

ORIGINAL ARTICLE

Injectable Opioid use: An insight into the problem

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Citation

Anwar Z, Agrawal R, Sinha V, Gurnani KC, Mitra S, Mishra AK. Injectable Opioid use: An insight into the problem. Indian J Comm Health. 2016; 28, 2: 185-191.

Source of Funding: Nil **Conflict of Interest:** None declared

Article Cycle

Received: 28/05/2016; **Revision:** 30/05/2016; **Accepted:** 10/06/2016; **Published:** 30/06/2016

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Abstract

Background: The present study characterizes the socio-demographic variables of injection drug users (IDUs) attending Oral substitution therapy (OST) center. **Aims & Objectives:** To provide a comprehensive knowledge and better insight regarding the socio-demographic profile and pattern IDUs. **Material & Methods:** A total of 158 IDUs aged 18 to 60 years who attended the OST centre during one-year period at a government medical college are included in the study. **Results:** All the IDUs are male with median age of 33.13 years. More than half of the participants are homeless and earn their livelihood by rag picking and rickshaw driving. 35.4% of participants are married. Their mean monthly income is Rs 2823.4 ± 1811.8 and they spend a major amount of it on drug use. **Conclusion:** All the participants are using Pharmaceutical Opioid injections (POI), mostly as cocktail with benzodiazepines and antihistamines. Sharing of needle and paraphernalia is present in most of the participants especially among the illiterate and low income group IDUs.

Keywords

Injection drug users; POIs; Oral substitution therapy; unsafe injection practices; high risk behavior.

Introduction

Injection drug use (IDU) is one of the major problems of modern society in both developed and developing countries. There are about 15.9 million (range 11.0-21.2 million) injection drug users (IDUs) across the world (1,2). In South, East & South-East Asia Region there are approximately 3.9 million (range 3.5–5.6 million) IDUs and HIV prevalence in them ranges from 10 to 43% 414.0 million people between the ages of 15 and 64 are estimated to be injecting drugs, while 1.6 million people who inject drugs are living

with HIV (3). In India there are around 177,000 IDUs with an estimated HIV prevalence of 7.1%. (5)

Despite of various other modes of drug intake, Injection of drugs is favored by some users because of greater availability of drug that can be injected, cheaper cost, more rapid action, no loss of the drug in smoke, production locations and trafficking routes, migrating drug users sharing knowledge and techniques (6) It bypasses first-pass metabolism in the liver, resulting in a higher bioavailability, and shorter, more intense high that can lead to a dependency developing more quickly than with other methods of taking drugs.

IDU adversely effects individual, family and community resulting in low self-esteem, social withdrawal and disharmony, economic setbacks, domestic abuse and crime (7). High risk behavior (unsafe injection practices, using and sharing dