neglected could aggravate and develop into serious medical conditions.

This risk of severe medical condition was found unfolding when the Bidi women elaborated on the characteristics of their ailments. The nature of health complains among these women had a tendency of recurrence and continuing for longer spans. When enquired, these were not occasional but a perpetual phenomena among the other issues, “hamesha hee bana rehta hai”.

Table 4-9 depicts the Status of ailments reported amongst women Bidi rollers. The Bidi rolling women reported a significantly high share of symptoms which were currently present at the time of survey, almost more than half of the group, (52.5%). Table 4.10 depicts the duration of ailments reported amongst women Bidi rollers. In line with the high frequency, 58.5% of these women reported that their ailment symptoms were chronic and perpetual in nature.

The women folk said these were day to day issues and also did come in way of performing their family-domestic duties & chores. A young woman Bidi roller in the Bhainswahi village, narrated her Tuberculosis story with helplessness. The poor woman had just recovered from the long drawn disease and her old mother had now caught it.

Table 4-9 Status of ailments reported amongst women Bidi Rollers

Last Time Reported Symptoms Occurred	Frequency	Percentage
Currently Present	115	52.5
In the last 1 month	31	14.2
In the last 6 months	22	10
In the last 1 year	51	23.3
Total	219	100

Source: Primary survey in Sagar (December, 2016)

Table 4-10 Duration of Ailments reported amongst women Bidi Rollers

Average Duration a Illness Symptom lasted	Frequency	Percentage
Few Days	19	9.3
Few Weeks	28	13.7
Few Months	38	18.5
Chronic/Perpetual	120	58.5
Total	205	100

Source: Primary survey in Sagar (December, 2016)

The husband of another young roller explained how a refractive error was causing a chronic headache for his wife and how he had to get her spectacles made. A mid aged lady in

Shankargarh slums of Sagar city, whined about her daily battle in performing house chores because of the cuts and tobacco allergy in her palms. The problem of backaches and cramps at the time of menstruation was reported by another young roller.

The longer duration and recurring occurrence of these symptoms could be traced back to their overlooking minor symptoms and continuing work without taking sickness breaks up to full recovery. The lengthening of health issues could be also because of the piece meal and symptomatic treatment they sought to deal with these symptoms, which emanated from the nature of work itself and thus recurred as they continued in the same work.

Also, in depth discussions with women Bidi rollers about their health and well being made the general pessimism and poor perception of self health, very evident. Self-rated health (SRH) is the most simple and widely used measure based on a person's self assessment of their health status. Though abstract in measurement it is considered a reliable measure, it is successful in examining cognitive processes working in evaluating one's health, maximising the sensitivity to respondent's view of health. [241] Moreover, it complements other specific measures of health such as mortality, chronic morbidity, depressive symptoms, psycho-social distress etc. [242] The survey coded the Bidi rollers self rated health on the three measure scale from the SF368 (fair or poor versus good, very good or excellent).[243]

Table 4-11 depicts the self rated health status among women Bidi rollers. About 40% of the Bidi rolling women recorded a 'poor' perception about their own health . As a general field observation, the non- Bidi roller women came across as less complaining and less anxious about their health issues. The health accounts of the non rollers were even less repetitive as the rollers. A quote by a Non- Bidi Worker in Sahawan village was quite discerning here. This

[241] Hirve, S., Vounatsou, P., Juvekar, S., et al. (2014). Self-rated health: small area large area comparisons amongst older adults at the state, district and sub-district level in India. *Health and place*, *26*, 31–38.

Bombak, A.(2013).Self-rated health and public health: a critical perspective. *Frontiers in public health*, 1, 15.

[242] Weyers, S., Peter, R., Boggild, H. et al. (2006). Psychosocial work stress is associated with poor self-rated health in Danish nurses: a test of the effort–reward imbalance model. *Scandinavian Journal of Caring Science*, 20(1), 26–34.

Han, B. (2002). Depressive Symptoms and Self-Rated Health in Community-Dwelling Older Adults: A Longitudinal Study. *Journal of American Geriatric Society*, 50, 1549–1556.

[243] Jenkinson, C. (1998). The SF-36 Physical and Mental Health Summary Measures: An Example of How to Interpret Scores. *Journal of Health Services Research and Policy*, 3(2), 92–96.

woman involved in agriculture work said by not doing Bidi rolling work, herself and her family were safe from the frequent health problems the Bidi women faced in her neighborhood. There was also a striking difference in the tone and mood of the respondents. It is was more positive and pleasant in the non- rollers than the Bidi rollers, who usually burst into a flurry of complains.

Table 4-11 Self-Rated Health amongst women Bidi Rollers

Self Perception of Health	Frequency	Percentage
Good	17	6.5
Fair	141	54
Poor	103	39.5
Total	261	100

Source: Primary survey in Sagar (December, 2016)

4.4 Work and Health : The Association

Most of the Bidi rollers were illiterate and were found unaware and not capable of giving out precise details about their medical conditions. Still, during the survey these women were spontaneous in reporting their day to day health issues in their layman understanding. The association between work and its health effects gradually became prominent in detailed interviews with them, their family members and other stakeholders like the ASHA, local quacks and neighbors.

More than 60% did not answer a direct question on knowing that their occupation was a serious long term health hazard. However, when probed deeper they told the nature of their work was responsible for their day to day health conditions like headache, gastric issues, skin allergies, muscular & joint pain and burning eyes. In fact, their health did find a significant mention in their conversations about work and vice versa. A middle aged woman roller put the long hours of sitting, as a reason for her constipation, gases and loss of appetite. She expressed her desire to find some work which involved physical movement.

There were a number of ways work became a driving factor for health & health determinants in these workers. There were cases where poor health became a reason to discontinue work. A teenage daughter of a Bidi roller in Karaiya village explained how the work did not suit well for her mother. Her mother suffered constant headache and giddiness, how her body used to become stiff after long hours of sitting and the joints used to pain. Unfortunately, her mother had to resume work due to shortage of money.

At other times, ill health became the most common reason for breaks in work. About 51% women reported health reasons for work wage breaks but that too in extreme cases and not up till full recovery. In milder cases, the workers continued work as it did not involve going out of the home premises. On this question most women gave a grim smile and said since it is home-based work, therefore there were rarely any holidays except in acute cases. This was indicative of presenteeism[244], which could aggravate the symptoms to severe degrees. About 48% of the Bidi rollers reported not taking any illness related break from work despite a general complain about health issues.

One primary reciprocal of productive wage work is financial independence and social recognition. [245] The Bidi work failed to provide either. The workers were highly dissatisfied with their occupation and 88% disliked their work. Majority said that they were continuing out of economic compulsion. On top, 70% women did not think that doing this work earned them any respect. This sense of pessimism and dissatisfaction combined with economic helplessness was certain to reflect in their perception about self health & well being and so it did, as was already reflected in the self rated health statistics.

Another way, health cropped up in work accounts was due the economic burden it created which was not commensurate with the wages their work accrued. Poor health often took a large share of expenses in the meagre income from Bidi, which then was reported in the way of dissatisfaction with the Bidi rolling occupation. More than 75% women thought that the wages were not commensurate with work and enough to meet household and health needs.

4.5 Bidi Rolling and Health Risks

In occupational health and safety domain, risk assessment is performed to determine the hazards and extent of their potential harmfulness. A hazard is a chemical or condition in the workplace and risk is qualified as the probability of injury and health effects. Risk assessment helps in determining how serious risk a hazard poses to the exposed and thus helps in prioritizing policy and safety attention. [246]

[244] Presenteeism is a phenomena where the workers continue to be available for work and stretch themselves to give output despite having illness conditions As in : John, G. (2010). Presenteeism in the workplace: A review and research agenda. *Journal of Organizational Behavior*, 31, 519–542

[245] Burgard, S. A. and Lin, K. (2013). Op. cit. p. 4

[246] Guidotti, T. (2014). What is Risk Assessment in Occupational Health?. *Journal of Occupational and Environmental Medicine*, 56(6), e44–e45. doi:10.1097/jom.0b013e3181e5a37b

A subtle reflection of specific health issues occurring in Bidi rollers and a sense of association of these with the work was quite evident in observations at field level. These findings were further corroborated and strengthened through risk assessments in women Bidi rollers in comparison with their counterparts who were not at all exposed to this work. The point of difference in the two groups being engagement or non- engagement in Bidi work helped to ascertain if these observations and findings were of any statistical significance and hence of any generalization value. In the analysis, the ailment were assumed as the outcome and the risk as engagement in Bidi rolling. Using Chi square test of independence and risk ratios, it was seen as to what extent the exposure to Bidi rolling posed a health risk in the workers.

Table 4-12 depicts health risks in terms of nature of ailments amongst Bidi rollers viz. a viz. non Bidi rollers. In the table, '$\chi 2$' stands for chi square coefficient, 'p value' stands for probability value for assessment of statistical significance and 'RR' stands for Coefficient of Relative Risk. The Bidi rolling group reported significantly higher prevalence of musculoskeletal ($\chi 2$= 18.621, p value= <.05), gastric ($\chi 2$= 3.683, p value= <.05) and eye-related ailments ($\chi 2$= 7.438, p value= <.05), than the non-Bidi group. The chi square coefficients with statistical significance (Table 4.12) showed the difference was due to the exposure condition i.e. engagement in Bidi work and not by matter of chance.

This difference in prevalence was then tested for associative risk. The Bidi group was found to be at a greater risk of eye ailments (RR= 1.123, CI= 1.241-1.728), gastric ailments (RR= 1.078, CI=1.004-1.157), gynaecological (RR=1.049, CI= 1.004 -1.095), musculoskeletal (RR=1.465, CI= 1.241-1.728) and eye-related ailments (RR=1.123, CI= 1.041-1.212), than the non-Bidi group. The statistically significant results confirmed the health hazard associated with Bidi rolling work in increasing susceptibility to these very ailments.

Since, work was home based and involved direct exposure to toxic fine tobacco dust, it made sense to see if there was any patterns in health symptoms reported for the family members of the Bidi workers. In fact, there were numerous instances where women involved family and child members to help in the daily quota of rolling works. The first reported ailments of first family members of Bidi rollers were compared with that of non- Bidi rollers to see any specific health risks. The Bidi roller's family members were found to be at greater risk of gastroenterological (RR=1.072, C-I= 1.030-1.117) and eye-related ailments (RR=1.049, C-I=1.016- 1.083), than the family members of non- Bidi rollers.

Table 4-12 Ailment Risk among Women Bidi Rollers in Sagar

Symptoms/Illness Type	Exposed	Non-Exposed	Chi Square ($\chi 2$)	p Value	Relative Risk (R.R.)	C.I.
Lungs/Respiratory	52	19	2.906	> .05	1.084	.993-1.184
Musculoskeletal	136	43	18.621	< .05	1.465	1.241-1.728
Gastric	39	12	3.683	< .05	1.078	1.004-1.157
Nervous system	52	23	0.96	> .05	1.049	.956-1.152
Gynaecological	19	4	3.511	>.05	1.001	1.004-1.095
Skin Related	2	1	0.007	>.05	…	.984-1.018
Circulatory System	18	5	2.032	> .05	1.037	.991-1.085
Eye Related	48	12	7.438	< .05	1.123	1.041-1.212

Source: Calculation based on Primary survey in Sagar (December, 2016)

The risk in term of specific ailments was got intensified in terms of their characteristics in the Bidi women. It was seen that there was a significant difference in occurrence of chronic, frequent and intense illness symptoms between the two groups. The chronic ailments were that lasted more than a month, frequent were those that had occurred in last one month of being interviewed and intense as the co morbid conditions i.e. more than one symptom at a time.

Table 4-13 depicts the health risks in terms of characteristics of ailments amongst Bidi rollers viz. a viz. non Bidi rollers. The Bidi rollers suffered significantly higher chronic ($\chi 2$=4.712, p value= <.05), frequent ($\chi 2$=7.344, p value= <.05) and intense ($\chi 2$=25.172, p value= <.05) illness symptoms than the non-Bidi rollers. The Bidi rollers also had a poorer self rated health ($\chi 2$=4.412, p value= <.05) than their counterparts. All the results were statistically significant pointing that the exposure condition of Bidi rolling played a role in creating such chronic, frequent and intense ailment characteristics.

The risk ratio values for nature of symptoms/illness showed that Bidi roller women were at greater risk of chronic (RR=1.539, CI= 1.051-2.255), frequent (RR= 2.235, CI= 1.267-3.944) and intense (RR=1.336, CI=1.207-1.479) symptoms than the non- exposed. These women were also at greater risk of reporting poor/worse self rated (RR= 1.843, CI=1.033-3.289) health than non Bidi women. Clearly, the work exposed workers to significant risk of specific ailments that too of a longer duration, rapid reoccurrence and higher intensity. It also made them prone to a poor self assessment of health, an indicator associated with higher mortality, morbidity and depressive symptoms.

Table 4-13 Health Risks among Women Bidi rollers in Sagar

Nature of Illness	Exposed	Non Exposed	Chi Square	p Value	Relative Risk	C-I
Frequently Occurring	115	25	7.344	< .05	2.235	1.267-3.944
Chronic in Duration	158	55	4.712	< 0.5	1.539	1.051-2.255
Poor Self-Perception of Health	141	93	4.412	< .05	1.843	1.033-3.289
High Intensity	86	15	25.172	< .05	1.336	1.207-1.479

Source: Calculations based on Primary survey in Sagar (December, 2016)

4.6 Conclusions

- The occupational health hazard associated with Bidi rolling work manifests in two ways, physical and psychological. The peculiar repetitiveness in the nature of ailments, their chronicity, frequency and intensity highlight the physiological health effects of Bidi rolling work. Whereas, the significantly poor self perception of health representative of the psychological health indicates presence and effect of several psycho-social risk factors associated with Bidi rolling work.
- The previous epidemiological studies had found Bidi rolling cohorts highly susceptible to respiratory, musculoskeletal, ocular, dermal, gastro-intestinal ailments.[247] The analysis of nature of ailments in Bidi rolling households in India gave out matching trends. The households with Bidi rolling industry as primary occupation were found to have high prevalence of acute respiratory infections (11.6%), psychiatric and neurological (8.7%), musculoskeletal (9.4%) and gastrointestinal (6.4%) ailments across India.
- The micro level analysis into the nature of ailments among women Bidi rollers in Sagar also gave out complementary results with high prevalence of identical ailments. The women rollers reported high prevalence of musculoskeletal (52.1%), eye-related (18.4%) respiratory(19.9%), gastro-intestinal(14.9%), nerve-related (19.9%), gynaecological (7.3%) ailments.
- In terms of specific symptoms also, the findings from both secondary data and primary survey matched, with the commonly reported symptoms being joints pain and swelling, breathlessness, headache, chronic cough , bloating and strained burning eyes. Previous literature and narratives of women confirmed that a majority of these symptoms were due

to the nature of work, requiring long hours of lumbar bending, sitting in improper posture, exposure to tobacco dust and strenuous hand-eye coordination.

- The ailment characteristics among households dependent on Bidi rolling in India showed they were more chronic, lasting more than 30 days and frequently occurring majority (57.4%) having occurred in the past 15 days. In the Bidi rolling group of Sagar, identical characteristics persisted. These symptoms were on an average more chronic (52%) and frequently occurring (58.5%), also significantly intense in their nature, as women workers suffered from multiple health complaints at the same time.
- The general perpetuity and chronicity in the ailments reported among women rollers could be traced to the tendency of presenteeism, where they overlooked minor symptoms to continue work. Except in acute cases, they did not take a break from work and mostly returned back to work without full rest and recovery.
- Presenteeism indicated how their work participation was less sensitive to health problems and the home-based nature of work blurred the leisure/rest and work boundary, leading to work intensification and also led to involvement of family/children. This trend in a way was also reflective of the piece meal or symptomatic treatment they sought with an intention to feel better enough to get back to work and not miss on the piece rate wage.
- These prolonged manifestation of even minor symptoms, especially in women, had the potential to create long term debilitating effects on the body and even permanent disabilities as seen in previous literature. [248] The medical officers at the specialised health facility for Bidi workers in Sagar corroborated this as they confirmed commonly receiving cases of Chronic Obstructive Pulmonary Disease, slip disk and compromised lung function patients which were severe form of the common symptoms reported among Bidi rollers.
- There were a number of ways work became a driving factor for health & health determinants in these workers. These were in the form of dislike and dissatisfaction with work, economic compulsion and lack of choice to continue with it despite day to day challenges. Another way, health cropped up in work accounts was due the economic burden it created which was not commensurate with the wages their work accrued. The day to day health troubles of aches, pain and stiffness, were associated with nature of work, which in acute cases would come in way of their work productivity.

[248] Messing, K. , Punnett, L. , Bond, M. et al. (2003). Be the fairest of them all: Challenges and recommendations for the treatment of gender in occupational health research. *American Journal of Industrial Medicine*, 43, 618-629

- The chronic symptoms, effort reward imbalance, dissatisfaction with work and low to no control over the work environment fared load on their psyche and assessment of self. As a result, many (39.5%) women Bidi rollers in Sagar reported poor self rated health, an indicator correlated with other health indicators such as psychosocial distress, depressive symptoms, mortality etc.[249]
- When compared with a non- exposed group i.e. non-Bidi rollers, the strength of health risk associated with Bidi rolling work transpired. The Bidi rollers were found at a greater risk of eye ailments, gastric ailments, gynaecological , musculoskeletal and eye-related ailments , than the non-Bidi group. In terms of ailment characteristics the Bidi rolling group was also at a greater risk of chronic, frequent and more intense ailments. This group was also found to be at a greater risk of having a poor self assessment of health than the non- exposed group. All these results were statistically significant.

[249] Weyers, S., Peter, R., Boggild, H. et al. (2006). Op cit. p. 83

Chapter 5

Health Care Access and Social Protection

5.1 Introduction

A barrier free primary health care and its financing matters most in the poor and vulnerable population.[250] Adverse health events are likely to push poor households into poverty with the financial burden of wage loss and out of pocket expenditure, as they have meagre savings and close to no credit or liquid assets. [251]The key to facilitate access and overcome catastrophic effects of health related expenditure lie in social protection.

Social protection mechanisms in the health sector serve as a safety net to provide these basic health needs and thus help escape poverty and contribute to long term well being.[252] However, majority of the workforce in the informal sector remains excluded from formal health insurance or other social protection mechanisms. A higher share of occupational health risks and work place related health problems among this informal workforce doubles their vulnerability. [253]

In case of the Bidi rolling sector, the women Bidi rollers were found susceptible to specific and repetitive ailments as discussed in the previous chapter. These were chiefly ailments of musculoskeletal system, eyes, respiratory tract and ailments related to the neurological and gastroenterological system, linked with the nature of work and working conditions. The nature of these ailments was chronic, frequently occurring and intense, with ill effects on overall health and well being.

The high and chronic illness burden naturally demands for a specialized and smooth access to the health care system. The state in recognition of the same provides for dedicated protective statutes and health care infrastructure for the Bidi workers, applicable both for the factory and home-based setup.[254] In fact, their exists an exclusive health infrastructure for them, in the form

[250] Ranson, M. (2002). Reduction of catastrophic health care expenditures by a community-based health insurance scheme in Gujarat, India: current experiences and challenges. *Bulletin of the World Health Organization*, 80, 613-621.

[251] Ibid.

[252] World Bank. (2012). Resilience, Equity and Opportunity. The World Bank's Social Protection and Labor Strategy 2012-2022. World Bank, Washington D.C.

[253] Ahmad, N. and Aggarwal, K. (2017). Op. cit. p. 11

[254] Centre for Health and Social Justice (2017). Op cit. p. 60

of Central Bidi hospitals and Bidi dispensaries.[255] The question however is whether these numerous provisions are enough to make any effective support on the ground.

This chapter discusses the status of health care access among Bidi rollers based on secondary and primary data. Further on, the ground level challenges to health care access among women rollers in this region are elaborated and discussed. The chapter starts with detailing the health access status of population dependent on Bidi rolling industry as primary source of income across India and in the state of Madhya Pradesh. The next section discusses the status of health access among the women Bidi rollers in Sagar. The further sections put forth an analysis of various barriers to health access. This is done by a critical evaluation of the existing schemes and welfare provisions available to the Bidi workers for this region. The last section concludes the findings in the chapter.

5.2 Health care Access in the Bidi Rolling Sector

The informal workers in India, despite their strength and economic contribution suffer from a disproportionately higher share of health shocks[256]. [257] Insufficient public financing, poor health insurance coverage or risk pooling and high share of out of pocket expenditure claim to be the root cause of poverty among the poor in general and this section of workers in particular.[258] Health shocks not only intensify the poverty state but also become reasons for pushing non poor households into poverty.[259]

[255] Ministry of Labor, Government of India. (2011). Medical Care of Bidi Workers. Press Information Bureau, Retrieved from: http://pib.nic.in/newsite/printrelease.aspx?relid=68101

[256] Health shocks are unpredictable illnesses that diminish health status; illness is a state of inferior physical or mental state of human body where a disease or impairment is present and prevents the individual to function normally.

[257] Ahmad, N. and Aggarwal, K. (2017). Op. cit. p. 11

[258] Kumar, A.K., Chen, L.C., Choudhury, M. et al. (2011) Financing health care for all: challenges and opportunities. *Lancet*, 377(9766), 668-679.

Daivadanam, M., Thankappan K.R., Sarma, P.R. et al. (2012). Catastrophic health expenditure and coping strategies associated with acute coronary syndrome in Kerala, India. *Indian Journal of Medical Research*, 136(4), 585-592

[259] Doorslaer, V. E., O'Donnell, O., Rannan-Eliya, R.P. et .al. (2006) Effect of payments for health care on poverty estimates in 11 countries in Asia: an analysis of household survey data. *Lancet*, 368 (9544),1357–1364.

The home based Bidi rollers form a significant part of this informal workforce in India. [260] The studies in the past that have established the health hazard associated with tobacco processing and emphasized on the special health needs the work entails for workers.[261] However, research attempts at examining the status of health care access among workers in the industry have been limited. These few attempts have been in the form of Scheme Evaluation Reports by the Labour Bureau, Government of India or few studies by non-profit organizations.[262] This is also because of the dearth of national databases presenting health care access and related data across occupation groups in such detail.

The National Sample Survey on Social Consumption on Health (71st Round) is one of the only national databases that provides critical information about health access across principal industrial groups as per National Industrial Classification (NIC) 2008. The classification category of tobacco manufacturing industry (Code 12) under its sub categories includes Bidi rolling (Code 12002), which was taken as reference for trend analysis on health access status.

The trends in access for both in-patient and out-patient care for India and the state of Madhya Pradesh showed poor insurance coverage and high dependence on out of pocket expenditure to meet treatment costs. Despite their entitlement to free health care services, the nature of medical advice received indicated gaps in provision of free health services particularly for out patient care among the Bidi rolling dependents.

Table 5-1 Nature of medical advice received among Bidi manufacturing households

Nature of Medical Advice	India	Madhya Pradesh
	Percentage of cases	Percentage of cases
Free (Government.)	47.0	16.5
Free (Private)	4.2	0
No free Advice	48.8	83.5
Total	100	100

Source: NSS 71st Round: Social Consumption on Health (2014)

Table 5-1 depicts the nature of medical advice received for the first reported ailment among ailing members of Bidi rolling households in the last 15 days, representing only out patient cases. It was found that across India, 50% ailing members of Bidi rolling households reported

[260] Public Health Foundation of India. (2017). Op cit. p. 50

[261] Joshi, K. , Robins, M., Parashramlu, V. et al. (2013) Op. cit. p. 75

[262] Centre for Health and Social Justice (2017). Op cit. p. 60

Labor Bureau (2015) Op cit. p. 51

that for the first reported ailment in the last 15 days of survey, they did not receive any free medical advice. In case of Madhya Pradesh this figure was much higher, where 83% of the ailing members in Bidi households did not receive any free medical advice for their first reported ailment of the last 15 days.

Table 5-2 Nature of medical advice received in hospitalization cases among Bidi manufacturing households

Nature of Medical Advice	India	Madhya Pradesh
	Percentage of cases	Percentage of cases
Free (Government.)	56.7	85.5
Free (Private)	9.1	4
No free Advice	34.2	10.6
Total	100	100

Source: NSS 71st Round: Social Consumption on Health (2014)

Table 5-2 depicts the nature of medical advice received for the hospitalization cases among members of Bidi rolling households in the last 365 days. In terms of hospitalization cases in Bidi manufacturing households, the picture was slightly different with a good share of Bidi rolling dependents benefitting from free health services. Here (Table 5-2) , about 60% of cases reported having taken free medical service at India level and 85.5% at Madhya Pradesh level.

An inadequate protection against financial risk due to out patient medical costs is a recognized cause of poverty in India.[263] It becomes evident from the above analysis that for the Bidi rollers across India and in Madhya Pradesh, affordable health access especially for regular out-patient care remains a matter of concern. A high share of non- free medical advice, particularly in cases of out patient care are also reflected in the source of expenditure in such cases.

Table 5-3 depicts the major source of finance for health expenditure for the first reported ailment of ailing members in Bidi rolling households, in the last 15 days. The major source of finance for health related expenditure in the last 15 days (Table 5-3) was personal savings and income for 92% of the ailing persons and borrowing for the other 7%. The borrowing share was higher in Madhya Pradesh with 16.4% of the ailing persons in Bidi households reporting this source for health expenditure in their first ailment; the other i.e. 67.4% was met by household income or savings.

[263] WHO. (2015).The challenge of extending universal coverage to non-poor informal workers in low- and middle-income countries in Asia: impacts and policy options. WHO. Retrieved From :.http://iris.wpro.who.int/bitstream/handle/10665.1/ 12396/9789290617334_eng.pdf.

Table 5-3 Major Source of finance for health expenditure among Bidi rolling households

Source	India	Madhya Pradesh
	Percentage of cases	Percentage of cases
Household Income/Saving	91.7	67.45
Borrowings	7.6	16.46
Contributions from Friends and relatives	.6	16.08
Total	100	100

Source: NSS 71st Round: Social Consumption on Health (2014)

Out of pocket expenditure in most cases reflects poor health risk coverage through insurance. There is evidence that less than one-third of the Indian population is covered by any form of social or voluntary health insurance, which is mainly offered through government schemes for the formal sector.[264] Among the informal sector, Bidi rolling is one of the few to be covered under statutory health schemes.[265] In fact, since 2011, the workers in the Bidi sector have been declared as legit beneficiaries of the Rashtriya Swasthya Bima Yojana (RSBY) and the Employee State Insurance Corporation Hospitals. [266]

However, the statistics show a different picture. Table 5-4 depicts the level of coverage under health insurance schemes among households dependent on Bidi rolling. At the national level, about 67% of the households reported no cover by any scheme for health expenditure support. In Madhya Pradesh, none of the households in the sample reported any health insurance coverage.

[264] International Institute of Population Sciences. National Family Health Survey (NFHS-4) 2015-16 International Institute for Population Sciences (IIPS) and ICF. (2017). National Family Health Survey (NFHS-4), 2015-16: India, IIPS, Mumbai.

[265] Besides, the social security legislations that applying for the general industrial environment in India, there are Bidi sector specific legislations, enacted especially for the Bidi workers. These are: the Bidi and Cigar Workers (Conditions of Employment) Act, 1966, the Bidi Workers Welfare Cess Act, 1976, and the Bidi Workers Welfare Fund Act, 1976.

The Office of Directorate General of Labor Welfare through its Welfare Commissioners provides for Free Health care facilities to Bidi workers and their dependents through 12 Bidi Hospitals and 286 Bidi Dispensaries across the country. As in: Ministry of Labor and Employment, Government of India. (2018). Facilities to Bidi Workers. Press Information Bureau, GOI, Delhi Retrieved From: http://pib.nic.in/PressReleaseIframePage.aspx?PRID=1525123

[266] Cabinet Minutes, Government of India. (2011). Extension of medical facilities to Bidi workers under Rashtriya Swasthya Bima Yojana. Press Information Bureau, Government of India, Delhi. Retrieved From : http://pib.nic.in/newsite/printrelease.aspx?relid=72586

Table 5-4 Level of Health Insurance Coverage among Bidi rolling households

Scheme Name/Type	India	Madhya Pradesh
	Percentage of cases	Percentage of cases
Government Funded Insurance scheme (eg. RSBY, Arogyashri, CGHS or others)	37.7	0
Any Other	.3	0
Not Covered	62	100
Total	100	100

Source: NSS 71st Round: Social Consumption on Health (2014)

In the Bidi rolling households across the country, this trend of high dependence on private health care was seen, especially where the out patient cases were accounted along with in patient cases. Table 5-5 depicts the level of care availed for first reported ailment of ailing members in Bidi manufacturing households. In terms of sources for health care treatment, at the national level, a high percentage (50%) of ailing cases of last 15 days took to private facilities for treatment. The major factors for not availing public health services were unsatisfactory quality (46.8%), long waiting time (21.5%) and required facilities not available (26.2%). At times, the reason for not seeking treatment became ailment not taken seriously (70.7%).

Table 5-5 Level of care availed for in patient and out patient cases among Bidi Manufacturing Households

Type of facility	India	Madhya Pradesh
	Percentage of cases	Percentage of cases
HSC/ANM/ASHA/AWW	6.9	-
PHC/Dispensary/CHC/Mobile Health Unit	16.5	-
Public Hospital	26.1	42.5
Private Doctor/clinic	37.1	16
Private Hospital	13.4	41.5
Total	100	100

Source: NSS 71st Round: Social Consumption on Health (2014)

In Madhya Pradesh, in last 15 days ailments, the same trend of high dependence on private healthcare could be seen in the first ailment of ailing members of Bidi households. As seen in Table 5-5, although, 42.5 % of members in their first ailment took to public hospitals, a higher share i.e. 16% and 41.5% took to private clinics and private hospitals respectively. The most common reason for not availing government services among the Bidi households of Madhya Pradesh was again unsatisfactory quality and inadequate physical access. In this state of dissatisfaction and inadequate physical access diverted ailing persons to unstandardized and

piecemeal treatment options. Almost 60% of ailing members of Bidi households in Madhya Pradesh took treatment without medical advice with the most common reference being medicine shops (92.9%).

Table 5-6 Level of care availed hospitalization cases among Bidi rolling households

Type of facility	India	Madhya Pradesh
	Percentage of cases	Percentage of cases
PHC/Dispensary/CHC/Mobile Medical Unit	5.8	-
Public Hospital	48.5	67.6
Private Hospital	47.5	32.4
Total	100	100

Source: NSS 71st Round: Social Consumption on Health (2014)

On the other hand, in case of in patient cases of past 365 days, a higher share of use of public healthcare was visible but private care did remain important and fared among availed sources. Table 5-6 depicts the level of care availed for hospitalization cases in the last 365 days, in the households dependent on Bidi manufacturing industry. A significant usage of public health facilities (48%) for hospitalization cases showed up at the national level.

At the same time, the dependence on private clinic and hospitals (47.5%) was no less significant. The total expended amount reimbursed for these hospitalization cases was nil for 87% of these hospitalization cases in Bidi rolling households of India. In Madhya Pradesh, the mixed picture continued with 67.6% cases in public and 32.4 % cases in private facilities for hospitalization related events in Bidi rolling households.

5.3 Sources of Health care among Bidi Rollers in Sagar, Bundelkhand

The national and state level trends of health access among Bidi rolling group proved representative as the trends of poor health protection and heavy dependence on out of pocket expenditure for healthcare continued in the sample of women Bidi rollers in Sagar. Unlike the NSS data, a two way review of health access status among women Bidi rollers was possible through a primary survey. One, evaluating the access to the universal public health services as with the NSS data. Second and more importantly the effectiveness of exclusive health benefits and infrastructure for the Bidi rollers, by virtue of them being a special occupational group. This was possible with specific questions and enquiry related to statutory health benefits for Bidi workers, usage of the ESIC/Bidi hospital/Bidi Dispensary etc.

Table 5-7 represents the usual sources of medical treatment reported among Bidi rolling women in Sagar. The responses to this question were recorded in multiple answers, with most

respondents showing alternate or mixed reliance on public and private facilities. The percentages therefore have been calculated out the total responses which is more than the total sample. If seen out of the proportion of these total responses, a high share of women rollers reported using private doctor facilities or private clinics (46.78%) for their usual ill health issues needing out patient consultation. The rest of the responses denoted public health facilities like Community Health Centre and Primary Health Centre (40.2%) or Public Dispensary's like ESIC/Bidi/CGHS hospitals (13%) as the usual port of call for regular health needs.

Table 5-7 Usual Treatment Sources among Bidi Rolling households in Sagar

Type of facility used at the time of Hospitalisation	Number of women reporting use	Percentage of total cases
Public Hospital(including PHC/sub centre/CHC)	200	40.2
Public Dispensary (including CGHS/ESI/Bidi Hospital/Dispensary)	65	13.0
Private Hospital	128	25.7
Private Doctor	105	21.08
Total	498	125.8

Source: Primary Survey in Sagar (December, 2016)

Matching with the national and state trends, the results showed a higher share of hospitalization cases in public hospitals. Table 5-8 represents the type of facility used for hospitalization cases among Bidi roller households in Sagar in the last 365 days. About 60% used the Community health centre or other public hospitals and 30% reported having availed either Private hospitals or clinics in Sagar city/or at closest distance to them.

Table 5-8 Level of Care availed for hospitalization among Women Bidi Rollers in Sagar

Type of facility used at the time of Hospitalisation	Number of women reporting use	Percentage of total cases
Public Hospital(including PHC/sub centre/CHC)	96	61.1
Public Dispensary (including CGHS/ESI/Bidi Hospital/Dispensary)	31	19.7
Private Hospital	45	28.7
Private Doctor	4	2.5
Total	176	112.1

Source: Primary Survey in Sagar (December, 2016)

Thus, in line with the national and state level trends, the primary concern in the Bidi rolling community came out in the form of dependence on private doctors and clinics, especially in

cases of out patient treatment. Also, for both out patient and in patient care, although the use of general public health facilities remained significant, strikingly low utilisation of ESIC hospitals, Bidi hospitals and dispensaries came, only 13 and 19.7% respectively.

The explanation to this heavy dependence on private doctor/ clinics or general public health facilities like the CHC/ PHC could be traced back to the findings in the previous chapter. Among the Bidi rolling women, a high presence of specific, chronic and frequently occurring symptoms was observed. The usual and perpetual head ache, muscular aches & stiffness along with a chronic cough and breathlessness required specialized screening and treatment. But it was most of the times overlooked to continue with the work. Only in acute cases, medical advice was sought. With the chance of health and treatment related wage loss, Bidi rolling labor doing piece rate work tended to seek doorstep and easily available health services.

Such doorstep and easy recourse to healthcare for Bidi rollers in rural Bundelkhand was provided by the local quacks or doctor's on call, who emerged as the most common source of treatment for their day to day health issues. For chronic and regular complains such as headache, joints pain, gastric trouble and breathlessness, these doctors came across as a critical source of health care as they provided quick and symptomatic, door step medical help. One elderly Bidi roller in the Bhainswahi village showed full trust in the local quack as his injections provided immediate relief for her knee pains. She expressed her financial and physical disability to reach out to the Community Health Centre or the far off 'Bidi Aspataal' located in the city.

Another woman roller in village Pipariya vouched for the services of private doctor on call for her regular health troubles, as being a woman it was difficult to travel long distance to Sagar. Similar was the case with most women especially in the villages. However, unstandardized and piece meal treatment of even minor symptoms had the potential to make them chronic and severe to cause long term disabilities. Thus, their health needs in terms of specific repetitive ailments ideally required access to a standardized and specialized easy to reach health facility. The minor but chronic symptoms called for screening and rehabilitative treatment. The Directorate General of Labour Welfare provides for a specialized Bidi hospitals and dispensaries for Bidi Workers. However, their effectiveness and utility for home-based women rollers in rural areas is far from envisioned.

The Central Bidi Hospital is located in the Baghraj area of Sagar city across the Sagar lake at one extreme end of the city. Given that this is the region with highest concentration of Bidi

workers in the country, the load of patients it is supposed to cater is enormous. In fact, to the villages surveyed in our study, this is the nearest possible Bidi hospital/dispensary premises. Yet, women rollers hardly used its services.

Firstly, there was a wide spread unawareness about the presence of such facility. Majority among the home-based Bidi workers worked without any worker identification and welfare rights and thus no Bidi ID cards. To even those few workers who possessed the Bidi Welfare Card a lot of them did not know about its utility. Neither there were any outreach programs or awareness camps spreading knowledge about the Bidi workers welfare rights like bidi welfare card and its benefits. This was an interesting finding when the Bidi Welfare Statutes provisioned mobile health van for the Bidi workers and its presence was completely absent on the ground. Moreover, health camps by NGO/Health Trusts were also found missing in this region.

The other major reason for the ineffectiveness of the Bidi hospital was its difficult location in the city, posing the distance and connectivity barrier, especially for women workers who were already low on decision making and mobility autonomy. The women folk remained over worked with the dual burden of Bidi rolling alongside the household duties, which discouraged any substantial effort in going out long distances for illness treatment.

The Medical Officer at the Bidi Hospital admitted that the cases they received at their unit were severe cases of slip disk, untreated & recurring tuberculosis, and severe Chronic Obstructive Pulmonary Disorder. In a way this also indicates, how the initial symptoms are overlooked and treated only symptomatically with the help of easily accessible private doctors or quacks, until a crisis requiring tertiary level care.

There were also reported cases where the respondents complained that the Bidi hospital was ill equipped in lot of respects and the patients were diverted or referred to the district hospital or other public hospital for tests and specialist consultations. In a few conversations, respondents expressed their apprehension and struggle full experience in taking their travel and test related test related reimbursements from facilities like the Bidi hospital. A mix of these factor worked to create a situation of compromised health access for the women Bidi rollers on the ground. The important one’s are discussed in detail in the following sections.

5.4 Barriers to Healthcare Access among Bidi Rollers

A large body of evidence confirms that a huge section of population in the developing countries go without affordable and quality health care.[267] In India, the poor with greatest need for health care face the greatest difficulties in accessing health services and therefore least likely to have their health needs met.[268] Despite improvements in health access, major barriers to equitable health access remain in the form of socio-economic inequalities, physical barriers to access, gender and caste based discrimination, regional imbalances in quality health services and behavioral factors that adversely affect demand for health care.[269] Moreover, more than two third medical spending in India is out of pocket which also is the major cause of pushing households into poverty. [270]

The home-based Bidi rollers of the Bundelkhand region represent an occupational group who face a disadvantage in terms of the disease burden associated with work. Their invisible work status further aggravates their health protection and safety status as discussed in the previous section. The following sub sections discuss the specific barriers to health care access that the Bidi rollers face in the Sagar, Bundelkhand region.

5.4.1 Problems faced in accessing health facilities

Despite a burden of chronic and frequently occurring disease load, the situation of access to healthcare access among the Bidi roller women was weak and riddled with problems. The barriers to their access to health care were not very different from the general issues in rural areas, but the irony was that this was despite their status as productive workforce and the special state provisions in their name. For most, the commonly faced issues in accessing health facilities was the distance (44 %), unavailability of money or expensive treatment costs (46%), unavailability of doctors in the hospital, of long waiting times (23%) and difficulty in getting

[267] O'Donnell, Owen. (2007). Access to health care in developing countries: breaking down demand side barriers. *Cadernos de Saúde Pública, 23*(12), 2820-2834.

[268] Kasthuri A. (2018). Challenges to Healthcare in India - The Five A's. *Indian journal of community medicine, 43*(3), 141–143. doi:10.4103/ijcm.IJCM_194_18

[269] Baru, R., Acharya, A., Acharya, S. et al. (2010). Inequities in Access to Health Services in India: Caste, Class and Region. *Economic and Political Weekly* , 45(38), 49-58.

Balarajan, Y., Selvaraj, S., Subramanian, S.V. (2011) Health care and Equity in India, *Lancet*, 377(9764):505-15

[270] Daivadanam, M., Thankappan K.R., Sarma, P.R. et al. (2012). Op. cit. p. 93

medicines. Table 5-10 depicts the common problems faced in availing health facilities among women Bidi rollers.

Table 5-9 Problems faced in accessing health facilities among Women Bidi rollers in Sagar

Problems faced in Accessing Public Health Facilities	Number of Responses	Percentage of Cases
Behavior of Service Provider	25	9.7
No Diagnostic Test Facility available	20	7.8
Do not receive medicines	49	19.1
Long waiting Time	41	16
Facility is far/Distance as barrier	114	44.4
Lack/Non Availability of Money	118	45.9
Unavailability of Doctor	59	23
Corruption/Bribe	19	7.4
No Problem	43	16.7
Others	3	1.2

Source: Primary survey in Sagar (December, 2016)

The special health needs that this group presented could very well be catered through camps in the village premises for issues such as refractive errors, joints related aches and pains. There was absence of health camps or any civil society or non- profit organization working as a support mechanism to help these helpless. A woman roller in her early forties said it was the first time some one was asking about her health and well being , no one else before had come to take any account of it.

The policy spells out the role for ASHA with much detail.[271] The National Health Mission document foresees her role as a health activist in the community, expected to be the first port of call for any health related demands of the deprived sections. She is also expected to serve as a information source on the determinants of health such as healthy living and working conditions, information on existing health services etc. In the Bidi workers community, this role by the ASHA definitely failed to show up. In fact, an interview with a ASHA worker revealed that she also did Bidi rolling in her free time and her work was only restricted to maternal and child health.

There was also a general complaint among the Scheduled caste (Ahirwar) women rollers that because the ASHA worker was from an upper caste i.e. Jain community, she avoided visiting

[271] Ministry of Health and Family Welfare, GOI (2005). ABOUT ACCREDITED SOCIAL HEALTH ACTIVIST (ASHA). Ministry of Health and Family Welfare, GOI Retrieved From: https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=150&lid=226

their homes and stayed on the other side. Another woman roller from the same village complained that the ASHA didn't tell them about any other welfare schemes or health information. Since the work was concentrated among Scheduled caste (Ahirwar) women, the caste barrier came across as a dual barrier in their access to information, support and utilization of the public health care system. Such general dissatisfaction with the public health workers and services could be the reason for a higher bent towards private facilities.[272] Table 5-11 tabulates the general level of satisfaction with health workers such as ASHA, ANM among the Bidi rollers, in terms of their role in awareness generation about health and other welfare schemes. The majority, more than 80% respondents expressed dissatisfaction with these services.

Table 5-10 Satisfaction with health worker services among Women Bidi Rollers in Sagar

Satisfaction level about health worker services	Responses	Percentage of cases
Highly Satisfied	42	16.5
Needs improvement	136	53.3
Unsatisfied	77	30.2
Total	255	100

Source: Primary survey in Sagar (December 2016)

Till now the analyses restricted to the potential users who were non- user of schemes due to the various barriers. Equally important was to analyze what problems they faced while negotiating their way to final utilization. Those who happened to be aware about the schemes, and tried availing the benefits such as free health scheme for the Bidi workers elaborated their own set of struggles.

The multiplicity of schemes with changing names made these rural illiterate women perplexed about their benefits and use. For these women, the common problem was understanding of the possible benefits and then the long and complex route to enrolling for it. There were complaints among the few users of delayed payments and reimbursements, which had a huge discouraging effect. Table 5-12 tabulates the common problems faced in availing benefits of welfare schemes.

The women complained about not knowing whom to complain and get their issued redressed. Malpractices by officials such as demanding money for issuing Welfare cards was also reported. In fact, the most common change that these Bidi roller women in Sagar wished for,

[272] Peters, D.H., Yazbeck, A.S., Sharma, R.R., et al. (2002). Better health systems for India's poor: findings, analysis, and options. World Bank, Washington DC.

Table 5-11 Problems faced in availing the benefit of welfare schemes among the Women Bidi Rollers in Sagar

Problems faced in availing welfare benefits	Number of Responses	Percentage of Cases
Delayed payments	7	20.6
Understanding Issues	15	44.1
Absence of grievance redressal	8	23.5
Name not in the worker record/No Bidi registration ID	4	11.8
Corruption	6	17.6
Non-grouping/ collective mechanism	4	11.8
Others	10	29.4
Total	100	158.8

Source: Primary survey in Sagar (December 2016)

was having more welfare benefits. This lingering observation was that despite of all state provisions at their disposal they were not able to take any effective help from them. Thus pointing issues in terms of ease of understanding, consistency and user friendliness of the processes for workers to take their advantage.

5.4.2 Unawareness and Illiteracy

Knowledge gap, lack of education and information are important factors that affect appropriate demand for and compliance with health services.[273] These play a significant demand side factor in health access by determinants of health beliefs, perceptions of health and illness and health seeking behavior.[274] Within the group of illiterate and unskilled women Bidi workers, the problem of unawareness was stark. This awareness was not mere awareness of a particular scheme, but a state of complete unawareness about their basic rights as labor and as state subjects. This was very much a result of an internalization of their vulnerable situation in the work and home environment.

These women had accepted the work as the only option available. Their low status in the patriarchal setup and equally weak decision making power in the family made them even more disempowered to question the system. In the work domain, having a male Sattedar who was the provider of work, made the situation even more complex. Lot of women reported that they

[273] Cleland, J.G. and van Ginneken, J.K. (1988).Maternal education and child survival in developing countries: The search for pathways of influence. *Social Science and Medicine*, 27, 1357–1368.

[274] Griffiths, P. and Stephenson, R. (2001). Understanding users: perspectives of barriers to maternal health care use in Maharashtra, India. *Journal of Biosocial Science*, 33, 339–359.

did not talk or interact with the Sattedar as he was a male. It was done by the husband or the children who did the dealing.

Health Literacy and health consciousness are important factors to create timely and appropriate health seeking behavior. As seen in previous studies, there was unawareness about the potential long term hazard their work posed. [275] This unawareness mixed with economic and social pressures made these women to continue with a potentially hazardous work, involving high labor yet low rewards. In work domain, they were equally ignorant of their basic rights as labor with respect to minimum wages, social security provisions such as PF and pension and even the concept of collective bargaining, let alone benefits.

A share of 92.3% women rollers therefore had no idea about the concept of collective bargaining or a trade union. Equally grim statistics were those of awareness about minimum floor wages and rights of equal remuneration, with 92 % women rollers being not aware of these concepts. With these state of affairs, having knowledge of specific provisions and all the more taking even longer route to make its use, made quite an over-expectation for these poor women.

5.4.3 Meeting the Expenses

In a livelihood framework, individual level treatment seeking behavior and degree of access that is finally achieved depends on the interplay of two factors : 1) the health care services and the broader welfare policies, institutions and processes that govern these services and 2) the livelihood assets people can mobilize in those vulnerability contexts. [276] These are two kind of assets, tangible assets in the form income, wage and assets and intangible assets in the form of claims and access to social goods. [277]

[275] Sabale, R. V., Kowli, S. S., and Chowdhary, P. H. (2012). Working condition and health hazards in Bidi rollers residing in the urban slums of Mumbai. *Indian journal of occupational and environmental medicine*, *16*(2), 72–74. doi:10.4103/0019-5278.107075

[276] Obrist, B., Iteba, N., Lengeler, C. et al. (2007) Access to Health Care in Contexts of Livelihood Insecurity: A Framework for Analysis and Action. *PLoS Med,* 4(10), e308.

[277] Chambers, R. and Conway, R.G. (1991) Sustainable rural livelihoods: Practical concepts for the 21st century. IDS Discussion Paper 296.Retreievd from: https://www.ids.ac.uk/files/Dp296.pdf

Among these assets, tangible assets in terms of income and wage are the most important to deal with co-morbid[278] and chronic health conditions[279] Protection against catastrophic health expenditure by way of risk financing and risk pooling of health expenditure could play crucial role in safeguarding against the medical poverty trap.[280]

The Bidi rolling occupation made a classic case of effort reward imbalance. The average rates for 1000 Bidi's rolled that these women earned was somewhere between ₹ 40-50. The effective weekly earnings after accounting for the loss at rejection and cost of raw material, came out to be about ₹ 150-200. This accrued to a minimal average monthly earning of about ₹ 1000 on an average. On the other hand, the monthly household health expenditures of about 40% in the group was reported to be above ₹ 900. Naturally, about 65% of women rollers reported out of pocket expenditure as their source of health expenditure. Table 5-13 depicts the monthly health related household expenditure among Bidi rolling households in Sagar

Table 5-12 Monthly Household Health Expenditure among Bidi Rolling Households in Sagar

Monthly Expenditure on Healthcare in ₹	Number of Responses	Percentage of Responses
< 300	47	18.1
300 -600	66	25.5
600-900	48	18.5
>900	98	37.8
Total	259	100

Source: Primary survey in Sagar (December 2016)

With health expenditures as high as the income through Bidi rolling work itself, the risk of catastrophic health expenditure and poverty trap became evident. In fact, unavailability of money was reported as one of the major challenges in accessing health facilities. The state of affairs was paradoxical, as these very workers were eligible for free health services for themselves and the family members. Table 5-14 depicts the source of health related expenditure among women Bidi rollers in Sagar.

[278] A medical condition/ailment that occurs with another

[279] An ailment whose symptoms are persistent and in duration more than 30 days

[280] Whitehead, M., Dahlgren, G., Evans, T. et al. (2001). Equity and health sector reforms: can low-income countries escape the medical poverty trap? *Lancet,* 358(9284), 833–836.

Table 5-13 Source of Health related expenditure among Women Bidi Rollers in Sagar

Source of Health related expenditure	Responses	Percent of Cases
Out of Pocket	171	65.8
Borrowing/ Loan	215	82.7
Health Insurance	1	.4
Total	387	148

Source: Primary Survey in Sagar (December, 2016)

Table 5-14 Source of Health Related Borrowing among Women Bidi Rollers in Sagar

Source of Borrowing	Responses	Percent of Cases
Bank/ Other Formal Financial Institution	13	5.8
Relatives/ Friends	177	79
Employer/ Sattedar	58	25.9
NGO/ Trust/ Grouping	9	4
Others	9	4
Total	266	118.8

Source: Primary Survey in Sagar (December 2016)

The direct consequence of this was visible in the high share of borrowing trend for health related expenditures, much beyond their absorption capacities. The magnitude of indebtedness was not only enormous but also riddled with risk in terms of source of borrowing. More than 82% of the Bidi rollers reported having taken the borrowing route to meet health expenditures. Table 5-15 depicts the sources of health related borrowing among women Bidi rollers in Sagar. The access and utilization of health insurance of any kind was also reported close to zero. This was quite alarming as the Bidi workers were by this time eligible for insurance schemes such as the RSBY covering unorganized labor segments.

The state of economic helplessness in a state of health crisis, naturally made them to avail informal and un- standardized loans. Of these the most common sources were family and relatives (66.5%) and the Sattedars (21%). These loan sources were risky enough to put them into a slippery slope of poverty. In fact, the Sattedar as a borrowing source was a danger sign, as the work contract, piece rate wages and other details in the work system were already undefined. This could very well serve as a tipping point to all kinds of exploitation at the hands of the middlemen.

5.4.4 The Bidi ID: an enabling factor

As per the statutory norms, there are two types of Bidi cards, that the Bidi rollers are entitled to. One is the Bidi registration ID, a record of being a worker for a Bidi branch or factory. This card is an entitlement to PF and pension scheme etc. The other one is the Bidi welfare card, which entitles them and their family members to free health services at the Bidi hospital and dispensaries. The card to access schemes at the bidi hospital is made by the civil hospital or dispensary under the Bidi Workers Welfare Fund. The Bidi rollers have to roll 5 Bidi's in front of them after which the application has to be verified by the Sattedar.

The majority of workers in Sagar region being home-based were out of the purview of recognition, as registered labor on the manufacturer's muster rolls. Majority of the women, in this region did not possess a Bidi registration ID entitling them to benefits of PF and pension etc. Therefore, in this study, the Bidi card for the women workers was synonymous with the Bidi welfare card or the "Ghar-khata-Shramik Card". In the discussion which primarily deals with health access, the Welfare card is actually important to context. This is the potential solution fix to their health troubles with free health benefits. The situation at ground in this region is however very unique.

Table 5-15 Bidi Welfare ID coverage among Women Bidi Rollers in Sagar

Bidi Welfare ID Card	Response	Percentage of cases
Possess ID	90	34.1
Do not Possess ID	174	65.9
Total	264	100

Source Primary survey in Sagar (December, 2016)

Table 5-16 Primary holders of cards in Bidi roller households in Sagar

Card Holder in Family	Responses	Percentage of Responses
Self	47	52.2
Husband	38	42.2
Mother in law	1	1.1
Others	4	4.4
Total	90	100

Source: Primary Survey in Sagar 2016-17

A significant percentage of women did not even know about these identification cards, let alone possessing them. Table 5-16 depicts the Bidi welfare ID coverage among the women Bidi rollers in Sagar. About 65% of the women Bidi rollers surveyed did not possess a card in their name. Table 5-17 depicts the Primary Holders of Bidi Welfare cards among Bidi roller

households in Sagar. Over that, in this group who possessed a Bidi card, more than 40% had the cards in the name of their husbands.

More than 85% women were unaware about free health services for them and dependents, in the Bidi hospitals and dispensaries. This figure remains equally close in even those women who reported having a Bidi welfare card. Its interesting to cite here the common issue of the refractive errors and poor vision problems. The Bidi rollers are entitled to get free eye check up and a monetary compensation of ₹ 300 for the cost of spectacles. Despite this problem being so conspicuous, hardly a 5-6 people wore corrective glasses and possibly none had got it through this dedicated provision. This was a clear indicator that effective value, usefulness and meaning of having possessing a welfare card was painfully low.

Table 5-18 depicts the level of awareness about free health services among women Bidi rollers in Sagar. Those who had managed to get a card through the Sattedar or other middlemen visiting their villages, did not know about its possible uses and just managed to get it for the sake of it. Table 5-19 depicts the level of awareness about the Bidi sector welfare schemes among women Bidi rollers in Sagar.

Apart from this, the awareness about possible uses in terms of treatment support for specific diseases like tuberculosis, heart diseases and cancers was equally low. A young female helplessly spent all her savings in getting cured for Tuberculosis in private facilities even after possessing a Bidi welfare card in her name. Her story gave out the message of this grave issue of unawareness and informed support from neither employee nor the other health personnel.

Table 5-17 Level of Awareness about free health services among Women Bidi rollers in Sagar

	Aware about Free Health Services for Self and Family?		
Whether Possess a Bidi welfare Card	Yes	No	Total
Yes	16 (18.2%)	72 (81.8%)	88
No	16 (9.5%)	152 (90.5%)	168
	32	224	256

Source: Primary Survey in Sagar 2016-17

It is important here to also note that Welfare Card has a list of all possible benefits clearly printed over it. Then where did the issue lie? Was it illiteracy and disempowered status of women or the callousness of the Sattedar in explaining the due benefits of a welfare card, which was actually supposed to be in his mandate. Or was it because the utilization process was challenging and daunting and hence they did not try to venture that path.

Table 5-18 Level of Awareness about Bidi welfare schemes among women Bidi rollers in Sagar

Welfare Provision	**Aware**	**Unaware**
Free Health Services for all Self and Dependents	37 (13.9%)	230 (86.1%)
Cash for first two pregnancies	70 (26.3%)	196 (73.7%)
Incentive after Sterilization	53 (9.1%)	213 (80.1%)
Chashma Pradaan Yojana	8 (3%)	258 (97%)
Cancer Treatment and Travel Cost	2 (0.8%)	264 (99.2%)
Heart patient treatment	3 (0.7%)	263 (98.9%
Leprosy Treatment	5 (1.9%)	261 (98.1%)
Kidney Disease Treatment and Transplant	1 (0.4%)	265 (99.6%)
Mental Health Issue	3 (0.7%)	263 (98.9%
Health Insurance Scheme	24 (9%)	242 (91%)
Education scholarship for Children	93 (35%)	173 (65%)
Tuberculosis treatment	3 (0.7%)	263 (98.9%)
Bidi work shade and Go down Construction	3 (0.7%)	263 (98.9%)
Site Seeing and Holiday Home Scheme	2 (0.8%)	264 (99.2%)
Bidi welfare and Inspector's Visit	2 (0.8%)	264 (99.2%)

Source: Primary survey in Sagar (December, 2016)

Apart from the societal and individual factors, some share of blame definitely went to the State welfare machinery for its failed and ineffective policy. The problem is beyond issuing of welfare cards, it is in actually empowering the holders to take benefit of it. The role of Bidi welfare inspector could be crucial in this situation for checking on the irregularities and issues in non- utilization. But, close to an absolute majority reported not having any information about their visits to check about the welfare scheme implementation.

Table 5-19 Role of Sattedar in getting the Bidi Welfare card as reported by Women Bidi Rollers in Sagar

Role of Sattedar	**Response**	**Percentage of cases**
Help in getting Bidi ID	36	14.3
No Help/Role	216	85.7
Total	252	100

Source: Primary survey in Sagar (December, 2016)

Table 5-19 depicts the role of Sattedar in getting Bidi welfare ID among women bidi rollers in Sagar. About 85% of the Bidi rollers reported that Sattedar did not help them in obtaining or informing about the welfare card or other related health provisions. According to the statute,

the medical officers at the hospital or regional officers of the welfare commissioner are the authority to issue cards. The contractors are supposed to verify their identity as wage Bidi workers employed and they clearly fail to this duty. The fault in this whole model seemed to lie in the very basis of placing the onus on the Sattedar as a link in acquiring a social security and welfare card for the women Bidi rollers.

Although the Sattedars avoided conversations and it was difficult to get hold of any for interviews, we managed to get a brief chat with a Sattedar in Karaiya. He blatantly denied having women workers under him and said it was only few women and majority men working for him. Through this conversation, the Sattedars conflict of interest in showing actual figure of workers came out. Most of these Sattedars were possibly working for either the unregistered firms trying to evade tax and labor laws or diverting the finished Bidi to unaccounted Bidi manufacturer's for extra profit.

The question is also of whether the deserving qualifiers are actually getting the Bidi card in their name. The authority lies with the Bidi hospital premises and the candidate has to prove his Bidi rolling skills before the Medical Officer in charge to qualify as a Bidi roller. This process in furnishing Bidi ID cards is riddled with loopholes and gaps for possible malpractice. The rule is simple and easy to flout, as one only needs to show rolled Bidi's to the authority to prove being a Bidi worker by occupation. The driver helping out in the study, did possess one and revealed how he managed to get it by contact despite being a Taxi driver by profession.

5.5 Conclusions

- The ailment profile and risk of chronic ailments spelled out the exceptional health needs among Bidi rolling women. But the informal work structure with weak to no social and health protection created a situation of compromised health access. The trends in access for both in-patient and out-patient care for India and the state of Madhya Pradesh showed poor insurance coverage (up to 37.7%) and high dependence on out of pocket expenditure (up to 91.7%) to meet treatment costs. In Sagar, Bidi rolling women heavily depended on out of pocket expenditure of borrowings for health expenditure with close to zero insurance coverage among the group.
- Although a good share of usage of public hospitals was observed for in patient or hospitalisation. Out patient care especially related to the regular and chronic issues presented a cause of concern among Bidi rolling women. As compared to in-patient treatment, out patient care was being majorly relied on private health care sources as

per both secondary and field level data. Among the women Bidi rollers of Sagar, the need for door step delivery of health led them to rely heavily on private doctors on call and local quacks for their day to day health troubles.

- The share of Bidi rolling women who availed facilities of the Bidi hospital or dispensaries was negligible. The reasons included its far off location and difficult connectivity with villages, unawareness about this special health provision, non possession of Bidi welfare card essential to take treatment at the hospital, struggle full past experience in getting satisfactory treatment from such facility etc. The outreach program or mobile health van facilities statutorily provisioned were in a complete state of dismantle as these remained a unheard phenomena on the ground.
- The major barriers to access that were reported among the Bidi rolling women was of distance to the public/Bidi healthcare facilities, monetary cost to travel long distance bearing wage loss, illiteracy, unawareness about schemes and labor rights and inability to understand procedures and use of various schemes.
- The high dependence on out of pocket expenditure for health related expenditure emerged as a major issue of concern. With meagre wages, lack of liquid assets and no health insurance, this was seen to be pushing Bidi dependent households into health related indebtedness. The sources of borrowing for these health related expenditures were mostly informal i.e. relatives or the *Sattedar*, further increasing vulnerability.
- The Bidi ID card, primary requirement to avail free health services was not possessed by majority women Bidi rollers. The awareness and utilization among those who possessed was also marginal, suggesting that Bidi welfare card is not the panacea to their health troubles. The non-possession was just tip of the ice-berg. Even within the group that possessed the Bidi card, only a miniscule percentage availed the benefits of the free services, often discouraged by the distance to the Bidi hospital, difficulty in understanding its benefits and claiming reimbursements.
- The onus on Sattedar/middlemen as the assigned person for verification for issuing Bidi welfare cards was found highly misplaced. With abundance of un-registered small manufacturers of Bidi in the region, the Sattedar mostly had a collusion with manufacturer to show lesser number of workers on roll. In this case, helping in getting social security card or welfare card became out of question. The role of Bidi inspectors was also questionable as none of the Bidi rollers reported having known scrutiny visits by them.

Chapter 6

Precarious Work and Health Vulnerability

6.1 Introduction

In the previous discourse on status of health and accessibility to health care among women Bidi rollers, a strong non- linearity in their determinants stood out. This was witnessed in both ailment characteristics and their correlates in work characteristics, reflected in the narratives. The occupational health effects on the women rollers had peculiar chronicity and manifested beyond physiological ailments to affecting psychological health and well being. This reflected the breadth of health affecting factors in Bidi rolling sector, than mere exposure to raw tobacco or unhealthy ergonomics. In this group, the causes of compromised health access also found origin in the nature of Bidi work, which neither was able to create adequate tangible assets such as income and social security, nor any intangible assets in terms of social capital and collective bargaining strength. The marginalised health access was found to be an interplay of gender and caste dynamics and unprotected and undefined work relations.

In line with the above leads, this chapter starts with a discussion on the multidimensionality of health and health access determinants in the Bidi rolling sector. The multidimensional determinants are seen to fit well into the all encompassing "precarious work" construct and hence deduced to specific precarious elements for the Bidi rolling sector. The possible pathways of association between these precarious elements and elements of health and health care access are then discussed. The multifarious precarious elements in the Bidi rolling sector, illness and health access status are captured into composite indices in the next sections. Further to assess and establish quantifiable health risk association of precarious elements, statistical models of correlation, simple linear regression and Student's t test models are put to use.

6.2 Multi-Dimensionality to Determinants of Health and Health Access in the Bidi Rolling Sector

Bidi manufacturing process involves a number of activities, namely plucking of tendu leaves, distribution of raw material, rolling of Bidi, bundling, labelling and packaging of Bidi. The Bidi rolling work is an one indispensable link to this production chain and is entirely a manual job. This involves placing raw tobacco into 'tendu' leaves, tightly rolling them and folding and securing with a thread. This also makes it one of the most tedious, labour intensive but the least paying and most hazardous. Owing to which, this sector has got much share of research attention in the occupational health field after other sectors such as mining, leather tanning, carpet weaving and cotton processing. All such research studies have long recognised Bidi

rolling's hazardous health effects on the toiling workers . [281] The hazard, however, has always been attributed to the direct physical exposure to toxic fumes and dust with unfavourable ergonomic conditions.

In the previous chapters of the present study, every step towards a better understanding of health status and health access have pointed to the deep and subtle forms of negative health determinants lurking in the work environment. The physiological health effects remain in line with the previous research findings in the sector.[282] In the ailment profile of surveyed sample, the negative effects of raw tobacco and repetitive and sedentary manual labour are evident. The resulting ailments of eyes, gastro-intestinal system, neurological system and the bones and joints etc. is a corroboration to this fact.

However, unlike previous research studies[283], when the analysis moved into the ailment characteristics, the background health effects from the entire work ecosystem started reflecting. There was an unusual chronicity to the common ailments of swelling and pain in the joints, discomfort and strain in the eyes, headache, cough and breathlessness. This emerged as a common theme in detailed conversations with women rollers and thus also showed up in the survey data where 58.5 % sampled cases reported chronic and perpetual.

These symptoms of the eyes, respiratory tract, neurological and musculoskeletal system were also intense with multiple symptoms at a single point in time for 39% cases and frequently occurring as close as last 15 days for 52.5% cases. These lingering health issues in a situation of economic constraint often led women to stretch their labour even in sickness situation. The rare illness breaks they took were much short of full recovery. The home-based nature of work,

[281] Rout, S., Narayana, K., Sahu, K. et al. (2017). Op. cit. p. 6

[282] Ibid.

[283] Joshi, K., Robins, M., Parashramlu et al. (2013). Op. cit. p. 75

Swami, S., Suryakar, A.N., Katkam, R.V. et al. (2006) Absorption of nicotine induces oxidative stress among bidi workers. *Indian Journal of Public Health*, 50(4), 231-235.

Kjaergaard, S.K. and Pedersen, O.F.(1989). Dust exposure, eye redness, eye cytology and mucous membrane irritation in a tobacco industry. *International Archives Occupational and Environmental Health*. 61(8), 519-525.

Nandi, A., Ashok, A., Guindon, G.E., et al.(2015). Op cit. p. 50

piece rate wage system, lack of control over work, economic distress and lack of alternative livelihood became background factors for this kind of presenteeism[284].

The Bidi rolling community also fared poor on self rated health, an important indicator on psychological health and overall well being.[285] There was a palpable sense of pessimism about their general health and work prospects. Majority women rollers despised their work (88%) and were doing it out of compulsion. In the state of no alternate skill and no prospects of promotion in wages, the work remained mundane and no choice occupation. In this situation worse state of self rated health became a reflection of powerlessness and lack of control over work environment and dying hope for upward mobility.

The heavy burden of ill health and prevalence of specific ailments posed a need for specialised and smooth health care access. On this front, the Bidi work ecosystem miserably failed in enabling such an access. The direct effects of inadequate wages in lieu of the heavy health related expenditure requirements was one important factor. But in a way heavy out of pocket expenditure and indebtedness due to health expenditure was a corollary of unrecognised and unprotected work contracts. Majority women worked as invisible productive workforce without any accruing benefits of social security and social protection. The home-based and sub-contracted nature of work with a high proliferation of middlemen working for unregistered Bidi firms, the employer and employee relations were mostly in a state of flux.

In this situation with a slim scope of fixing any employer accountability, the conservative patriarchal social setup and unorganised work system, curtailed any chances of collective bargaining for women rollers. There was a serious gap in terms of other social capital[286] resources such as non governmental/profit support, self help group functioning or any say in the Gram Sabha. The work being primarily concentrated in the socially marginalised section

[284] Presenteeism is a state when workers continue/attend work despite being ill. As in: Johns, G. (2009). Presenteeism in the workplace: A review and research agenda. *Journal of Organizational Behavior*, 31(4), 519–542.

[285] Idler, E. L., Hudson, S. V., Leventhal, H. (1999). The Meanings of Self-Ratings of Health. *Research on Aging*, 21(3), 458–476.

[286] Putnam, R. D.(2001).Social Capital: Measurement and Consequences. *Canadian Journal of Policy Research*, 2, 41-51.

Kawachi, I. and Berkman, L. (2000) Social cohesion, social capital, and health. In Berkman, L. and Kawachi, I. Social Epidemiology, Oxford University Press, New York

furthered the intensity of health access marginalisation. Overall, engagement in Bidi rolling neither helped create monetary resources nor any social capital or collective strength to improve health access. Therefore, the background factors affecting access to health were certainly non linear, ranging from powerlessness, weak social capital, economic distress and fuzzy work relations.

6.3 Bidi Rolling as Precarious Employment: Elements, Pathways and Mechanisms to Health

The health status and level of health care access among women Bidi rollers in the Sagar region was found to be a function of multiple work related health determinants. These ranged from the physical hazard associated with tobacco, to their marginalised social status intensifying disempowered state, unending poverty to undefined work relations. The above appeared in our analysis in previous sections.

It is therefore imperative to model Bidi rolling occupation into a multi-dimensional construct, for any comprehensive occupational health analysis. Such a construct ought to possess the ability to encompass work related factors beyond physical hazard exposure to work relations, work's empowering potential and the efficacy in strengthening social capital and economic stability. The 'Precarious Employment'[287] construct in the public health literature is gaining importance for this very ability. Precarious employment in public health research has gained impetus as a multidimensional construct denoting employment insecurity, economic exploitation, limited workplace rights, weak social protection, powerlessness and individualized bargaining relations between employees and employers. [288] In fact, such a construct has developed out of the progressive need for a multi-factor framework equally denoting quality and objective characteristics of work. [289]

In the occupational health domain it has helped shift the narrow focus from proximal psychosocial work environment to a sociological perspective on workers health. This gives an opportunity to look at work place psychology as a consequence of work relations rather than a

[287] Benach, J., Vives, A. , Amable, M. et al. (2014) Op cit. p. 3

[288] Vives, A., Amable, M., Ferrer, M. et al. (2010). Op cit. p. 43

Tompa E., Scott-Marshall, H., Dolinschi, R. et al. (2007). Precarious employment experiences and their health consequences: towards a theoretical framework. *Work*, 28(3), 209-224.

[289] Benach, J.,Vives, A., Tarafa, G. et al. (2016). Op Cit. p. 2

exogenous determinant of worker's health. At the same time, covering the complexity of the labour- work relations.[290]

The multidimensionality of the "precarious" construct, becomes apt to capture work, work relations, working conditions in this sector. This construct, broadens the horizon of "work and work conditions" beyond a single factor hazard exposure to the multiple dimensions of the work ecosystem. Its important as the work ecosystem is dynamic with multiple stakeholders and complex backward and forward linkages.

In line with this framework, the multiple precarious work themes with complex links with the health sphere were classified into seven precarious elements in the Bidi rolling sector. Each element is discussed in detail below from Sections 6.3.1. to 6.3.7. The flow of element wise discussion is: firstly, the way it manifests in the Bidi rolling sector of Sagar and secondly, possible pathways and mechanisms these elements affected health status and health care access of the women Bidi rollers. The pictorial reference of the effects of precarious element on health status and access levels among Bidi rollers is represented in Figure 6-1

The precarious elements are discussed as follows:

6.3.1 The Demographic Bias

The concentration of women of lower castes in Bidi sector hinted at colocation tendency of what is risky, discarded and less paying in the already marginalised. The state of women in the caste riddled and conservative Bundelkhand is known to be poor, with underlying currents of violence and suppression.[291] On top, the male Sattedars[292] made it difficult for women workers to negotiate even basic work rights like minimum wages. At times, women even reported not dealing with the Sattedar themselves but through the children or elderly. The young females in the house started as helping hands to mothers and married off to become full fledged rollers, supporting family income with their work. The women in the region reported how 'rolling Bidi' was important for better prospects in the local marriage market. The fate of becoming a Bidi roller to support income in the family was internalised young into the females. These poor

[290] Ibid. p. 118

[291] NITI Aayog. (2012). Op. cit. p. 64

[292] Sattedar is the middle man or sub – contractor who supplies raw material like tendu leaves, tobacco and thread to Bidi rollers and collects rolled Bidis from them. He is the single most and important link between Bidi manufacturers and Bidi rollers.

women of the depressed classes went on to become soft targets, as they are most unlikely to raise any voice of protest against the meagre work wage or no welfare protection. Their exposure to Bidi work at a young age lengthened the period and severity of exposure to the hazard, reflecting in health outcomes. Their low position in the family and work domain negatively affected their self-perception, mental well being and health related decision autonomy which is crucial factor in accessing health care.

6.3.2 Work Hazard

Bidi rolling work is a physical health hazard in terms of exposure to tobacco dust and manual repetitive work which involves long hours of sitting in the same position. As seen in previous chapters of the current study and also past literature, the nature of work led to above average risk of musculoskeletal, eye related, gastro, nerve-related and gynaecological health issues in women rollers. [293]

On top of which, the piece rate wages with home-based work setup blurred work and leisure difference and often led to a tendency of overwork to earn little extra. Piece rate wage systems are known to be associated with negative health effects and low safety.[294] Women rollers often continued work in chronic conditions of aches and pains, making way to aggravated illness conditions.

In place of the statutory minimum wages of ₹169 per 1000 Bidi[295], the women Bidi rollers in this region received between ₹ 40-50 on an average for 1000 Bidi, making the weekly earnings less than ₹500. This meagre wage below the minimum floor wages did not give any opportunity to save and spend on improving the daily life of self and dependents. Rather, it pushed them into health related indebtedness with an average monthly household expenditure on health more than ₹ 900. The exposure to these direct and indirect health hazards showed an effect on frequency, duration and intensity of illness and an increased demand for special health care services.

[293] Senthil, N and Bharathi, P. (2010). Op cit. p. 75

[294] Johansson, B., Rask, K., Stenberg, M. (2010). Piece rates and their effects on health and safety – A literature review. *Applied Ergonomics*, 41, 607–614.

[295] Sen, V. (2013). Op cit. p.50

6.3.3 Work Relations

The women rollers in this sector often worked in state of anonymity with no record of them doing productive work. Majority cases, Sattedar had not taken any initiative to get them on manufacturer's worker list neither had fulfilled duty of issuing Bidi welfare card.

This lack of accountability and any established work contract, diminished all prospects of state protective care for the Bidi rollers The Sattedar being only point of contact in the production chain, work availability and just wage rates often depended on personal rapport with him. The uncertainty in work availability and stress of losing livelihood not only compromised negotiating power of the labour but also went on to affect their psychological well being showing up in self-perception.

6.3.4 Powerlessness

Owing to all these industry inconsistencies, the women Bidi rollers become nothing but a 'powerless lot.' Their helplessness to change or even question injustice or exploitation made it evident. The large scale illiteracy with lack of alternate skills and livelihood opportunity, left them with no choice or capability to change things for better. A sense of collective sharing the common link i.e. the Bidi rolling livelihood was found to missing in these women workers. These women were largely unaware of the benefits of collective bargaining means reflecting the state of complete dis-organisation. The disempowered state with fear of protest was visible as this was their only source of sustenance. The powerlessness doubtlessly showed effect on self perception, psychological well being, securing welfare rights such as the Bidi welfare card, which were in poor state.

6.3.5 Aspirational Deficit

The women rollers hardly questioned the unfair wages or welfare rights and continued their work. Dissatisfaction and pessimism in workplace is known to cause psychological health effects in workers. [296] The dissatisfaction and dislike towards their occupation did not deter Bidi rollers out of their work. Moreover, unionization among unorganised workers and informal workers is challenging and plagued by number of problems such as employment

[296] Faragher, E.B., Cass, M., Cooper, C.L. (2005). Op cit. p. 8

insecurity, refusal of employers to recognize or bargain with unions of informal workers etc.[297] Among Bidi rollers in Sagar, an explanation about collective bargaining did not provoke any optimism and they remained apprehensive to it.

These workers continued work despite everything, which reflected the internalisation of status quo. Long years of engagement in Bidi rolling only gave ill health and disabling effect than better rates. This had a dampening impact on their self esteem and smothered all aspirations showing up in health and well being indicators

Most had accepted it as their fate in the "Bidi Pradesh" and did not even want to migrate out. This aspirational deficit impacted their self-perception very severely and also minimized chances of acquiring state welfare enablers to health care access.

6.3.6 Weak Social Capital

The Bidi rolling community was found weak on social capital.[298] With the powerless state, the missing supportive buffer of community networks, participative role in village governance, welfare support of NGO's etc. was missing. The villages hardly had any presence of welfare work by NGO's, mobile health vans or any health camps despite the health needs.

Owing to their low caste and case of individualised bargaining power, they remained excluded from participative say in the village Gram Sabha. The high level of illiteracy and economic constraint kept them away from possible media sources. This severely compromised their access to appropriate and quality health care.

[297] Sen, R. (2013). Organizing the Unorganized Workers: The Indian Scene. *Indian Journal of Industrial Relations: Special Issue on Unorganized Workers*, 48 (3) ,415-427

[298] Putman, R.D. (2001). Op cit. p. 117

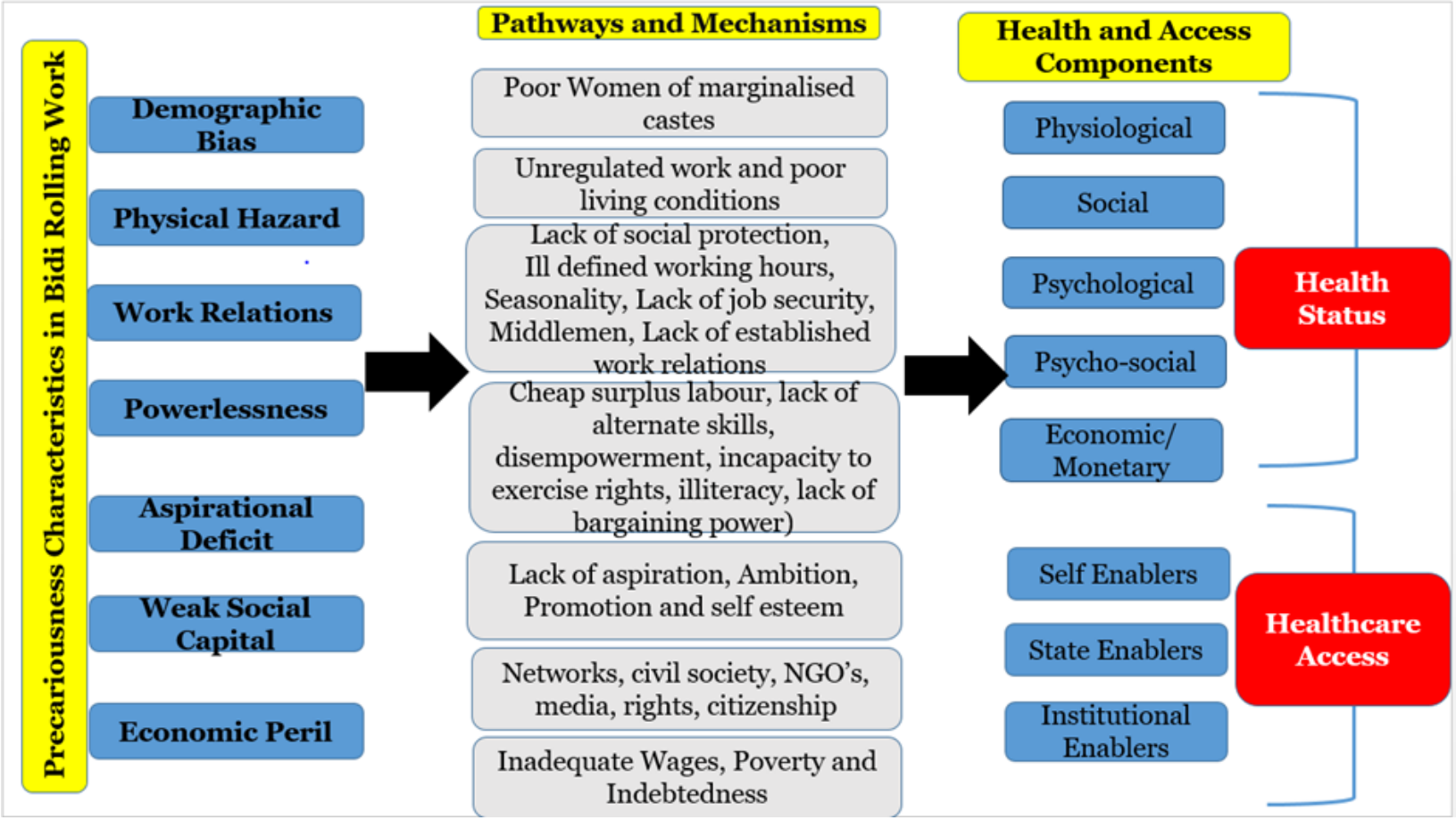

Figure 6-1 Precarious Elements in Bidi Rolling Sector and how they affect health and health care access among women Bidi rollers

Source: Primary Survey in Sagar (December, 2016)

6.3.7 Economic Peril

'Effort reward imbalance' in work is closely related with chronic morbidity.[299] Bidi rolling occupation fitted well to the effort-reward imbalance dichotomy and neo-liberal apparatus of production sub-contracting associated with flexibility and precariousness.[300] The women workers in the Bidi rolling sector toiled away hours only for unfair wages. The work earned much less than what it took off them. In conditions of poverty and close to no insurance coverage, chronic ailments put the Bidi dependent families only at risk of a debt trap.

The wages received were not only below the minimum floor wages but also dependent on externalities such as rejection, cost fluctuations in raw material sourced etc. All this played a role in sustaining the overarching poverty and reproducing the vulnerability over generations. The hand to mouth wages, put these workers on the slippery slope of medical indebtedness and economic peril.

6.4 Precariousness Indices

The precarious elements in the Bidi rolling sector were discussed in the previous section. This section attempts to capture these elements into proxy indicators to create a composite picture of precarious work for the Bidi rolling sector. Its important to cover the precarious elements in their entirety and hence a composite index technique is put to use. This is done to get together the loose ends into a single parameter and thereon test statistical associations on health status and access to healthcare, for the women group in question.

In creating indices of work precariousness it was realised that the work related drivers of illness state and accessibility to health care would vary. Keeping in mind the difference in the two dependent variables, two separate precariousness indices were created. There is an overlap of few indicators in the two indices, such as monthly income, as it affects both health and access situations.

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[299] Clougherty, J. E., Souza, K., and Cullen, M. R. (2010). Op cit. p. 2

[300] Quinlan, M., Mayhew, C., Bohle, P. (2001). The Global Expansion of Precarious Employment, Work Disorganization, and Consequences for Occupational Health: Placing the Debate in a Comparative Historical Context. *International Journal of Health Services*, 31(3), 507–536.

6.4.1 The Precariousness Accessibility Index (PA Index)

In creating the Work Precariousness Index for access to health care, seventeen proxy indicators were used. Each indicator bringing in their direct and indirect precarious characteristics potentially affecting access levels. Table 6-1. represents the indicators used in creating the Precariousness accessibility (PA) index. A value of '1' denotes lower degree of precariousness and '2' denotes a higher degree. Following is a brief discussion on how each of these indicators were used and why:

Table 6-1 Proxy Indicators in Precariousness Accessibility (PA) Index

S. No.	Proxy Indicators	Value 1 (if)	Value 2 (if)
1.	Source of Work	Direct through Bidi Branch	Through Sattedar
2.	Possession of Bidi ID	Yes	No
3.	Alternate skills possessed	Yes	No
4.	Monthly Income	Above 2000	Less than 2000
5.	Monthly wage through Bidi	Above 900	Below 900
6.	Wage change wanted	No	Yes
7.	Attend Gram Sabha	Yes	No
8.	Media Access and Utilization	Yes	No
9.	Awareness health hazard	Yes	No
10.	Awareness equal remuneration	Yes	No
11.	Money related decision making	Yes	No
12.	Welfare benefits wanted	No	Yes
13.	Awareness collective bargaining	Yes	No
14.	High rate of rejection of Bidi	No	Yes
15.	Whether wish to continue in the work	Yes	No
16.	Whether Sattedar helped in getting ID card	Yes	No
17.	Work earnings better without Sattedar	Yes	No

Source: Calculations based on Primary Survey in Sagar (December, 2016)

6.4.1.1 Source of work

Since the Bidi work in Sagar is subcontracted and the Sattedars are usual point of only contact for raw material, wages, welfare benefits etc. It was assumed here that if the role of Sattedar was eliminated and the worker had direct contact with the Bidi branch or factory, there could be better prospects of fair wage and just rights. It was also seen that having a Bidi branch as source of work bettered rates furnished for every 1000 Bidi by Rs 5-10. The Sattedar as a source of work is thus coded as '2' and Bidi branch as '1'.

6.4.1.2 Possession of Bidi ID

If a labour possesses Bidi Welfare Card, it opens up avenues to avail free health services and also a sign that they are state recognised Bidi labour. The possession also denotes positive role played by the Sattedar in performing his role and said duties. Also it is a sign of pro-activeness by the labour to exercise and make use of her entitlements. Thus possession of Bidi welfare card was coded '1' and non-possession as '2'.

6.4.1.3 Monthly Income and Alternate Livelihood Skills

Every productive work is expected to accrue adequate and just remuneration. Thresholds were put to segregate labour with relatively better off and worst income status. The threshold were decided on the basis of averages of incomes reported in the region i.e. Monthly household income as ₹ 2000 and through Bidi as ₹1000.

The respondents with monthly household income less than ₹2000 were coded as '2' and more than ₹2000 were coded as '1'. Similarly, the respondents with monthly income from Bidi more than ₹1000 were coded as '1' and lesser than ₹1000 were coded as '2'.

In the same context, possessing alternate skills was synonymous with financial security and thus coded as '1'. The respondents having no alternate skills other than Bidi rolling were less likely to overcome the exploitative work and hence coded as '2'.

6.4.1.4 Satisfaction in Job

Inequitable work benefits not only jeopardise the health but also the empowering role work can play for labour in exercising their deserved rights. [301]The common complains about their livelihood women Bidi rollers made were about low wages and inadequate welfare coverage. These points were used as proxy for job satisfaction levels, an important determinant of health. The respondents demanding these changes were coded as '2' whereas the others were coded as '1'.

Another question, was whether the respondents wanted to continue in this occupation. This proxy could reveal the helplessness and constraint under which the women were continuing in

[301] Hurtado, D., Hessel, P. and Avendano, M. (2017). The Hidden Costs of Informal Work : Lack of Social Protection and Subjective Well-Being in Colombia. *International Journal of Public Health*, 62 (2), 187–196.

the livelihood. Women respondents who did not wish to continue but were doing out of compulsion were coded as '2' and others were coded as '1'.

6.4.1.5 Perception about Sattedar

The primary survey enquired about the Bidi rolling women about their relationship and terms with the Sattedar. This included information on their perception about his one) fairness in checking and rejecting Bidi, second) whether their sattedar had helped them to get a Bidi welfare card and third) if they thought eliminating Sattedar could improve their wages.

The respondents who reported high level of rejection of Bidi at the hands of the Sattedar were coded as '2'. The respondents who reported no help by the Sattedar to acquire a Bidi card were coded as '2'. In the same way, respondents having an opinion that eliminating the Sattedar was crucial for getting fair wages were coded as '2', i.e. higher degree of precariousness.

6.4.1.6 Social Capital

Fair and standard employment conditions promote social networks, community participation and social inclusion.[302] Such work conditions are conducive for labour to also access media and be aware and actively participate in the society. [303] Such forms of social capital are important determinants of access. The Bidi rollers reporting participation in Gram Sabha are coded as '1' and no participation are coded as '2'. Similarly, respondents reporting access to forms of media are coded as '1' and otherwise are coded as '2'.

6.4.1.7 Awareness about Labour Rights

Awareness about labour entitlements and rights is first step to aspire and strive for just work contracts. Here awareness about equal remuneration law, about the very health hazard they are living and working with and also about concept of collective bargaining was captured. Women respondents not aware about collective bargaining measures, equal remuneration law and health hazard associated with Bidi rolling were coded as 2 and others as 1.

[302] Obrist, B., Iteba, N., Lengeler, C. et al. (2007). Op cit. p. 106

[303] Acharya, S. (2013). Universal health care: Pathways from access to utilization among vulnerable populations. *Indian Journal of Public Health*, 57, 242-247.

6.4.2 The Precariousness Illness (PI) Index

Precariousness in work shows measurable health outcomes. [304]In creating Precariousness Illness Index, eleven work indicators were used. These proxy indicators chosen were to be directly responsible for such health outcomes.

Table 6-2. represents the eleven indicators used in creating the PI Index. The code value '2' represents higher precariousness value for illness and '1' represents lower precariousness value for illness outcomes. Following is a brief discussion on the indicators used, as per the themes they captured:

6.4.2.1 Length of Exposure

For an objective assessment of risk in occupational health literature, it is important to account for the precise effect of intensity, length and severity of exposures. [305] Since the dependent variable would be illness, length of exposure to the occupational hazard in terms of raw tobacco and sedentary long sittings was most primary. For the same, proxy indicators of total duration of engagement in Bidi work and the average hours of daily sitting with the work were included.

More than twenty years into this work with average sittings of more than six hours (stretching up to indefinite) were coded as '2'.

6.4.2.2 Severity of Exposure

There on, severity of exposure was estimated through the premises/location where the work was performed and whether the women took any precaution/protective gear while working. The women labour were enquired whether they had a separate allocated area for this work. Having a separate allocated area was assumed to lessen the exposure to not only the labour but also the family dependents and hence coded as '1'.

It is seen that the group across the board was not using any protective gear or precaution while dealing with raw tobacco, not even simple crude methods such as a cloth covering etc. The respondents reporting a 'no' to precautions were coded as '2' and others as '1'

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[304] Joan, B., Muntaner C., and Santana. V. Op cit. p. 14

[305] Verbeek, J. (2012). When Work is Related to Disease, What Establishes Evidence for a Causal Relation? *Safety and Health at Work*, 3(2), 110–116.

Table 6-2 Proxy Indicators in Precariousness Illness (PI) Index

S. No.	Proxy Indicators	Value 1 (if)	Value 2 (if)
1.	Duration of Engagement in Bidi Rolling	Less than 20 years	More than 20 years
2.	Number of hours spent in Bidi Rolling	Less than 6 hours a day	More than 6 hours a day
3.	If there is a separate room for Bidi rolling	Yes	No
4.	Bidi rolling activity done alone or in a group	in a group	Alone
5.	Using any protective gear	Yes	No
6.	Form of compensation for a day off	Others	Overtime on Bidi Rolling
7.	Awareness about health hazard associated	Yes	No
8.	Whether take adequate breaks while working	Yes	No
9.	Special information given by health personnel about health hazard associated	Yes	No
10.	Perception about community respect for occupation	There is respect	There is no Respect
11.	Income through Bidi (per month)	More than ₹1000	Less than ₹ 1000

Source: Calculations based on Primary Survey in Sagar (December, 2016)

Health related 'day offs' or 'breaks' due to crisis in family doubled the pressure to compensate for the missed share of Bidi.[306] Hence, to the question as to what they did to compensate, "overwork the next day" was a common answer – which itself was a reflection of pressure, stress, long stretches of sitting and exposure, involvement of children and family members – this is thus coded as '2' to denote higher precariousness.

Similarly, since the work involves long hours of sitting in same position, it is known to cause musculoskeletal complaints.[307] The workers were also asked if they took adequate breaks during their long hours of rolling work. The workers who took adequate breaks were coded as '1' and those who did not were coded as '2'.

[306] Kumar, P. and Kumar, S. (2015). Occupational Health Hazard of Women Bidi Workers in Rural India. *International Journal of Science, Engineering and Technology Research*, 4 (5), 1496-1502

[307] Ibid.

6.4.2.3 Awareness about Possible Hazard

In the context of occupational safety, labour's awareness about the possible occupational hazard is primary most. This is expected to bring in precautionary and preventive measures by the labour themselves. It may also motivate them to diversify their livelihood options to avoid hazard exposure. It is well suited to see an effect on illness as this works in undertones. Awareness about long term health effects were coded as '1' and vice versa coded as '2'.

It is also taken in account whether their regular health consultants were giving any warnings or information about their hazardous work. This kind of information coming from a health staff is likely to affect day to day behaviours and practices. The respondents reporting having got such an information were coded as '1' and not receiving information were coded as '2'.

6.4.2.4 Social Networking and Fellow Labour Connections

In the Bidi setting, where the whole group of females in a village have a common fate linked with their occupation, working with fellow workers is expected to develop a sense of awareness about issues and solutions of wage, raw material availability etc. Interaction in the work place is also expected to lighten the work stress, severity and monotony in work. [308] The respondents who reported working alone were coded as '2' and those who worked in groups were coded as '1'.

6.4.2.5 Community Respect for Work

The respect a wage earner gathers through his productive work acts very subtly to create a sense of pride, motivation, contentment and thus mental well-being. [309] Bidi work is seen to concentrate in the poor and marginalized, who face double stigma owing to low caste and low value work they do. Many women rollers reported displeasure with their occupation and how their productive work status did not earn them any self pride or respect in the village community. The question if they feel their work earns respect is assumed to show impact their overall health and specially self perception of health covered under illness index. The workers reporting their work as respect earning were coded '1' and others were coded '2'.

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[308] Bardhan, K. (1985). Women ' s Work , Welfare and Status Forces of Tradition and Change in India. *Economic and Political Weekly*, 20 (50), 2207–2220.

[309] Danna, K., and Griffin, R. W. (1999). Op cit. p. 73

6.4.2.6 Monetary indicators

The statutory minimum floor wages for the Bidi rollers in Sagar are ₹169 per 100 Bidi. [310] However, at the ground level the Bidi rolling women received less than half of these minimum floor wages. The average weekly earning from Bidi did not cross ₹ 250, putting them straight below the poverty threshold. Evidence suggests that distribution of income and absolute standard of living are a key determinant of health.[311] This indicator of monetary soundness was used as a proxy of economic constraint, access to health facilities and general socio-economic and living conditions. Hence, the monthly Bidi income more than ₹1000 is coded as 1 and less than ₹1000 is coded as 2. This indicator overlaps with the PA Index of previous section.

6.5 Illness Index

In the Bidi ecosystem riddled with precarious features, it was important to study the health status of women workers beyond prevalence or absence of a disease. This was taken into account in the previous chapters where a reflection of both the psychological and physiological state was delineated.

This holistic picture of their health status is now captured into an Illness Index. It is here that the proxy indicators of each important health characteristic are binary coded to combine together into a composite index. Table 6-3, illustrates the indicators used in creating illness index for the Bidi rollers. Code '2' represents higher degree of illness and Code '1' represents lower degree of illness. The rationale and description of each indicator is described as below.

6.5.1 Intensity of Illness:

The number of symptoms an individual suffers and reports intensifies the illness state they are facing. This count in the disease symptoms is an indicator of the intensity of the disease state. As every new type of illness symptoms increases the need for treatment, doubles the physiological disease load on the body and greatly affects the work and life of the labour. [312]

[310] Sen, V. 2013. Op cit. p. 50

[311] Kawachi, I. and Kennedy, B. (1997). Socioeconomic determinants of health : Health and social cohesion: why care about income inequality? *British Medical Journal*, 314 (7086), 1037-1040

[312] Bingefors, K. and Isacson, D. (2004). Epidemiology, co-morbidity, and impact on health-related quality of life of self-reported headache and musculoskeletal pain—a gender perspective. *European Journal of Pain*, 8: 435-450.

Table 6-3 Proxy Indicators in Illness Index

S. No.	Proxy Indicators	Value 1 (if)	Value 2 (if)
1.	Intensity of Disease	Number of Symptoms Reported is 1	Number of symptoms Reported >1)
2.	When last symptom occurred?	In the last 30 days	More than 30 days before
3.	Duration of a symptom	Week	More than a week/chronic
4.	Self Perception of Health	Excellent	Poor/Average
5.	Perception whether community respects their work	Positive	Negative
6.	Like their work	Yes	No
7.	Monthly expenditure on Health	Less than Rs 900	More than Rs 900
8.	Usual Reason to take off from work	Any other reasons	Ill health/Sickness

Source: Calculations based on Primary Survey in Sagar (December, 2016)

This indicator represents condition of co-morbidities and multiple ill health symptoms at a point in time which increase the intensity of illness state. In the data collection process multiple self-reported symptoms were recorded. Respondents reporting more than one illness/symptom were coded as '2' i.e. higher on illness state. The respondents with one or no symptom were coded as '1'.

6.5.2 Frequency of Illness Symptoms:

The frequent occurrence of symptoms can have a strong debilitating effect on the body and work ability of individuals. In terms of work environment they can come against the day to day functioning, dealing with work environment and can have a direct bearing on the daily productivity. It can have a negative bearing in terms of self perceived health and self esteem, can come in the way. of establishing social relations at the community level as well. [313] The indicator represents the average frequency of illness symptoms reported in Bidi rolling females. The respondents having reported illness symptoms in the last thirty days were coded as '2' and those having suffered before thirty days were coded as '1'.

[313] Rijken, M., Spreeuwenberg, P., Schippers, J., et al. (2013). The importance of illness duration, age at diagnosis and the year of diagnosis for labor participation chances of people with chronic illness: results of a nationwide panel-study in The Netherlands. *BMC public health*, *13*, 803.

6.5.3 Duration of Illness:

The duration of an illness is a reflection of its chronic or acute nature. The duration of illness is an important attribute as longer durations of even minor symptoms can have can accumulate to cause severe impact and even disability. Chronic conditions also tend to increase co-morbidities, which make the disease state more intense and difficult to handle.[314]

There is ample evidence to chronic conditions needing higher and constant health expenditures, severely impacting the economic stability of households. The chronicity of a condition in a work related context can hamper the livelihood sustenance by way of breaks from work or continuing work in a ill state. The illnesses of longer duration are also a proxy to their ill management or lack of adequate curative medical attention to the symptom. The respondents with average duration of symptoms more than a month were coded as '2' and those with durations less than a month were coded as '1'.

6.5.4 Self-perception of health:

Self-rated health is the most simple way to measure self assessment or self perceived health. Though non- specific it is found reliable measure sensitive to a person's perception of their health, which also complements to other more specific measures of health such as morbidity, mental health, mortality and psychosocial stressors. [315]More importantly, it is found to be highly responsive to conditions at work.[316] The respondents with average to poor self perception of health were coded as '2' and those with good self- perception were coded as '1'.

6.5.5 Bidi rolling as a choice:

Job satisfaction is an important factor influencing health of workers and taken as a proxy of affective well-being. Those respondents who reported liking their work were coded as '1' and those who disliked the Bidi occupation were coded as '2'.

[314] Ibid.
[315] Hirve, S., Vounatsou, P., Juvekar, S., et al. (2014). Op cit. p. 83

[316] Kwon, K., Park, J., Lee, K. et al. (2016). Association between employment status and self-rated health: Korean working conditions survey. *Annals of Occupational and Environmental Medicine*, 28(43), 229-253.

6.5.6 Perception about Bidi rolling work in community:

Self-esteem is enhanced with positive recognition and is a important factor of health. [317] In occupational health discourse, the effects of work are routed beyond material pathways through improved social status, personal development, self esteem and social relations.[318] Whether there is respect for one's work, within the community is taken as a proxy indicator to judge health status. Respondents who thought their work gained them any respect were coded as '1' and those who thought otherwise were coded as '2'.

6.5.7 Monthly expenditure on health:

The source of health expenditure is an important determinant of whether illness would impact finances of households.[319] The Bidi rolling group were found to be non- beneficiaries of health insurance or any other health protection schemes. A good majority were dependent upon savings and income for their health related expenditure. For the households below poverty line any illness and related expenditure on treatment can be catastrophic. [320] Monthly household expenditure on health is taken as a proxy of illness burden of the worker and their family. The respondents with expenditure more than ₹ 900 were coded as '2' and those with expenditure less than ₹ 900 were coded as '1'.

6.5.8 Usual reason for break in work:

The breaks from work due to ill health are a proxy a proxy of illness load and its severity. The respondents reporting most usual reason to take breaks from work were coded as '2' and respondents citing other reasons were coded as '1'.

The above proxy indicators were combined for all Bidi roller respondents and were used to create a composite illness value for each individual respondent. This would be further put to use to understand the work related pathways and mechanisms to illness, in this particular labour group.

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[317] Danna, K., and Griffin, R. W. (1999). Op cit. p. 73

[318] Alfers, L. and Rogan, M. (2015). Op cit. p. 37

[319] Chowdhury, S. (2011). Financial burden of transient morbidity: a case study of slums in Delhi. *Economic and Political Weekly*, 13, 59–66.

[320] Ahmad, N., and Aggarwal, K. (2017). Op cit. p. 11

6.6 Accessibility Index

The discussion on status of health access and related barriers for Bidi roller women was done in Chapter five. In the discussion, three primary factors affecting the heath care status in the subjects were identified: one) the individual level enablers such as money, awareness two) the institutional enablers such as the quality and access to public health infrastructure and three) the state enablers in terms of welfare provisions, the Bidi ID card, social security etc.

To create an index representing level of access among Bidi rolling women, proxy indicators denoting aspects of these issues are selected. Table 6.4. represents the indicators used in creating the accessibility index.

The Code '1' represents compromised/poor access and Code '2' represents better access. The rationale and description of each indicator is given below.

6.6.1 Distance as a Barrier

In this study, when the interviewees reported distance as one of the major issues accessing and utilising public health facilities. Distance is an important non- monetary barrier impeding access to health care especially in rural areas. The adverse effect of distance factor is aggravated due to lack of transportation facilities in reaching health care facilities. [321] The respondents reporting distance constraint as a challenge in accessing health facilities were coded as '1' and those who did not face this issue were coded as '2'.

6.6.2 Wealth as a Barrier

Employment is the chief source of financial resources necessary to purchase health enhancing goods and services. [322] Poor wages and no insurance coupled with a high burden of illness made Bidi rolling women prone to catastrophic health expenditure. Money or wealth constraint came out as a major challenge in accessing health care for them. The respondents reporting financial constraint were coded as '1' and those who did not face the money challenge were coded as '2'.

[321] Sarma, S. (2009). Demand for outpatient healthcare: empirical findings from Rural India. *Applied Health Economics and Health Policy*, 7, 265–77.

[322] Burgard, S. A., and Lin, K. Y. (2013). Op cit. p. 4

Table 6-4 Proxy Indicators for creating Accessibility Index

S. No.	Proxy Indicators	Value 1 (if)	Value 2 (if)
1.	Distance as Barrier	**Yes**	**No**
2.	Money as Barrier	**Yes**	**No**
3.	Whether Medical treatment sought	**No**	**Yes**
4.	Private facility used for hospitalisation	**Yes**	**No**
5.	Health workers give special information on health hazard	**No**	**Yes**
6.	Satisfaction with health services personnel	**No**	**Yes**
7.	Awareness about free health services	**No**	**Yes**
8.	Find government health staff friendly	**No**	**Yes**
9.	Health related indebtedness	**Yes**	**No**
10.	NGO work in the area	**No**	**Yes**
11.	Health care decision making	**No**	**Yes**

Source: Calculations based on Primary Survey in Sagar (December, 2016

6.6.3 Treatment Seeking

Whether a medical treatment is sought reflects both individuals recognition of the disease and capability to access a health care service. Delays in treatment seeking have the potential to affect disease progression, management and outcomes.[323] It is therefore important for a occupational group ridded with chronic and frequently occurring ailment load. Those respondents reported having sought medical treatment for the ailments were coded as '2' i.e. faring better on access scale and those who did not were coded as '1', worse off on the access scale.

6.6.4 Dependence on Private Health facility

Irrespective of the ability to pay, a large section of poor in India seek private health care, which is not only expensive but also lacks trained and skilled manpower as compared to public facilities.[324] In cases of zero insurance cover, use of private health services for in patient services could be drain on the already economically vulnerable occupational group such as Bidi

[323] Alegana, V. A., Wright, J., Pezzulo, C., et al. (2017). Treatment-seeking behaviour in low- and middle-income countries estimated using a Bayesian model. *BMC Medical Research Methodology*, 17(1).

[324] Barik, D., and Thorat, A. (2015). Issues of Unequal Access to Public Health in India. *Frontiers in public health*, 3, 245. doi:10.3389/fpubh.2015.00245

rollers. The cases of hospitalisation in a private health facility were assumed here as a challenge on the access front. The respondents having used private facility for hospitalisation were coded as '1' and those who used public facilities were coded as '2'.

6.6.5 Information about Health Hazard

The primary health personnel ranging from ASHA workers, primary care doctors and staff have preventive role in the rural health care setup. These are mandated to provide for health related information on important determinants of health.[325] Since, the primary care providers are supposed to function a preventive role, this information could be a keystone to it. The respondents who reported never being given such information by the health personnel were coded as '1' and who were given necessary information and advice the respondents were coded as '2'.

6.6.6 Role of civil society organizations, NGO's or trusts

The supportive role of Non-profit or civil society organisations in improving health care facilitation is important in remote rural areas.[326] These are components of social capital which can improve access levels. The respondents who reported having membership or knowledge of such a enterprise were coded as '2' and those who were unaware were coded as '1'.

6.6.7 Awareness about Health Services

Knowledge, education and information are important determinants to appropriate demand and compliance with health services. These also play important intermediary to generate educated health beliefs and prompt health seeking behaviours. Health literacy and awareness about welfare benefits is therefore important to encourage appropriate demand for available health services.[327] Bidi rollers are eligible for numerous benefits under centre and state welfare measures but majority were unaware about these benefits and hence unable to take their benefits. The respondents aware about free health services for them were coded as '2' and not aware were coded as '1'.

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[325] Ministry of Health and Family Welfare, Government of India. (2005). Op cit. p. 103

[326] Ramani, K. V., and Mavalankar, D. (2006). Health system in India: opportunities and challenges for improvements. *Journal of Health Organization and Management, 20(6), 560–572.*

[327] Balarajan, Y., Selvaraj, S., Subramanian, S. (2011). Op cit. p. 102

6.6.8 Behaviour of Staff at Public Health facilities

The quality of health services is as important as their availability for effective utilisation. Understanding the user's satisfaction with the services is therefore important for quality appraisal of the public health services.[328] One such measure is experience with the interpersonal behaviour of staff, their responsiveness and promptness in interaction. These factors have an important bearing on the perception of individuals towards the public health service affecting final utilisation. Those respondents with positive experience were coded as '2' and with a negative experience were coded as '1'.

6.6.9 Health Related Decision Making

In a highly patriarchal and conservative societal structure such as Bundelkhand, it was important to gauge on the decision making power of women in the health sphere. [329] This is not only a proxy of power relations at home but also direct autonomy to avail help on health issues, especially for self. The respondents reporting free hand in decisions related to health care were coded as '2' and for those faced constraints were coded as '1'.

6.6.10 Health Related Indebtedness

The low level of health protection and close to no social security forced Bidi households into out of pocket expenditure or health related borrowings. Large out-of-pocket payments have a tendency to divert consumption expenditure from essential goods and services and push households into poverty.[330] Health induced indebtedness reflects a huge gap in affordable health care delivery and health insurance coverage. The respondents with health related borrowings were coded as '1' and those with no such borrowings were coded as '2'.

This is how accessibility level in the health sphere were captured through proxy indicators. The proxy indicators were summated to create respondent level scores of access to health care.

[328] Bhattacharyya, S., Issac, A., Rajbangshi, P. et al. (2015). "Neither we are satisfied nor they"-users and provider's perspective: a qualitative study of maternity care in secondary level public health facilities, Uttar Pradesh, India. *BMC Health Services Research*, 15(1).

[329] NITI Aayog (2012). Op cit. p. 64

[330] Ahmad, N., and Aggarwal, K. (2017). Op cit. p. 11

These are further used to derive insights on associated factors and drivers in the precarious work domain.

6.7 Precarious Work and Health Vulnerability

Precariousness in work is an important determinant of health as its potential effects on labour life, are very many. It may be a source of exposure to not only physical, hygiene, ergonomic and psychosocial hazard, but the main axes that shapes the life and identity of labour. The very reason it is also called the determinant of determinants for the health domain.

Sub-standard or vulnerable work conditions can have negative cascading effects on work, housing, nutrition, education of dependents and social capital. Each in itself a complex determinant of health. Also, the nature of employment precariousness can have snowball effects on not only the labour but also well being and quality of life of their families and communities. With such complex backward and forward linkages of work sphere with other social determinants of health, the potential benefits reversing precariousness levels in work would be equally large in footprint.[331]

The conceptual limitations with one- dimensional approaches to capture complete picture of precariousness is discussed earlier. As there are overarching effects of work, the measuring approach has to be multidimensional. There is a identified need to develop appropriate indicators, constructs, surveillance systems and understanding of the pathways and mechanisms that link employment and health. [332]

In view of this, multiple facets of work precariousness were captured into composite indices. Similarly, components of health state and access levels were collated into composite indices. This section brings together these unique indices and the picture they carry of illness, accessibility and precariousness in work. It is now seen how the elements of each are inter-related and if they are inter-related and associated, how strong these associations are and how they may be playing out. This section delves on the following four questions:

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[331] Vives, A., Amable, M., Ferrer, M., et al. (2013). Employment precariousness and poor mental health: evidence from Spain on a new social determinant of health. *Journal of environmental and public health, 2013*, 978656.

[332] Benach, J., Muntaner. C, Solar, O. (2007). Op cit. p. 2

One : Whether there are any statistical associations between the hypothesised dependent and independent variables and in what direction?

Two: What are the strengths to these co-relations, if any?

Three: What are the significant individual elements of precariousness that affect health or accessibility?

Four: Analyse the pathways and mechanisms of precarious work elements affecting health and access spheres.

The indices developed above created a composite value of illness, access and precariousness dimensions for each of the Bidi rolling subjects are put to test of association in the following sub sections.

6.7.1 Illness, Health Accessibility and Precarious Work: Correlations

As hypothesised running bivariate correlation between the dependent variables: illness and access and independent variables: PI and PA scores; supporting findings came out.

Table 6.5 depicts the correlation coefficients between 1) Illness Index and PI (Precariousness Illness) Index 2) Accessibility Index and PA (Precariousness Access) Index. The correlation coefficient of -0.273** (p = 0.001) clearly depicts a statistically significant, positive correlation between illness and precariousness. It is this moderately positive correlation that tests successfully the hypothesis- precariousness in work has a negative effect on labour health.

As we have already seen the group is highly morbid and also precarious work is aggravating the illness, the access to affordable, personalized and quality care gets all the more crucial. It was therefore, attempted to see how precarious work characteristics play upon the question of accessibility.

Table 6-5 Precarious Work, Health Status and Health Access in Bidi Rolling : Trends in Association

Dependent Variable	Independent Variable	Spearman Correlation Coefficient	p value	Linear Regression Coefficient	p value
Illness Score	Precariousness Illness Score	0.273***	0.001	0.232***	<0.05
Health Access Scores	Precariousness Access Score	-0.326***	0.001	-0.412***	<0.05

Source: Calculations based on Primary Survey in Sagar (December, 2016)

A simple correlation between PA Index and Accessibility Index gives a moderate negative coefficient of -0.326 (p = 0.001). Hence, the hypothesis of disenabling effect of precarious work on accessibility to healthcare is verified with a strong statistical significance. An increase in precariousness showed negative effect on both health status and access to health care. This negative relationship was stronger with access to health than even ill health.

How strongly the independent variable of work precariousness affected dependent variables of access and illness was further tested. A simple linear regression model was then run to check on the unstandardized regression coefficients. The unstandardized regression coefficient "β" of -0.412 (p = <0.05) between predictor PA Index and outcome Accessibility Index depicts that each unit increase in precariousness element was likely to decrease accessibility score by 41.2%. Similarly, unstandardized regression coefficient "β" of 0.232 (p = <0.05) with predictor as PI Index and dependent as Illness index was obtained. It indicated how an increase in unit precariousness score could increase illness scores by 23%.

6.7.2 Precariousness Elements affecting Illness and Access to Healthcare

It was also critical to see as to what factor elements in these grouped precarious indices were significantly leading to difference in illness and accessibility levels. For the same, the Independent samples t Test was put to use. It was used to compare the means of illness and access indices with varying degree of precarious factor, low and high.

Table 6.6. tabulates the means of illness scores across PI Index indicators. The t- statistic here denotes differences in illness means of respondents with varying degree of precariousness factor. The precariousness factors being engagement years, taking adequate breaks, perception if people respect their work, income through Bidi etc. as tabulated in Section 6.4.

The overall negative effect on health was verified by the correlation results in the previous sub section. Table 6.6. shows the means of illness scores varying across precariousness illness indicators. Hence, showing which of them stood out to play a part in the overall negative effect on illness status.

In case of illness, predominant factor that came was the length of time spent each day and engagement in Bidi over the years. The t value of -3.579 (p= <0.05) for engagement years and t value of -1.976 (p = <0.05) for number of hours spent in Bidi rolling, corroborated the negative effect of length of exposure.

Interestingly, doing the activity alone or in a group, t value = 2.086 (p=<0.05) also played a role in illness effects. It was observed that women doing the activity alone, were more are prone to ill health. Group activity which can bring a sense of collective, therefore, was established as anti thesis to precarious work in Bidi sector.

Table 6-6 Differences in means of Illness Scores grouped by Precariousness Illness (PI) factors

Grouped on the basis of	**F**	**Sig.**	**t value**	**df.**	**Sig. (2 tailed)**
Income through Bidi	.133	.716	.544	266	>0.05
Perception about respect	8.182	.004	-1.734	266	>0.05
Special information on hazard	1.306	.254	1.857	384	>0.05
Take adequate breaks	1.717	.191	3.000	266	<0.05
Aware about hazard	.211	.646	1.793	265	>0.05
Use protective gear or not	2.772	.097	-2.541	259	<0.05
Bidi activity alone or in a group	3.500	.062	2.086	265	<0.05
Separate room for Bidi Rolling	2.665	.104	-.034	266	>0.05
Number of Hours spent in rolling	1.855	.174	-1.976	265	<0.05
Engagement Years	2.050	.153	-3.579	266	<0.05

Source: Calculations based on Primary Survey in Sagar (December, 2016)

Taking adequate breaks, t value = 3.000 (p value=.003) was an important factor, showing positive effect on health status. The awareness about the work being hazard, t value=1.793 (p value= <0.05) also caused an illness score difference and hence became an important factor. The perception of whether the society respected their livelihood had a significant t value = -1.734 (p value= >0.05), although not statistically significant. Income differences, however did not show any difference over illness.

Table 6-7 shows the means of accessibility score varying across precariousness access indicators (PA Index). In the accessibility picture, income factor as well as decision making and autonomy in money matters stood out. The t value = 3.751 (p value= <0.05) for monthly household income and t value = 3.483 (p value= <0.05) for monthly wage through Bidi work revealed the importance of monetary soundness in the access framework. The money related decision making capacity was also found to be crucial for managing access to health care. It did make a difference in the access with a t value of 2.160 (<0.05). Another aspect of income earning potential was possession of alternate skills, which could also lower the dependence on Bidi work; the t statistic = 3.336 (p value= <0.05).

Other factors that fared with statistical significance were- attending Gram Sabha and if the Sattedar helped in getting Bidi ID. The Sattedar's help was found to be crucial for Bidi households to improve health support with a t value= 2.194 (p value= <0.05). Whether the respondent attended Gram Sabha or not was intended to bring out aspects of societal position, say in the community and also strength of social capital. It was found to have a crucial effect , t value=2.046 (p value= <0.05). The source of work whether through a branch or a middlemancontractor did not seem to change things on access axis; neither did possession of Bidi ID (t= 1.440, p =>0.05). This was primarily because the utilization of Bidi card was significantly low and association with a Bidi branch than a Sattedar was equally ineffective in securing better health access.

Table 6-7 Differences in mean of Accessibility Scores grouped by Precariousness in Accessibility (PA) factors

Grouped on the basis of	**F**	**Sig.**	**t value**	**df.**	**Sig. (2 tailed)**
Source of Work	2.871	.091	.021	259	>0.05
Possession of Bidi ID	6.186	.014	1.440	259	>0.05
Alternate skills possessed	.041	.841	3.336	259	<0.05
Monthly Income	.071	.897	3.751	259	<0.05
Monthly wage through Bidi	.138	.711	3.483	259	<0.05
Wage change wanted	.679	.411	1.142	259	>0.05
Attend Gram Sabha	3.823	.052	2.046	259	<0.05
Media awareness	3.127	.078	1.668	259	<0.05
Awareness health hazard	1.669	.198	.203	259	>0.05
Awareness equal remuneration	.000	.996	-.080	259	>0.05
Welfare benefits wanted	.139	.710	-.422	259	>0.05
Awareness collective bargaining	12.790	.000	2.615	259	>0.05
Money related decision making	.535	.465	2.160	259	<0.05
Rate of rejection of Bidi	.003	.958	1.797	259	>0.05
Choice of continuing work	.679	.411	1.142	259	>0.05
Help in getting ID card	6.943	.009	2.194	259	<0.05
Work earnings better without Sattedar	4.994	.026	1.652	259	>0.05

Source: Calculations based on Primary Survey in Sagar (December, 2016)

6.8 Conclusions

- The determinants to health status and health care access among women Bidi rollers of Sagar were far from linear or unidimensional. Apart from the ailment load of bones, joints, eyes, lungs and stomach, the unusual chronicity of ailments and worse psychological health was reflective of factors working beyond the physical work

hazard. The compromised access to health care was as much a result of informal and unrecognised work relations as weak social capital and social status.

- Bidi rolling sector was riddled with multiple surface and sub surface work related factors which affected the health sphere of workers in multifarious overlapping ways. The range of determinants of health and access working in the Bidi rolling sector required an equally well encompassing construct to carry out an occupational health study. The 'precarious employment' construct with the advantage of multi-factor framework was found suitable to this need.
- The multiple dimensions of work precariousness associated Bidi rolling were seen to have both subtle and profound effects on health status and accessibility to health among women workers. The precarious elements in Bidi work were identified as demographic bias in work concentration, powerlessness of workers, fuzzy work relations, aspirational deficit, physical hazard, weak social capital and economic peril, all having a complex web of interplay on health and health access of women workers.
- There exists a demographic bias in Bidi rolling with major share of work concentration among women of lower castes. The low societal position in a conservative and patriarchal Bundelkhand society makes them internalise and accept the unfair wages and absence of social security easily, without any sign of protest. Most women start off young as helpers to become full fledged Bidi workers supporting family income through this work. This plays a role in lengthening the period and severity of hazard exposure, low decision making autonomy for health related decisions, subtly creeping in their self assessment of their own health.
- The powerlessness in terms of collective strength, no alternate skills or employment opportunity and acute illiteracy always kept them at the mercy of Sattedars. This kept them constantly vulnerable and fearful of losing work on raising any sign of protest or rightful demands against their employer. This constricted position with no sign of promotion or betterment in wages in all possible ways affected their self perception about health and weakened negotiating power for improved health access.
- The direct health risks associated with tobacco exposure and poor ergonomics got displayed in the ailment profile of Bidi rollers. Besides, the extreme toil with aggravated health risk did not give commensurate economic rewards. The effort reward imbalance was seen resulting in poor self assessment of health, chronicity of health issues.

- Moreover, un-defined and unregulated work relations failed to provide social coverage and health protection which led to conditions of health induced indebtedness. A large number of workers worked under the middleman supplying Bidi to unregistered firms and small firms always looking to evade tax and protective labour laws. This made the work relations highly precarious with no accountability on part of employees.
- The buffering role of social capital in terms of political participation or non-profit/non governmental organisations was found missing due to their invisible and unrecognised work status. The sector was completely unorganised and devoid of collective bargaining measures like Trade Unions. Their involvement in productive wage work did not give them much autonomy in terms of decision making, participation in Gram Sabha, as the rural society remained patriarchal and conservative. The work failed to provide any social capital benefits either, as they remained out of the purview of support by NGO's or other civil society organisations.
- The origins of work precariousness are embedded in the historical, socio-political, geographical factors and the social structures. These processes help in establishing, flourishing and sustaining conditions unfair for labour. A conservative caste rigid rural structure sustains the low position of women in the lower castes. These illiterate, unskilled women with weak choice to migrate, accept the most easily available livelihood i.e. Bidi rolling as their fate. The region's backwardness and failing agriculture dampen any scope for alternate livelihoods. Of which, the Bidi manufacturers take advantage to flourish trade, flouting tax, labour and welfare regulations.
- The factors of caste and gender hierarchy come across as cross cutting factor in all precarious dimensions such as production and power dynamics in the trade. These social relations of gender and caste, ultimately explain complex pathways to health and access to health care in the occupational domain. Further highlighting the significance of social conditions in producing complex precarious work conditions with effect on the health domain.
- The composite indices of precarious elements in work when tested for correlation with illness and access scores gave testimony to the link between precarious work and health sphere. The precariousness dimensions of Bidi rolling work affect health status and access to healthcare negatively, with strength of correlation (r=0.273***) with illness and r=(-0.326***) with access respectively. As per a simple regression analysis, every

unit increase in precariousness in Bidi rolling work (PI and PA Indices), lowered health status by 23% and access by 41% respectively. The coefficients of correlation and regression obtained were all statistically significant.

- It was found that health care access was slightly more sensitive to precariousness in work than illness. Also, the precarious elements that affected health status and access were slightly different. They were related to exposure and length of exposure for health status, whereas those affecting access were related to decision making, monthly income and alternate skills possessed.

Chapter 7

Conclusions and Recommendations

7.1 Conclusions

While literature on health and illness as an entity or discrete aspects of occupation in relation to health are many. The need for a better understanding of the relationship between occupation and health at a holistic level is well recognised.[333] Likewise, the Bidi rolling sector has numerous occupational health studies dedicated to it.[334] However, such studies seldom moved beyond epidemiological profiling of workers placing major share of hazard onus on the tobacco exposure and sedentary work.[335]

The present study started with an objective to evaluate the occupational health scenario in the home-based Bidi rolling sector. However, through the course of this investigation it became evident how this sector was riddled with multiple forms of work precariousness with significant health affecting potential. A deeper analysis into the health effects of these precarious elements showed how they were having a subtle yet long lasting negative effects on the health of women workers. This effect was also wide ranging right from the worker to dependents, their bodies to mind and from capabilities to utilization of affordable, appropriate and quality health care services.

The salient findings and conclusions of this research are following:

- The occupational health hazard associated with Bidi rolling work manifests in two ways, physical and psychological. The peculiar repetitiveness in the nature of ailments, their chronicity, frequency and intensity highlight the physiological health effects of Bidi rolling work. Whereas, the significantly poor self perception of health representative of the psychological health indicates presence and effect of several psycho-social risk factors associated with Bidi rolling work.
- The previous epidemiological studies had found Bidi rolling cohorts highly susceptible to respiratory, musculoskeletal, ocular, dermal, gastro-intestinal ailments.[336] The analysis of nature of ailments in Bidi rolling households in India gave out matching trends. The households with Bidi rolling industry as primary occupation were found to

[333] Wilcock, A. (2007). Occupation and Health: Are They One and the Same? *Journal of Occupational Science* 14 (1), 3-8.

[334] Rout, S., Narayana, K., Sahu,K. et al. (2017). Op cit. 6

[335] Senthil, N and Bharathi, P. (2010). Op cit. p. 75

[336] Ibid.

have high prevalence of acute respiratory infections (11.6%), psychiatric and neurological (8.7%), musculoskeletal (9.4%) and gastrointestinal (6.4%) ailments across India.

- The micro level analysis into the nature of ailments among women Bidi rollers in Sagar also gave out complementary results with high prevalence of identical ailments. The women rollers reported high prevalence of musculoskeletal (52.1%), eye-related (18.4%) respiratory(19.9%), gastro-intestinal(14.9%), nerve-related (19.9%), gynaecological (7.3%) ailments.
- In terms of specific symptoms also, the findings from both secondary data and primary survey matched, with the commonly reported symptoms being joints pain and swelling, breathlessness, headache, chronic cough , bloating and strained burning eyes. Previous literature and narratives of women confirmed that a majority of these symptoms were due to the nature of work, requiring long hours of lumbar bending, sitting in improper posture, exposure to tobacco dust and strenuous hand-eye coordination.
- The ailment characteristics among households dependent on Bidi rolling in India showed they were more chronic, lasting more than 30 days and frequently occurring majority (57.4%) having occurred in the past 15 days. In the Bidi rolling group of Sagar, identical characteristics persisted. These symptoms were on an average more chronic (52%) and frequently occurring (58.5%), also significantly intense in their nature, as women workers suffered from multiple health complaints at the same time.
- The general perpetuity and chronicity in the ailments reported among women rollers could be traced to the tendency of presenteeism, where they overlooked minor symptoms to continue work. Except in acute cases, they did not take a break from work and mostly returned back to work without full rest and recovery.
- Presenteeism indicated how their work participation was less sensitive to health problems and the home-based nature of work blurred the leisure/rest and work boundary, leading to work intensification and also led to involvement of family/children. This trend in a way was also reflective of the piece meal or symptomatic treatment they sought with an intention to feel better enough to get back to work and not miss on the piece rate wage.
- These prolonged manifestation of even minor symptoms, especially in women, had the potential to create long term debilitating effects on the body and even permanent

disabilities as seen in previous literature. [337] The medical officers at the specialised health facility for Bidi workers in Sagar corroborated this as they confirmed commonly receiving cases of Chronic Obstructive Pulmonary Disease, slip disk and compromised lung function patients which were severe form of the common symptoms reported among Bidi rollers.

- There were a number of ways work became a driving factor for health & health determinants in these workers. These were in the form of dislike and dissatisfaction with work, economic compulsion and lack of choice to continue with it despite day to day challenges. Another way, health cropped up in work accounts was due the economic burden it created which was not commensurate with the wages their work accrued. The day to day health troubles of aches, pain and stiffness, were associated with nature of work, which in acute cases would come in way of their work productivity.
- The chronic symptoms, effort reward imbalance, dissatisfaction with work and low to no control over the work environment fared load on their psyche and assessment of self. As a result, many (39.5%) women Bidi rollers in Sagar reported poor self rated health, an indicator correlated with other health indicators such as psychosocial distress, depressive symptoms, mortality etc.[338]
- When compared with a non- exposed group i.e. non-Bidi rollers, the strength of health risk associated with Bidi rolling work transpired. The Bidi rollers were found at a greater risk of eye ailments, gastric ailments, gynaecological , musculoskeletal and eye-related ailments , than the non-Bidi group. In terms of ailment characteristics the Bidi rolling group was also at a greater risk of chronic, frequent and more intense ailments. This group was also found to be at a greater risk of having a poor self assessment of health than the non- exposed group. All these results were statistically significant.
- The ailment profile and risk of chronic ailments spelled out the exceptional health needs among Bidi rolling women. But the informal work structure with weak to no social and health protection created a situation of compromised health access. The trends in access for both in-patient and out-patient care for India and the state of Madhya Pradesh showed poor insurance coverage (up to 37.7%) and high dependence on out of pocket

[337] Messing, K. , Punnett, L. , Bond, M. et al. (2003). Op cit. p. 90

[338] Weyers, S., Peter, R., Boggild, H. et al. (2006). Op cit. p. 83

expenditure (up to 91.7%) to meet treatment costs. In Sagar, Bidi rolling women heavily depended on out of pocket expenditure of borrowings for health expenditure with close to zero insurance coverage among the group.

- Although a good share of usage of public hospitals was observed for in patient or hospitalisation. Out patient care especially related to the regular and chronic issues presented a cause of concern among Bidi rolling women. As compared to in-patient treatment, out patient care was being majorly relied on private health care sources as per both secondary and field level data. Among the women Bidi rollers of Sagar, the need for door step delivery of health led them to rely heavily on private doctors on call and local quacks for their day to day health troubles.
- The share of Bidi rolling women who availed facilities of the Bidi hospital or dispensaries was negligible. The reasons included its far off location and difficult connectivity with villages, unawareness about this special health provision, non possession of Bidi welfare card essential to take treatment at the hospital, struggle full past experience in getting satisfactory treatment from such facility etc. The outreach program or mobile health van facilities statutorily provisioned were in a complete state of dismantle as these remained a unheard phenomena on the ground.
- The major barriers to access that were reported among the Bidi rolling women was of distance to the public/Bidi healthcare facilities, monetary cost to travel long distance bearing wage loss, illiteracy, unawareness about schemes and labor rights and inability to understand procedures and use of various schemes.
- The high dependence on out of pocket expenditure for health related expenditure emerged as a major issue of concern. With meagre wages, lack of liquid assets and no health insurance, this was seen to be pushing Bidi dependent households into health related indebtedness. The sources of borrowing for these health related expenditures were mostly informal i.e. relatives or the *Sattedar* (middleman contractor), which further increased economic vulnerability.
- The Bidi ID card, primary requirement to avail free health services was not possessed by majority women Bidi rollers. The awareness and utilization among those who possessed was also marginal, suggesting that Bidi welfare card is not the panacea to their health troubles. The non-possession was just tip of the ice-berg. Even within the group that possessed the Bidi card, only a miniscule percentage availed the benefits of

the free services, often discouraged by the distance to the Bidi hospital, difficulty in understanding its benefits and claiming reimbursements.

- The onus on Sattedar/middlemen as the assigned person for verification for issuing Bidi welfare cards was found highly misplaced. With abundance of un-registered small manufacturers of Bidi in the region, the Sattedar mostly had a collusion with manufacturer to show lesser number of workers on roll. In this case, helping in getting social security card or welfare card became out of question. The role of Bidi inspectors was also questionable as none of the Bidi rollers reported having known scrutiny visits by them.
- The determinants to health status and health care access among women Bidi rollers of Sagar were far from linear or unidimensional. Apart from the ailment load of bones, joints, eyes, lungs and stomach, the unusual chronicity of ailments and worse psychological health was reflective of factors working beyond the physical work hazard. The compromised access to health care was as much a result of informal and unrecognised work relations as weak social capital and social status.
- Bidi rolling sector was riddled with multiple surface and sub surface work related factors which affected the health sphere of workers in multifarious overlapping ways. The range of determinants of health and access working in the Bidi rolling sector required an equally well encompassing construct to carry out an occupational health study. The 'precarious employment' construct with the advantage of multi-factor framework was found suitable to this need.
- The multiple dimensions of work precariousness associated Bidi rolling were seen to have both subtle and profound effects on health status and accessibility to health among women workers. The precarious elements in Bidi work were identified as demographic bias in work concentration, powerlessness of workers, fuzzy work relations, aspirational deficit, physical hazard, weak social capital and economic peril, all having a complex web of interplay on health and health access of women workers.
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exposure, low decision making autonomy for health related decisions, subtly creeping in their self assessment of their own health.

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manufacturers take advantage to flourish trade, flouting tax, labour and welfare regulations.

- The factors of caste and gender hierarchy come across as cross cutting factor in all precarious dimensions such as production and power dynamics in the trade. These social relations of gender and caste, ultimately explain complex pathways to health and access to health care in the occupational domain. Further highlighting the significance of social conditions in producing complex precarious work conditions with effect on the health domain.
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7.2 Recommendations

- Doorstep health facility through mobile vans is envisioned in the welfare code for the Bidi workers but found absent in rural areas of the Sagar. The need on the ground is to facilitate door step healthcare and screening and also creating more awareness about free health care services such as Bidi hospitals and dispensaries.
- Time and again the health hazards associated with Bidi rolling industry have been enunciated. The Anti-Tobacco lobby is facing challenges with counter arguments under the guise of livelihood protection of the large section of Bidi dependent population in the country. With the multiple health hazards with potential of causing severe debilitating diseases or injuries in the long run, there is an urgent to need to phase out the Bidi manufacturing sector and rehabilitate the dependents to safer and sustainable livelihoods.

- There is an urgent need to regulate the working conditions of rollers who work for unregistered and small Bidi manufacturers out of the purview of labour laws. This should be done through amendments under Bidi and Cigar Welfare Act, regular visits of Bidi Welfare Inspectors, door to door inspection in villages to estimate actual Bidi workers and camps for awareness and welfare card issuing.

In India, the huge informal sector provides huge breeding ground for precarious, unstandardized and unregulated labour sector. Occupational health studies on the labour in this sector are scanty. There is ample scope of research into the nature and characteristics of health issues and effects on health and psychological well being among such invisible workforce. Further studies with sociological perspective to occupational health are required, as without a holistic view of occupation and health, any evidence of this complex relationship is incomplete.

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Appendix

Questionnaire Schedule - English

Declaration:The interview is voluntary. During our visit, we would like to ask you about various aspects of health, work and life. If you choose not to reply any of the questions in this questionnaire, you are free to do so. Of you decide to answer some or all questions, we will use the information only for the purpose of research. People will be able to learn about the health and well-being of people engaged in bidi rolling and the community of the region in general.

Date: S No.

1. C D Block: *(Banda-1/ Sagar-2*)
2. Village Name:
3. Name of the Interviewer:
4. Site interviewed at:
5. Occupation of the respondent:

Principal Occupation ☐ Subsidiary Occupation 1 ☐ Subsidiary Occupation 2 ☐

(Codes Occupation- Bidi Rolling-1, Domestic Work-2, Cultivation-3, Agriculture Labour-4, Allied Agriculture-5, Non-Agriculture Labour-6, Petty shop/Trade-7, Household industry-8, Others-9……)

Basic Details:

6. Name of the respondent: ☐
7. Age:

   *(25 to 35 **-1**, 35 to 45 **-2**, 45 to 55 **-3** , 55 & above **-4**)* ☐

8. Marital Status:

   (Unmarried-1, Married-2, Divorced-3, Seperated-4) ☐

9. Age at marriage ☐

10. Religion:

    (Hindu-1, Muslim-2, Christian-3, Sikh-4, Buddhist-5,

    Jain-6, Tribal-7, Others-8……) ☐

11. Caste: ☐

(SC- 1, ST-2, OBC-3, General-4)

12. Sub Caste:

13. Educational Status:

(Illiterate-1, Literate without formal education-2, Primary-3,

Upper primary-4, Secondary-5, Higher Secondary-6, Graduate/Diploma & above-7)

14. Reason for not attending school or dropping out: *

(Patriarchal norms/family tradition-1, financial constraints-2, marriage- 3, household work/caretaking responsibility-4, Health related issue-5, Started working/earning-6,Others-7……)

Section A Health Issues

	15. Did you (1) or any family member (2) suffer from any of the diseases in the last 365 days?* (Refer Codes)	16. When was the last time it occurred? *(Currently present-1, in the last 1 month-2, in the last 6 months - 3, in the last 1 year-4)*	17. Did you see the doctor for this disease? (*Yes-1, No-2)*	18. Time taken in seeking treatment? *(Treatment not sought-1, 2 to 3 days-2, A week- 3, 15 days-4, a month-5)*	19. How many days did it last? *(few days-1, few weeks-2, few months-3, Chronic/perpetual-4)*	Disease Type and Symptoms: • **Respiratory problems (1)** bronchial asthma (1.1) breathlessness (1.2) tuberculosis (1.3) chronic cough (1.4)throat burning (1.5) tightness in chest (1.6) pain in chest (1.7) • **Osteological problems (2)** Shoulder pain (2.1) Neck pain (2.2) Joint pain (2.3) Cramp in arm (2.4) Swelling in limbs (2.5) Posture problem (2.6) Spondylitis (2.7) Muscle atrophy in extremities of fore limbs (2.8) • **Gastrointestinal Problems (3)** peptic ulcer (3.1) Haemorrhoids (3.2) diarrhoea (3.3) stomach pains including cramps and gas (3.4) loss of appetite (3.5) • **Nervous System Problems (4)** Headache (4.1) Giddiness (4.2) numbness of fingers/body parts (4.3) • **Gynaecological Problems (5)** irregular periods (5.1) heavy menses (5.2) miscarriage (5.3) problems in conception (5.4) • **Skin Related diseases (6)** Leprosy (6.1) hardening of skin in the hands (6.2) fungal infections (6.3) • **Endocrine- (7)** Diabetes (7.1) Thyroid (7.2) • **Kidney and Urinary Tract (8)** Stones (8.1) burning micturition (8.2) urinary tract infections (8.3) • **Heart problems and hyper tension (9)** high and low blood pressure (9.1) chest pain (9.2) heart attack (9.3) • **Cancers of various organs (10)** • **Deficiencies (Such as anaemia. etc) (11)** • **Mental Disorders (12)** • **Eye/Visual Disorders (13)** Eye watering (13.1) Eye burning (13.2) Refractive error/poor vision (13.3) Cataract (13.4) Others (13.5) • **Other symptoms…… (14)**
S.1						
S.2						
S.3						
F.1						
F.2						
F.3						

20. General Perception about your own health? *(Good - 1, Fair - 2, Poor – 3)*

21. Any case of hospitalisation in the past 365 days? *(Self-1, Family/Dependent-2, No-case-3)*

22. If yes, causes *
(Respiratory problems-1, Osteological problems-2, Gastro intestinal-3, Nervous System Problems-4, Gynaecological Disorders-5, Skin Related Diseases-6, Endocrine Disorders-7, Kidney and urinary tract Disorders-8, Heart disease/Hypertension-9, Cancer-10, Deficiencies-11, Mental Disorders 12, Eye /Visual disorders 13, Others 14……..)

23. Type of facility used at the time of hospitalisation?*
(public hospital (incl. PHC/ sub-centres/CHC) - 1, public dispensary (incl. CGHS/ESI/Bidi hospital/Dispensary)–2, private hospital – 3, private doctor – 4,

Others-5……..)

24. Age at first pregnancy

25. Did you or any female in the house suffer from a miscarriage in the last 5 years? *(Yourself-1, in the family-2, no*

26. Any still birth, neonatal deaths or congenital defects in the last 5 years? *(Yourself-1, in the family-2, no case-3)*

27. Last birth in the 5 years was at home-1 or hospital-2?

28. Any case of infant mortality in the last 5 years? *(Yourself-1, in the family-2, no case-3)*

29. If yes, reason*
(preterm birth-1, diarrohea-2, TB-3, Polio-4, Cancer-5, Pnuemonia-6, congenital deformity-7, still birth-8, unknown fevers-9, Others- 10……..)

30. Any case of mortality in the last 5 years? *(Yes-1, No-2)*

31. If yes, what was the cause of death?
(Respiratory problems-1, Osteological problems-2, Gastro intestinal-3, Nervous System Problems-4, Gynaecological Disorders-5, Skin Related Diseases-6, Endocrine Disorders-7, Kidney and urinary tract Disorders-8, Heart disease/Hypertension-9, Cancer-10, Deficiencies-11, Mental Disorders 12, Eye /Visual disorders 13, Others 14……..)

32. How many days of sick leave have you had over the past 1 month? ☐
(none - 1, 1to 3days - 2, 4-7 days - 3, more than a week - 4)

33. Monthly expenditure on health care? ☐
(<Rs 300 -1, Rs300-Rs600 -2, Rs 600-Rs 900-3, > Rs 900 -4)

34. Source of healthcare expenditure?* ☐

(Out of pocket-1, Borrowing/Loan-2, Reimbursement under scheme-3,

Health Insurance-4, Others-5……..)

35. In case of loan or borrowing, source of such a borrowing?* ☐

(Bank/other formal Financial Institution-1, Relatives/Friends-2,

Employer-Sattedar-3, NGO/trust/grouping-4, Others-5……..)

36. Do you use any form of tobacco? ☐
(Smokeless-1, Smoking-2, Non user-3)

37. Does anyone in your family use any form of tobacco? ☐
(Smokeless-1, Smoking-2, Non user-3)

38. Number of meals in a day? ☐
(one-1, two-3, three-3, four-4)

39. In the past one week, how many times did you include any of the following in your meal: milk products, green leafy vegetables, meat/eggs, fresh fruits, pulses? ☐
(not included-1, once-2, twice-3, more than twice-4)

Access to Health Care

40. Do government health workers (ASHA) visit your area? ☐
(*Yes-1, No-2)*

41. Satisfaction about health worker services? ☐
(Highly Satisfied-1, Good but Needs improvement-2, Unsatisfied-3)

42. Whether health worker informs about govt. Programmes, schemes and entitlements ☐
(Yes-1, No-2)

43. Usual source of medical care treatment* ☐

(public hospital (incl. PHC/ sub-centres/CHC) - 1, public dispensary (incl. CGHS/ESI/Bidi hospital/Dispensary)–2, private hospital – 3, private doctor – 4, Others-5……)

44. Problems faced at health facility* ☐

(Behaviour of service provider-1, no diagnostic tests facility available -2, Do not receive medicines-3, Had to wait for longer time-4, facility is far away-5, Lack/non availability of money-6, Unavailability of doctor - 7, Corruption/Bribe-8, No problem-9, Others-10)

45. Do you find the government hospital premises clean? ☐

(Yes-1, No-2)

46. Do you find the government hospital staff friendly and helpful? ☐

(Yes-1, No-2)

47. Did you register at Anganwadi when pregnant? ☐

(Yes-1, No-2)

48. If no why? * ☐

(cultural tradition to deliver at home-1, travel to mother's village-2, discrimination on the basis of caste-3, less road connectivity-4, distance-5, no mode of transportation-6, high out of pocket expenditure-7, corruption/bribe-8, unaware about scheme-9, lack of time due to occupational engagement-10)

49. What type of ration card do you possess? ☐

(BPL-1, APL/Standard-2, Antodaya-3, No Ration card-4)

50. Reason for not having a ration card?* ☐

(Not needed-1, lost-2, difficulties in obtaining card -3, moved but not transferred-4, others-5……..)

51. Have you used it in the last six months? ☐

(Yes-1, No-2)

52. Reason for not using Ration card? * ☐

(irregular supply-1, no time-2, poor quality-3, too far-4, financial constraints-5, denial/discrimination at ration shop-6, Others-7……)

Important Instruction: Fill ONLY IF principal occupation BIDI MAKING.

Section B

53. Duration of engagement in Bidi Rolling work (in years)

    (<5 years-1, 5-9 years-2, 10-19 years -3, 20 and above-4, not recorded-5)

54. How many hours of bidi rolling do you do in a day?

    (2-3 hours **-1**, 4-5 hours **-2**, 6-7 hours **-3**, 7&above **-4**)

Working Conditions:

55. Separate room for rolling bidis?

    (Yes-1, No-2)

56. Do you roll bidis in a group (1) or alone (2) or with a family member (3)?

57. Who takes care of children while you roll bidi? *

    (Yourself/child by the side-1, younger siblings-2, elders/in laws in the family-3, friends/neighbours-4)

58. Do you use any protective gear while rolling bidi/handling raw tobacco or zarda like mask or gloves? *(Yes-1, No-2)*

59. Do you take adequate breaks while working-change positions/ standing / walking/rest your back, eyes, fingers etc. *(Yes-1, No-2)*

60. Mostly for what reason do you take an off from work?*

(Personal ill health-1, Sick in the family-2, Alternate work-3, Leisure-4, Others-5……..)

61. How do you compensate for a day off? *

(Don't compensate-1, Work longer the next day-2, Take family members help-3, borrow bidis from fellow workers-4, Others-5……)

62. Are you aware that such work without adequate protective gear and long duration of exposure can affect your health negatively? *(Yes-1, No-2)*

Work Relations and Occupation

63. Do you have a registration ID? (Yes-1, No-2)

64. Whose name is it in? (Self-1, Husband-2, Mother-3, Mother in law-4, Others-5)

65. At what rate do you sell/deposit your bidis? (Rs/1000 bidi)

66. Source of raw material? *

(Buy your own raw material-1 , sourced through the Sattedar-2, through branch-3)

67. Income through Bidi (per month)

*(<₹ 500 **-1**, ₹500-Rs1000 **-2**, ₹1000-₹ 1500 **-3**, > ₹ 1500 **-4**)*

68. Work sourced through?

(Sattedar 1 /directly Bidi Branch 2)

69. Who introduced you to the Sattedar?* ☐

(Mother in law/husband-1, Other Relatives-2,

Village Sahukar/other influential person-3, Branch Premises-4, Others-5)

70. Did you approach a Sattedar for work **-1** or the Sattedar approach you with work **-2**? ☐

71. <u>Sattedar Perception & Evaluation:</u>

a) Rate of rejection of bidi: ☐

(High-1, Average-2, Low-3)

b) Wage payment: ☐

(Always on time-1, Sometimes delayed-2, Always delayed & irregular-3)

c) Trust on his fairness: ☐

(High confidence-1, Some Confidence-2, hardly any confidence-3)

d) Behaviour/Dealing: ☐

(Good-1, Okay-2, Bad/Rough-3)

e) Ask for extra favours? *(Yes-1, No-2)* ☐

What kind- add comments……..

f) Helped in getting ID card? *(Yes-1, No-2)* ☐

g) Gives Information about welfare benefits? *(Yes-1, No-2)* ☐

h) Gives leeway in crisis/ helps monetarily/lends money *(Yes-1, No-2)* ☐

☐

i) Can you share you problems and grievances before the Sattedar?

(Yes-1, No-2)

72. Do you think work and accruing earning would be better without the Sattedar? ☐

(Yes-1, No-2)

73. Do you deal and talk with the Sattedar yourself-1 or someone else/husband does it-2? ☐

74. Given a choice, would you want to work in a factory premises? ☐

(Mention possible benefits)*(Yes-1, No-2)*

75. Are any minor children/ young girls helping in the bidi rolling work? ☐

(Yes-1, No-2)

76. Whether the health workers and doctors at PHC counsel/give special information about hazards related to your work and precautions to take, make changes in lifestyle? ☐
(Yes-1, No-2)

77. Scheme	Aware	Unaware	Taken advantage *(Yes-1, No-2)*	Problems faced * *(Refer codes)*
Free Health Services for self and family				
Cash in first two pregnancies				
Incentive after sterilization after first two children				
Chashma Pradaan Yojana				
Cancer treatment and travel cost				
Heart PatientTreatment				
Leprosy treatment				
Kidney disease treatment and transplant				
Mental Health Issue				

Health Insurance Scheme				
Education Scholarship for children				
Tuberculosis treatment				
Bidi Work shade and Godown Construction				
Site Seeing/ Holiday Home Scheme				
Bidi Welfare Inspector Visit				

Codes: Problems faced? (Delayed payments-1, understanding issues-2, absence of grievance redressal-3, name not in the worker record/ no bidi registration ID-4, corruption-5, non-grouping/collective mechanism-6, Others-7……..)

78. What would you like to change in this occupation? *

(wages-1, contract system-2, collective bargaining-3, more welfare benefits-4, premises of work-5, rate of raw material-6, Others-7……..)

79. Are you aware of Trade Union or collective bargaining means? *(Yes-1, No-2)*

80. If aware, are you yourself a member of a trade union? *(Yes-1, No-2)*

81. Would you want to be a member of a trade union? (brief about the benefits)

(Yes-1, No-2)

82. Do you think collective bargaining measures could help better your wages, working c[illegible]d welfare benefits? *(Yes-1, No-2)*

83. What led you into this work? *

(*Family Tradition-1, Lack of alternate work/skill-2, Raise in income/extra income-3, Home-based nature of work-4, less travel & interaction with other men-5,Easy to learn-6 Others-7……..)*

Section C

Migration Details

84. Are you a native of this village?
(Yes-1, No-2)

85. If a migrant, how long have you been resident of this village? *(in years)*

86. If a migrant, from which district or which state?

87. Reason for migration*
(marriage-1, lack of employment opportunity-2, low wages-3, caste discrimination-4, Others-5……..)

88. Have you ever thought of migrating out?/ Do you want to migrate out?
(Yes-1, No-2)

89. What could be the possible reasons for migrating out of the place?*
(low wages-1, lack of alternate employment-2, better opportunities for children-3, declining agriculture-4,caste discrimination-5, water scarcity-6, poor connectivity-7, poor living conditions-8, declining work-9, Others-10……..)

Living conditions

90. Type of house/residence?
(Kutccha-1, Semi Pucca-2, Pucca-3)

91. Number of Rooms
(Single-1, Two-2, Three-3, More-4)

92. Number of members in the household:

93. Windows present?

(Yes-1, No-2)

94. Type of fuel used for cooking *

(coke/ coal – 1, firewood and chips – 2, LPG – 3, gobar gas – 4,

dung cake –5, charcoal – 6, kerosene – 7, electricity – 8, others – 9……..)

95. Do you have a separate kitchen?

(Yes-1, No-2)

96. Does the house have electricity connection?

(Yes-1, No-2)

97. Place of defaecation

(Private latrine at home-1, Community toilet-2, Open Field-3)

98. If latrine present, type:

(service pit-1, septic tank/ flush system - 2, others – 3, no toilet-4)

99. Major source of drinking water: *

(tap – 1, tube-well/hand pump-2, tankers - 3, well – 4,

tank/pond – 5, river/canal - 6, others – 7……..)

100. Type of drainage:

(open kutcha - 1, open pucca - 2, covered pucca - 3,

under ground – 4; no drainage – 5)

Asset Details and Work

101. Monthly Household Income:

(less than 2000 -1, 2000 to 5000 -2, 5000-10,000 -3, more than 10,000 -4)

102. Does this household own or cultivate any land?

(Yes-1, No-2)

103. If yes how much (in acres)

104. If owns land, who does the farming?

(family labour-1, hired labour)

105. Of all the cultivated land, is any land irrigated?

(Yes -1, No -2)

106. Do you consume the produce within the family or Sale in market -2 or for both -3?

107. Do you own any livestock such as cows, buffalo, goats or chicken etc.?

(Yes-1, No-2)

108. Did you have any past occupation?* If yes,

(agriculture labour-1, cattle stock keeping-2, home maid-3, construction site-4, any Others-5……..)

109. What are the other possible alternate occupations you could engage in, than the current? *

(Stitching/Weaving/Embroidery-1, Beautician-2, Computer skills-3, Others-4……., None-5)

110. Do you like your work?

(Yes, without a doubt-1, No option but to like it-2, Not at all-3)

111. Given a choice would you wish to continue with this occupation?

(Yes-1, No-2)

112. Do you think people in the family and village community have respect for your work?

(Yes-1, No-2)

113. Is the remuneration adequate for such long hours of work?

(Adequate-1, Should be Higher-2)

114. Do you want your daughter or daughter in law to take up this work? *(Yes-1, No-2)*

115. Are you aware about the Equal Remuneration Act? Minimum Wages Act?

(Yes-1, No-2)

116. Did demonetisation affect your wages? *(Yes-1, No-2)*

If yes, How?.....

Aspects of Social Capital

117. Is there any Civil society organization/ NGO/ Trust in the area working for your welfare/rights? *(Yes-1, No-2)*

118. Are you a member of any of the following? *

(caste association-1,SHG-2, religious/social group-3, credit or saving group-4, NGO-5, any form of cooperative-6, none-7, others-8……..)

119. When was the last you discussed and chatted with fellow women/ women workers about work and other things?

(Yesterday-1, Last week-2, last month-3, don't interact with others-4, don't remember-5)

120. Does networking with fellow workers/women/bidi roller women make you feel empowered/ feel positive/better? *(Yes- 1, No-2)*

121. Do you watch Television? *(Yes-1, No-2)*

122. Do you read newspaper/magazines? *(Yes-1, No-2)*

123. Do you listen to the radio? *(Yes-1, No-2)*

124. Did you vote in the last election? (Pradhani/ Sansadi etc.) *(Yes-1, No-2)*

125. Do you attend the public meeting called by the village panchayat? *(Yes-1, No-2)*

Status of Women

126. Do you have a bank account? *(Yes-1, No-2)*

127. Who operates it?*

(Self-1, Husband-2, Mother in law/in laws-3, Son/Daughter-4, Others-5……)

128. Who takes money related decisions at home?*

(Self-1, Husband-2, Mother in law/in laws-3, Son/Daughter-4, Others-5……)

129. Do you keep your money/wage earnings?*

(Self-1, Husband-2, Mother in law/in laws-3, Son/Daughter-4, Others-5……)

130. Who takes health care decisions (visit to doctor, hospital etc.) for self and dependents? * *(Self-1, Husband-2, Mother in law/in laws-3, Son/Daughter-4, Others-5……)*

131. Can you move out and around in the village without husband and in laws permission?

(Yes-1, No-2)

Any important observations:

Questionnaire Schedule - Hindi

घोषणाः यह साक्षात्कार स्वैच्छिक है। हमारी यात्रा के दौरान, हम आपके स्वास्थ्य, काम और जीवन के विभिन्न पहलुओं के बारे में पूछना चाहते हैं। आप इस प्रश्नावली में किसी भी सवाल का जवाब देने के लिए बाध्य नहीं हैं। आपके द्वारा दिए गए कुछ या सभी सवालों का जवाब हम स्वीकार करते हैं, हम केवल अनुसंधान के उद्देश्य के लिए जानकारी का उपयोग करेंगे। इस तरह भारत वर्ष के लोगों को बीड़ी रोलिंग मे लगे मजदूरों के स्वास्थ्य और परेशानियों के बारे में पता चल पाएगा।

दिनांक **क्रमांकः**

प्रश्नावली अनुसूची

1. सीडी ब्लॉक (बांदा– **1**, सागर– **2**) ☐

2. गांव का नाम

   _____

3. साक्षात्कर्त्ता का नाम

   _____

4. साक्षात्कार का स्थान

   _____

5. प्रतिवादी का व्यवसाय

प्रमुख व्यवसाय ☐ पूरक व्यवसाय– **1** ☐

पूरक व्यवसाय– **2** ☐

(**कोड–व्यवसाय :–** बीड़ी रोलिंग– **1**, घरेलू काम– **2** खेती– **3**, कृषि श्रम– **4**, कृषि से संबंधित अन्य कार्य– **5**, गैर–कृषि श्रम– **6**, दुकान/व्यापार– **7**, गृह उद्योग– **8**, अन्य– **9**.....)

मौलिक जानकारी

6. प्रतिवादी का नाम

   _____

7. उम्र ☐

(25 से 35– **1**, 35 से 45– **2** तथा 45 से 55– **3**, 55 से अधिक– **4**)

8. वैवाहिक स्थिति ☐

(अविवाहित– **1**, विवाहित– **2**, विधवा– **3**, तलाकशुदा/अलग हो चुके– **4**)।

9. विवाह के समय उम्रः_____

10. धर्म/साम्प्रदाय ☐

(हिंदू– **1**, मुस्लिक– **2**, ईसाई– **3** सिख– **4**, बौद्ध– **5**, जैन– **6**, अन्य– **7**.....)

11. जति ☐

(अनुसूचित जाति– **1**, अनुसूचित जनजाति– **2**, अन्य पिछा वर्ग– **3**, सामान्य,– **4**)

12. उप जाति _____

13. शैक्षिक स्तर ☐

(अनपढ़– **1**, औपचारिक शिक्षा के बिना साक्षर– **2**, प्राथमिक– **3**, उच्च प्राथमिक– **4**, माध्यमिक– **5**, (11^{th} or 12^{th}) उच्चतर माध्यमिक– **6**, स्नातक/डिप्लोमा और अन्यअधिक– **7**)

14. स्कूल न जाने या छोड़ने का कारण* ☐

(पुरुष प्रधान समाज/परिवार में परंपरा– **1**, वित्तीय बधाए/पैसे की कमि के कारण– **2**, शादी– **3**, घरेलू काम/ बच्चों या बड़ों की देखभाल/जिम्मेदारी– **4**, स्वास्थ्य से संबंधित कारण– **5**, अन्य– **6**.....)

खंड–अ

स्वास्थ्य संबंधी

	15. आप (1) या किसी भी परिवार के सदस्य (2) पिछले 1 वर्ष में इनमें से किसी भी रोगों से ग्रस्त थे?* (refer codes)	16. पिछली बार यह कब हुआ था ? (वर्तमान में है– **1** पिछले एक महीने में– **2** पिछले छह महीने में– **3** पिछले एक वष र्म– **4**)	17 आपने इस रोग के लिए डॉक्टर को दिखाया था / है? (हां– **1**, नहीं– **2**)	18 पहले लक्षण के बाद डॉक्टर को दिखाने के लिए कितना समय लिया? (डॉक्टर को नहीं दिखाया – **1** दो से तीन दिन– **2** एक हफ्ता– **3** पन्द्रह दिन– **4** एक महीना– **5**)	19 यह रोग कितने दिनों तक रहा? (कुछ दिनों– **1**, कुछ ही हफ्तों– **2**, कुछ महीनों– **3**, जीर्ण / हमेशा रहता है– **4**)	**रोग के प्रकार और लक्षण** 1. **फेफड़ों और सांस लेने की समस्याएं** (1.1) दमा (1.2) सांस लेने में परेशानी (1.3) तपदिक / टी.बी. / क्षय रोग (1.4) पुरानी / लम्बे समय से खांसी (1.5) गले की जलन (1.6) सीने में जकड़न (1.7) सीने में दर्द 2. **हड्डीयों एवं मांसपेशियों की समस्याएं** (2.1) कंधे का दर्द (2.2) गर्दन का दर्द (2.3) जोड़ों का दर्द (2.4) हाथ पैरों में जकड़न (2.5) हाथ पैरों में सूजन (2.6) posture (2.7) spondylitis (2.8) उँगलियों का सिकुड़ जाना (muscle atrophy in fore limbs) 3. **पेट व आंत संबंधी समस्याएं** (3.1) पैप्टिक अल्सर (3.2) बवासीर (3.3) दस्त (3.4) पेट में ऐंठन, भारीपन और गैस (3.5) भूख की कमी 4. **तंत्रिका तंत्र की समस्याएं (Nervous system)** (4.1) सिर दर्द (4.2) चक्कर आना (4.3) उँगलियों या शरीर का सुन्न होना या सिहरना 5. **स्त्री रोग समस्याएं** (5.1) अनियमित समय (5.2) भारी मासिक धर्म (5.3) गर्भपात (5.4) गर्भधारण में समस्याएं 6. **त्वचा सबंधी रोग** (6.1) कुष्ठ रोग (6.2) हाथों की त्वचा का सख्त होना (6.3) फंगल संक्रमण 7. **Endocrine** (7.1) मधुमेह (7.2) थाइराइड 8. **गुर्दे और मूत्र मार्ग की समस्याएं** (8.1) पथरी (8.2) जलन या बार–बार पेशाब आने की इच्छी (8.3) मूत्र मार्ग में संक्रमण 9. **दिल की समस्याएं और हाइपर टेंशन** (9.1) उच्च और निम्न रक्तचाप (9.2) सीने में दर्द (9.3) हार्टअटैक 10. **विभिन्न अंगों के कैंसर** **11. पोषक कमियाँ (एनीमिया आदि के रूप में)** **12.मानसिक विकार** **13 नेत्र संबंधी विकार** (13.1) आँखों में पानी आना (13.2) आँखों में जलन (13.3) चशमा लगना / ठीक से नहीं दिखना (13.4) कैटरैक्ट / मोतियाबिंद (13.5) अन्य..... 11. **अन्य लक्षणों में .....**
S 1						
S 2						
F1.1						
F1.2						
F2.1						

20. आप अपने खुद के स्वास्थ्य को कैसे आंकते हैं? ☐
(अच्छा – **1**, ठीक – **2**, खराब– **3**)

21. पिछले 1 साल में अस्पताल में भर्ती करने का कोई भी मामला है ? ☐
(परिवार– **1** या खुद– **2**, नहीं – **3**)

22. यदि हां तो कारण क्या था ?* ☐

(सांस की समस्या– **1**, हड्डी और मांश पेशियों की समस्या – **2**, पेट व आंत्र– **3**, तंत्रिका तंत्र की समस्याएं– **4**, स्त्री रोग विकार– **5**, त्वचा संबंधी– **6**, Endocrine विकारों– **7**, गुर्दे और मूत्र मार्ग विकार– **8**, हृदय रोग/उच्च रक्तचाप– **9**, कैंसर– **10**, कमियां– **11**, मानसिक विकार– **12**, नेत्र संबंधी विकास– **13**, अन्य– **14**.....)

23. यदि अस्पताल में भर्ती का मामला हो तो किस प्रकार के अस्पताल में भर्ती किया ☐

(सार्वजनिक अस्पताल (सहित पीएचसी/उप सीएचसी)– **1**, सार्वजनिक औषधालय सहित सीजीएचएस/ईएसआई/बीड़ी अस्पताल/औषधालय)– **2** निजीअस्पताल– **3** निजी चिकित्सक– **4**, अन्य– **5**.....)

24. पहली गर्भावस्था के समय उम्र _____

25. क्या आपके घर में किसी भी महिला पिछले 5 वर्षों में गर्भपात हुआ है ? ☐

(खुद का– **1** परिवार की महिला का– **2** नहीं हुआ– **3**)

26. पिछले 5 वर्ष क्या आपके घर में कोई मृत्य/जन्मजात दोष से प्रभावित शिशु पैदा हुआ है ? ☐

(हाँ– **1**, नहीं– **2**)

27. पिछले 5 वर्ष में यदि घर में कोई जन्म हुआ तो वह जन्म कहाँ हुआ? ☐

(घर में हुआ– **1** या अस्पताल में हुआ – **2**)

28. क्या घर में पिछले पाँच वर्ष में किसी 5 वर्ष से कम आयु के शिशु की मृत्यु हुई है ? ☐

(खुद का– **1** परिवार की महिला का– **2** नहीं हुआ– **3**)

29. यदि हाँ तो कारण क्या था * ☐

(समय से पहले जन्म– **1**, टी.बी.– **2**, पोलियो– **3**, कैंसर– **4**, नमोनिया– **5**. जन्मजात विकृति– **6**, मृत्य शिशु का जन्म– **7**, अद्यात ज्वर (unknown fever)– **8**, अन्य– **9**)

30. क्या घर में पिछले पाँच वर्ष में किसी की मृत्यु हुई है? ☐
(हाँ– **1**, नहीं– **2**)

31. यदि हाँ तो कारण क्या था * ☐

(सांस की समस्या– **1**, हड्डी और मांश पेशियों की समस्या – **2**, पेट व आंत्र– **3**, तंत्रिका तंत्र की समस्याएं– **4**, स्त्री रोग विकार– **5**, त्वचा संबंधी– **6**, Endocrine विकारों– **7**, गुर्दे और मूत्र मार्ग विकार– **8**, हृदय रोग/उच्च रक्तचाप– **9**, कैंसर– **10**, कमियां– **11**, मानसिक विकार– **12**, नेत्र संबंधी विकास– **13**, अन्य– **14**.....)।

32. पिछले 1 महीने में बीमारी के कारण काम से कितने दिन छुट्टी लेनी पड़ी ?

(कोई नहीं– **1**, ऐक से तीन दिन– **2**, चार से –सात दिन– **3**, एक हफ्ते से ज्यादा दिनों– **4**)

33. स्वास्थ्य संबंधी मासिक खर्च ?

(300 रुपए– **1**, 300 से 600– **2**, 600 से 900 रुपए– **4**, 900 से आधिक– **5**)

34. स्वास्थ्य संबंधी मासिक खर्च स्रोत ?*

(स्वयं का पैसा– **1**, ऋण– **2**, योजना के तहत प्रतिपूर्ति– **3**, स्वास्थ्य बीमा– **4**)

35. ऋण या उधार, इस तरह के एक उधार के स्रोत से चुकाया ?*

(बैंक/अन्य औपचारिक वित्तीय संस्थान– **1**, रिश्तेदारों/दोस्तों– **2** नियोक्ता/सट्टेदार– **3**, गैरसरकारी संगठन/ट्रस्ट/समूहीकरण– **4**, अन्य. .....)।

36. क्या आप तंबाकू का किसी भी रूप में प्रयोग करते हैं ?

(रिनर्धूम– **1**, धूम्रपान– **2**, गैर उपयोगकर्ता– **3**)

37. आपके परिवार में कोई भी तंबाकू का किसी भी रूप में उपयोग करता है ?

(निर्धूम– **1**, धूम्रपान– **2**, गैर उपयोगकर्ता– **3**)

38. आप दिन में कितनी बार भोजन करते हैं ?

(एक– **1**, दो– **2**, तीन– **3**, चार– **4**)

39. दूध या दूध के पदार्थ, हरी सब्जियां, मांस/अंडे, ताजे फल, दाल, पिछले एक सप्ताह में आपने भोजन में निम्न में से किसी को कितनी बार अपने भोजन में शामिल किया ?

(एक बार– **1**, दो बार– **2**, तीन बार– **3**)

स्वास्थ्य की देख भाल संबंधी जानकारी

40. क्या सरकारी स्वास्थ्य कार्यकर्ता (आशा दीदी) या अन्य आँगनवाडी कार्यकर्ता आपके गांव में आते हैं? (हाँ– **1** नहीं– **2**)

41. स्वास्थ्य कार्यकर्ता की सेवाओं के बारे में संतुष्टि?

(अत्यधिक संतुष्ट– **1**, अच्छा है, लेकिन सुधार की आवश्यकता– **2**, असंतुष्ट– **3**)

42. क्या स्वास्थ्य कार्यकर्ता आपसे संबंधित सरकारी कार्यक्रम, योजनाओं और अन्य अधिकारों के बारे में बताते हैं ?
(हाँ– **1** नहीं– **2**)

43. चिकित्सा देखभाल/उपचार के सामान्य स्रोतः*

(सार्वजनिक अस्पताल (पीएचसी/उप केन्द्रों/सीएचसी सहित)– **1**, सार्वजनकि औषधालय सहित सीजीएचए/ईएसआई/बीड़ी अस्पताल/औषधालय)– **2**, निजी अस्पताल– **3**, निजी चिकित्सक– **4**, अन्य – **5**.....)

44. स्वास्थ्य सुविधा पाने में निम्न में से किन समस्याओं का सामना करना पड़ा ?*

(बुरा व्यवहार– **1**, कोई नैदानिक परीक्षण (test) की सुविधा न होना– **2**, दवाई न मिलना– **3**,

इंतजार का समय ज्यादा होता है– **4**, अस्पताल की दूरी ज्यादा है – **5**, पैसे की कमी या महंगा इलाज– **6**, डॉक्टर की अनुपल्बधता– **7**, भ्रष्टाचार– **8**, कोई दिक्कत नहीं – **9**, अन्य– **10**.....)

45. क्या आपके सरकारी अस्पताल का परिसर साफ रहता है ?
(हाँ– **1**, नहीं– **2**) ☐

46. क्या आप सरकारी अस्पताल में कर्मचारियों को अनुकूल और उपयोगी पाती हैं ?
(हाँ– **1**, नहीं– **2**) ☐

47. गर्भावस्था के समय, आंगनवाडी में रजिस्ट्रेशन किया गया था ?
(हां– **1**, नहीं– **2**)

48. नहीं तो क्यों ?* ☐

(सांस्कृतिक परंपरा के अनुसार घर पर ही जनन– **1**, जनन करने के लिए मां के गांव– **2**, भेदभाव के कारण (जाति आदि)– **3**, कम सड़क कनेक्शन– **4**, दूरी– **5**, परिवहन– **6**, जेब से ज्यादा खर्च– **7**, भ्रष्टचार/रिश्वत– **8**, सरकारी स्कीम से अनजान – **9**, व्यवसाय के कारण समय की कमी– **10**)

49. आप राशन कार्ड में किस प्रकार के श्रेणी में हैं ? ☐

(बी.पी.एल.– **1**, ए.पी.एल./मानक– **2**, अन्त्येदोय– **3**, कोई राशन कार्ड नहीं– **4**)

50. राशन कार्ड न होने का कारण ?* ☐

(जरूरत नहीं– **1**, खो गया– **3**, कार्ड बनवाने में देरी/भ्रष्टाचार/रिश्वत– **3**, ट्रांसफर नही करवाया– **4**, अन्य– **5**.....)

51. क्या आपने पिछले 6 महीने में राशन कार्ड का इस्तेमाल किया है ? ☐
(हां– **1**, नहीं– **2**)

52. यदि नहीं, तो कारण ?* ☐

(राशन आने की अनिश्चितता/अनियमित आपूर्ति– **1**, समय नहीं– **2**, खराब गुणवत्ता– **3**, बहुत दूर होने के कारण– **4**, वित्तीय बाधाएं– **5**, राशन मिलने में भेदभाव – **6**, अन्य– **5**.....)

महत्वपूर्ण निर्देश : यदि प्रमुख व्यवसाय बीडी बनाना हो तभी यह खण्ड भरें।

खण्ड–बी

53. बीड़ी बनाने में बिताई गई अवधि (वर्षों में) ☐

(<5 साल – **1**, 5– 9 साल – **2**, 10– 19 साल – **3**, 20 साल से अधिक – **4**, दर्ज नहीं – **5**)

54. आप दिन में कितने घण्टे बीड़ी बनाती हैं ? ☐

(2–3 घंटे– **1**, 4–5 घंटे– **2**, 6–7 घंटे – **3**, 7 से अधिक – **4**)

काम करने की स्थिति

55. बीड़ी बनाने के लिए अलग कमरा ? ☐
(हाँ – **1**, नहीं – **2**)

56. आप एक समूह में **(1)** या अकेले में **(2)** या परिवार के किसी सदस्य के साथ **(3)** बीड़ी बनाते हैं ? ☐

57. जब आप बीड़ी बनाते हैं तो बच्चों की देखभाल कौन करता है ? * ☐

(खुद– **1**, छोटे भाई–बहनें – **2**, परिवार में बड़े /ससुराल वाले– **3**, दोस्त/पड़ोसी – **4**)

58. क्या बीड़ी बनाते समय या जर्दा इस्तेमाल करते समय किसी मास्क या दस्ताने का इस्तेमाल करते हैं ? ☐
(हाँ – **1**, नहीं – **2**)

59. क्या आप काम के बीच में उंगलियों/पीठ/आंखों को आराम देते हैं ? ☐
(हाँ – **1**, नहीं – **2**)

60. ज्यादातर किस कारण के लिए आप काम से छुट्टी लेते हैं ? * ☐

(स्वतः बीमार होना– **1**, परिवार में बीमारी के कारण – **2**, कोई दूसरी मजदूरी/काम– **3**, आराम/अवकाश/मन बहलाने के लिए – **4**, अन्य कारण – **5**.....)

61. छुट्टी के बाद काम की भरपाई कैसे करते हैं ? ☐

(नहीं करते– **1**, अगले दिन ज्यादा काम करके– **2**, परिवार वालों की मदद लेकर– **3**, साथी श्रमिकों से बीडी उधार लेकर – **4**, अन्य– **5**.....)

62. क्या आप जानते हैं कि पर्याप्त सुरक्षात्मक गियर के बिना लंबी अवधि के लिए इस तरह का काम और जोखिम आपके स्वास्थ्य को नकारात्मक रूप से प्रभावित कर सकता है ? ☐
(हाँ – **1**, नहीं – **2**)

काम संबंधी ब्यौरा

63. क्या आपके पास बीडी श्रमिक रजिस्ट्रेशन आई.डी. हैं ? ☐
(हाँ – **1**, नहीं – **2**)

64. यदि हां तो किसके नाम पर है ? ☐

(स्वयं– 1, पति– 2, माँ– 3,
सास– 4, अन्य – 5.....)

65. आप किस रेट/भाव में बीडी बेचती/जमा करती हैं ? _____(रुपये/1000 बीड़ी)

66. बीड़ी बनाने का माल आपके लिए कौन खरीदता है? ☐

(आप खुद – 1, सट्टेदार के माध्यम से– 2 या बीड़ी शाखा से प्राप्त करती है – 3)

67. बीड़ी से मासिक आय ☐

(<₹ 500 – 1, ₹ 500 से ₹ 1000– 2, ₹ 1000 से ₹ 1500– 3, > ₹ 1500– 4)

68. काम लेने का माध्यम क्या है ? ☐
(सटेदार – 1, सीधे बीड़ी शाखा – 2)

69. आपका सट्टेदार से किसने परिचय करवाया ?* ☐

(सास/पति– 1, अन्य रिश्तेदार– 2, गांव का साहूकार/अन्य प्रभावशाली व्यक्ति– 3, शाखा परिसर में हुआ – 4, अन्य – 5.....)

70. क्या आपने सट्टेदार से स्वयं जाकर– 1 काम मांगा या सट्टेदार ने आपको काम के लिए संपर्क किया – 2 ? ☐

71. **<u>सट्टेदार बोध और मूल्यांकन</u>**

a. अस्वीकृति का दर (Rate of rejection of Bidis) ☐

(अत्यधिक– 1, औसत – 2, कम – 3)

b. सट्टेदार मजदूरी भुगतान ☐

(हमेशा समय पर– 1, कभी कभी देर से – 2, हमेशा देरी और अनियमित– 3)

c. सट्टेदार की निष्पक्षता पर भरोसा ☐

(उच्च विश्वास – 1, थोड़ा विश्वास– 2, कोई विश्वास नहीं– 3)

d. सट्टेदार का व्यवहार/लेनदेन ☐

(अच्छा– 1, ठीक– 2, बुरा/खराब– 3)

e. सट्टेदार आपसे अतिरिक्त एहसान/काम की ☐
मांग करता है?
(हाँ – 1, नहीं – 2) टिप्पणी जोड़ें.....

f. सट्टेदार ने आपकी आई.डी. कार्ड प्राप्त करने में मदद की है ? ☐
(हाँ – 1, नहीं – 2)

g. सट्टेदार आपको सरकारी कल्याण योजनाओं के लाभ के बारे में जानकारी देता है ? ☐
(हाँ – 1, नहीं – 2)

h. सट्टेदार आपको संकट में छूट/पैसे/पैसा उधार देता है/मदद करता है? ☐
(हाँ – 1, नहीं – 2)

i. क्या आप सट्टेदार से अपनी समस्याऐं और शिकायत बता सकती हो ?
(हाँ – 1, नहीं – 2) ☐

j. क्या आपको लगता है काम और कमाई सट्टदार के बिना बेहतर होगी ?
(हाँ – 1, नहीं – 2) ☐

72. क्या आपको लगता है कि सट्टेदार के बिना आपका काम और कमाई बेहतर होगी? ☐
(हाँ – 1, नहीं – 2)

73. आपके काम से संबंधित बात सट्टेदार से कौन करता है? ☐
(खुद करती है – 1 या किसी और के द्वारा– 2)

74. क्या आप एक फैक्टरी परिसर में बीडी का ☐ करना चाहेंगी ?
(संभव लाभ का उल्लेख)
(हाँ – 1, नहीं – 2)

75. क्या घर में कोई बच्चे या युवा लड़कियां बीड़ी बनाने में मदद कर रहे हैं ? ☐
(हाँ – 1, नहीं – 2)

76. क्या स्वास्थ्य कार्यकर्ता या डॉक्टर आपको बीड़ी के काम से स्वास्थ्य खतरों और सावधानियों से संबंधित कोई विशेष जानकारी देते हैं ? ☐
(हाँ – 1, नहीं – 2)

77. योजना	अवगत	अनजान	फायदा उठाया (हाँ– 1, नहीं– 2)	समस्याओं का सामना (कोड में देखें)
स्वयं और परिवार के लिए निःशुल्क स्वास्थ्य सेवा				
पहले दो गर्भधारण में कैश				
पहले दो बच्चों के बाद नसबंदी के बाद प्रोत्साहन				
चश्मा प्रदान योजना				
कैंसर के इलाज और यात्रा की लागत				
दिल के रोग का इलाज				
कुष्ठ रोग उपचार				
गुर्दे की बीमारी के इलाज और प्रत्यारोपण				
मानसिक स्वास्थ्य के विषय				
स्वास्थ्य बीमा योजना				
बच्चों के लिए शिक्षा छात्रवृत्ति				
क्षय रोग उपचार				
बीड़ी काम छाया और गोदाम निर्माण				
साइट सींइग/हॉलिडे होम स्कीम				
बीड़ी कल्याण निरीक्षक				

कोडः– <u>समस्याओं का सामना</u> (विलंबित भुगतान– **1**, लाभ समझने में परेशानी– **2**, शिकायत निवारण के अभाव – **3**, श्रमिक रिकॉर्ड में नाम न होना / पंजीकरण I.D. न होना – **4**, भ्रष्टाचार/रिश्वत – **5**, गैर समूहीकरण/सामूहिक तंत्र– **6**, अन्य – **7**.....)

78. आप इस व्यवसाय में क्या परिवर्तन चाहती हैं?* ☐

(मजदूरी – **1**, (contract system change) अनुबंध प्रणाली– **2**, (collective bargaining) सामूहिक सौदेबाजी – **3**, अधिक कल्याणकारी लाभ– **4**, काम का परिसर – **5**, कच्चे माल का भाव – **6**, अन्य – **7**.....)

79. क्या आप ट्रेड यूनियन या सामूहिक सौदेबाजी का अर्थ समझते हैं ? ☐

(हाँ – **1**, नहीं – **2**)

80. यदि अवगत हैं, तो क्या आप एक ट्रेड यूनियन के सदस्य हैं ? ☐
(हाँ – **1**, नहीं – **2**)

81. आप एक ट्रेड यूनियन का सदस्य होना चाहती हैं ? (लाभों के बारे में संक्षिप्त) ☐
(हाँ – **1**, नहीं – **2**)

82. क्या आपको लगता है कि सामूहिक सौदेबाजी के उपायों से अपकी मजदूरी, काम की परिस्थितियों और कल्याण के लाभ बेहतर हो सकते हैं ? ☐
(हाँ – **1**, नहीं – **2**)

83. आपने यह काम कैसे शुरू किया? * ☐

(परिवार की परंपरा – **1**, वैकल्पिक कार्य/कौशल की कमी – **2**, अधिक आय– **3**, काम की गृह आधारित प्रकृति– **4**, कम यात्रा और अन्य पुरुषों से कम बातचीत– **5**, काम सीखना आसान– **6** अन्य – **7**.....)

खण्ड– सी

प्रवासन के दौरान विवरण

84. आप इस गांव के मूल निवासी हैं? ☐
(हाँ – 1, नहीं – 2)

85. यदि स्थानान्तरित (migrated) हैं, तो इस गांव में कब से निवास कर रहे हैं ? (सालों में)
_____

86. यदि स्थानान्तरित (migrated) हैं, तो किस जिले से किस राज्य से हैं ?
_____

87. पलायन का कारण* ☐

(शादी– 1, रोजगार के अवसर की कमी– 2, कम मजदूरी – 3, जातिगत भेदभाव– 4, अन्य कारण– 5.....)

88. क्या आपने यहां से बाहर पलायन के बारे में सोचा है ?
(हाँ – 1, नहीं – 2) ☐

89. इस जगह से बाहर पलायन करने के लिए संभावित कारण क्या हो सकते हैं ? * ☐

(कम मजदूरी – 1, वैकल्पिक रोजगार की कमी– 2, बचां के लिए बेहतर अवसर – 3, घट रही कृषि– 4, जातिगत भेदभाव – 5, पानी की कमी – 6, खराब कनेक्टिविटी– 7, खराब रहने की स्थिति– 8, घटता काम– 9, अन्य 10.....)

रहने की स्थिति

90. घर/निवास के प्रकार ? ☐
(कच्चा– 1, अर्ध पक्के – 2, पक्के – 3)

91. कमरों की संख्या ☐
(सिंगल– 1, दो – 2, तीन– 3, अधिक– 4)

92. घर में सदस्यों की संख्याः
_____

93. घर में खिड़कियां हैं ?
(हाँ – **1**, नहीं – **2**)

94. खाना पकाने के लिए इंधन का प्रकार*

(कोयला– **1**, जलाऊ लकड़ी और चिप्स – **2**, एलपीजी – **3**, गोबर गैस – **4**, उपला – **5**, लकड़ी का कोयला – **6**, मिट्टी का तेल – **7**, बिजली – **8**, अन्य – **9** .....)

95. घर में रसोईघर अलग कमरे में है ?
(हाँ – **1**, नहीं – **2**)

96. घर में बिजली का कनेक्शन है ?
(हाँ – **1**, नहीं – **2**)

97. शौच के लिए आप कहा जाते हैं ?

(निजी शौचालय – **1**, सामुदायक शौचालय – **2**, खुले मैदान – **3**)

98. अगर घर में ही शोचालय है तो उसके <u>विस्तारण की व्यवस्था</u> (Disposing off) कैसी है?*

(सर्विस पिट– **1**, सेप्टिक टैंक/फ्लश सिस्टम– **2**, अन्य– **3**, कोई शौचालय नहीं है– **4**)

99. पेयजल का मुख्य स्रोत क्या है?*

(नल – 1, ट्यूबेल/हैण्ड पंप – **2**, टैंकर – 3, कुंआ– 4, तालाब– **5**, नदी/नहर – 6, अन्य – **7** .....)

100. जल निकासी (drainage) के प्रकारः

(खुला व कच्चा – **1**, खुला व पक्का – 2, कवर पक्का– 3, अण्डरग्राउन्ड– 4, कोई जल निकासी नहीं – 5)

<u>भूमि संपत्ति और व्यवसाय का विवरण</u>

101. घर की मासिक आय

(2000 से कम – **1**, 2000 से 5000 – **2**, 5000 से 10000 – **3**, 10000 से ज्यादा – **4**)

102. क्या आप अपनी या किराए की जमीन पर खेती करते हैं ?
(हाँ – **1**, नहीं – **2**)

103. यदि हाँ कितनी (एकड़ में) जमीन है ?

104. यदि जमीन है तो, खेती कौन करता है ?

(परिवार वाले– **1** किराए के लेबर– **2**)

105. आपके खेती में सिंचाई (बारिश के अलावा) का कोई स्रोत है ?
(हाँ – **1**, नहीं – **2**)

106. खेती की उपज परिवार के इस्तेमाल के लिए– **1** बाजार में बेचने के लिए– **2**, दोनों– **3** के लिए इस्तेमाल करते हैं ?

107. आप गाय, भैंस, बकरी या चिकन इत्यादि के रूप में किसी भी पशुओं के मालिक हैं?
(हाँ – **1**, नहीं – **2**)

108. क्या आप पूर्व में किसी अन्य व्यवसाय से जुड़े थे ? अगर हाँ तो किसमें ? *

(कृषि श्रम– **1**, पशु सम्भालना – **2**, घर नौकरानी – **3**, मकान बनाने में मजदूरी– **4**, किसी – **5** ..... ।)

109. अन्य संभावित वैकल्पिक व्यवसाय जो आप कर सकती हैं ? (alternate skills) *

(सिलाई– **1**, बुनाई – **2**, ब्यूटीशियन– **2**, कम्प्यूटर कौशल – **3**, अन्य– **4** ....., कोई नहीं – **5**)

110. क्या आपको अपना काम पसंद हैं ?

(हाँ बिल्कुल– **1**, मजबूरी में करना पड़ता है – **2** बिल्कुल नहीं – **2**)

111. अगर विकल्प दिया जाए तो क्या आप इस व्यवसाय को जारी रखना चाहेंगी?
(हाँ – **1**, नहीं – **2**)

112. क्या आपको लगता है परिवार और गांव समुदाय में लोग आपको इस काम के लिए सम्मान देते है ?
(हाँ – **1**, नहीं – **2**)

113. क्या आपको जो पारिश्रमिक/मजदूरी मिलती है वह पर्याप्त है ?

(पर्याप्त है– **1**, अधिक होना चाहिए – **2**)

114. क्या आप अपनी बेटी या बहु को यह काम करते हुए देखना चाहेंगी ?
(हाँ – **1**, नहीं – **2**) ☐

115. आप समान पारिश्रमिक अधिनियम /न्यूनतम मजदूरी के बारे में जागरुक हैं?
(हाँ – **1**, नहीं – **2**) ☐

116. क्या नोटबंदी से आपकी आमदनी पर कोई असर पड़ा है?
(हाँ – **1**, नहीं – **2**) ☐

अगर हाँ तो कैसे?

_____

सामाजिक पूंजी के पहलू

117. क्या आपके गॉव क्षेत्र में कोई नागरिक समाज संगठन/गैर सरकारी संगठन/ट्रस्ट अथवा अन्य, आपके अधिकारों के लिए काम कर रहे है ? ☐
(हाँ – **1**, नहीं – **2**)

118. आप निम्न में से किसी भी एक के सदस्य हैं? * ☐

(जाति संघ– **1**, एस.एच.जी. – **2**, धार्मिक/सामाजिक समूह – **3**, क्रेडिट या बचत समूह – **4**, एनजीओ– **5**, सहकारी संगठन – **6**, कोई नहीं– **8**, अन्य– **8**.....)

119. पिछली बार कब आपने अन्य महिला मजदूरों के साथ बात/समस्याओं की चर्चा की थी? ☐

(कल– **1**, पिछले हफ्ते – **2**, पिछले महीने– **3**, दूसरों के साथ बातचीत नहीं करते– **4**, याद नहीं – **5**)

120. क्या साथी बीड़ी रोलर/महिला मजदूरों के साथ बातें करने या समस्याओं की चर्चा करने से आपको सशक्त/सकारात्मक/बेहतर लगता है ?
(हाँ, 1, कोई – **2**) ☐

121. क्या आप टी.वी. देखते हैं ? ☐
(हाँ – **1**, नहीं – **2**)

122. आप अखबार/पत्रिका पढ़ते हैं ?
(हाँ – **1**, नहीं – **2**) ☐

123. क्या आप रेड़ियो सुनते हैं ? ☐
(हाँ – **1**, नहीं – **2**)

124. क्या आपने पिछले चुनाव में वोट किया था ? (गांव के प्रधान के लिए, विधान सभा के सांसद के चुनाव इत्यादि)
(हाँ – **1**, नहीं – **2**) ☐

125. गांव की पंचायत द्वारा आयोजित जनसभा में भाग लेते हैं ?
(हाँ – **1**, नहीं – **2**) ☐

महिलाओं की स्थिति

126. क्या आपके पास एक बैंक खाता है? ☐
(हाँ – **1**, नहीं – **2**)

127. बैंक खाता कौन चलाता है ? * ☐

(स्वयं– **1**, पति– **2**, ससुराल वाले – **3**, बेटा/बेटी – **4** दूसरे लोग – **5** .....)

128. पैसे/खर्च से संबंधित निर्णय घर पर कौन लेता है ?* ☐

(स्वयं– **1**, पति– **2**, ससुराल वाले – **3**, बेटा/बेटी – **4** दूसरे लोग – **5** .....)

129. आपकी मजदूरी कौन रखता है ?* ☐

(स्वयं– **1**, पति– **2**, ससुराल वाले – **3**, बेटा/बेटी – **4** दूसरे लोग – **5** .....)

130. स्वयं / परिवार के / आश्रितों के स्वास्थ्य संबंधित निर्णय कौन लेता है ? ☐

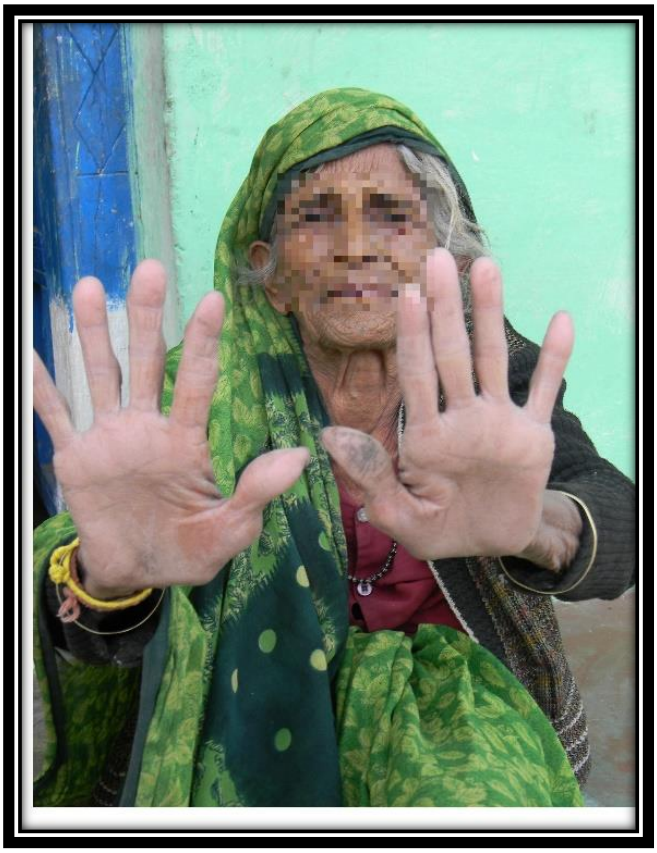
(स्वयं– **1**, पति– **2**, ससुराल वाले – **3**, बेटा/बेटी – **4** दूसरे लोग – **5** .....)

131. आप पति/ससुराल के लोगों की अनुमति के बिना बाहर और आसपास के गांव में जा सकती हैं? ☐

(हाँ – **1**, नहीं – **2**)

अन्य महत्तवपूर्ण टिप्पणियाँ

Pictures from the Field Survey

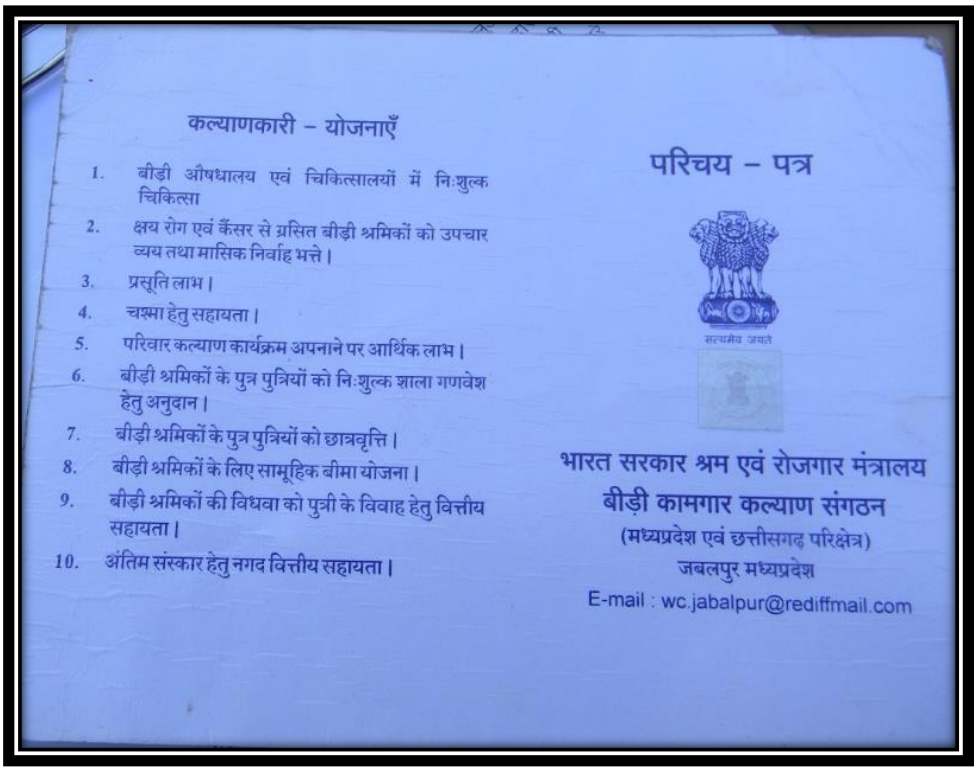


Muscle atrophy and disfiguration of fingers in an elderly Bidi roller

Teenage daughters helping out mother with rolling Bidi

Entrance to the Central Bidi Hospital, Sagar

Women Bidi rollers working in close presence of infants and children



कल्याणकारी – योजनाएँ

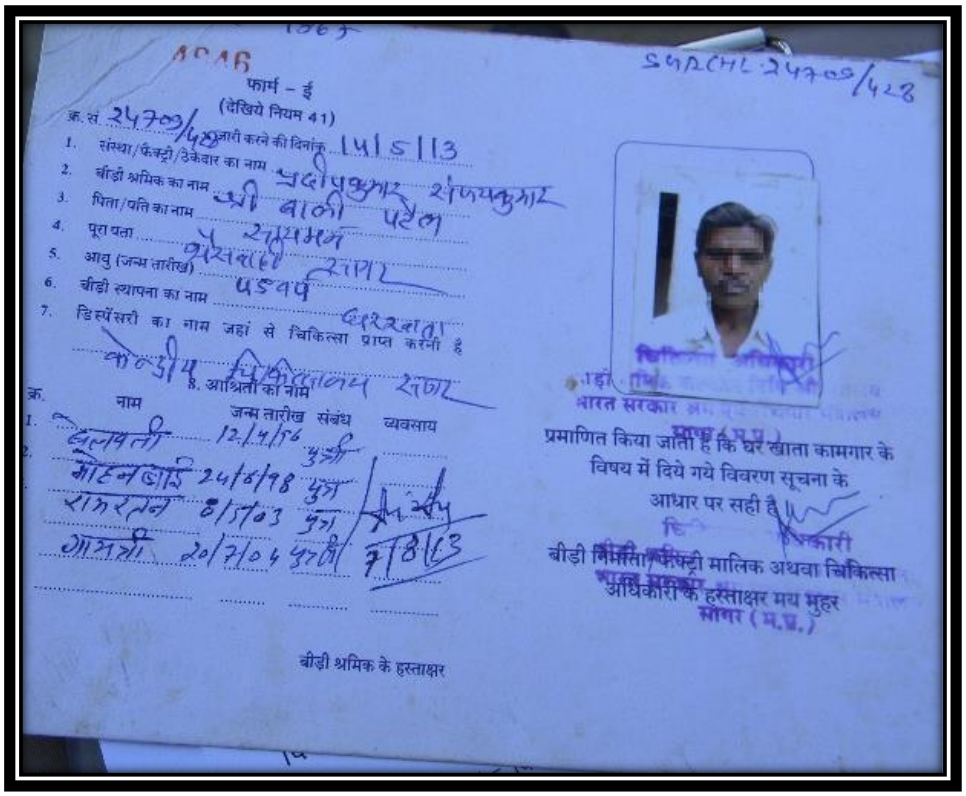
1. बीड़ी औषधालय एवं चिकित्सालयों में निःशुल्क चिकित्सा
2. क्षय रोग एवं कैंसर से ग्रसित बीड़ी श्रमिकों को उपचार व्यय तथा मासिक निर्वाह भत्ते।
3. प्रसूति लाभ।
4. चश्मा हेतु सहायता।
5. परिवार कल्याण कार्यक्रम अपनाने पर आर्थिक लाभ।
6. बीड़ी श्रमिकों के पुत्र पुत्रियों को निःशुल्क शाला गणवेश हेतु अनुदान।
7. बीड़ी श्रमिकों के पुत्र पुत्रियों को छात्रवृत्ति।
8. बीड़ी श्रमिकों के लिए सामूहिक बीमा योजना।
9. बीड़ी श्रमिकों की विधवा को पुत्री के विवाह हेतु वित्तीय सहायता।
10. अंतिम संस्कार हेतु नगद वित्तीय सहायता।

परिचय – पत्र

सत्यमेव जयते

भारत सरकार श्रम एवं रोजगार मंत्रालय
बीड़ी कामगार कल्याण संगठन
(मध्यप्रदेश एवं छत्तीसगढ़ परिक्षेत्र)
जबलपुर मध्यप्रदेश
E-mail : wc.jabalpur@rediffmail.com

Bidi Welfare Card



फार्म – ई
(देखिये नियम 41)

क्र. सं 24709/428 जारी करने की दिनांक 14/5/13

1. संस्था/फैक्ट्री/ठेकेदार का नाम
2. बीड़ी श्रमिक का नाम श्री बाली पटेल
3. पिता/पति का नाम
4. पूरा पता
5. आयु (जन्म तारीख)
6. बीड़ी स्थापना का नाम
7. डिस्पेंसरी का नाम जहां से चिकित्सा प्राप्त करनी है

8. आश्रितों का नाम

क्र.	नाम	जन्म तारीख	संबंध	व्यवसाय
1.		12/4/56		
2.		24/8/98		
		8/5/03		
		20/7/04		

बीड़ी श्रमिक के हस्ताक्षर

प्रमाणित किया जाता है कि घर खाता कामगार के विषय में दिये गये विवरण सूचना के आधार पर सही है।

बीड़ी निर्माता/फैक्ट्री मालिक अथवा चिकित्सा अधिकारी के हस्ताक्षर मय मुहर

A welfare card in name of male member where the female is primary worker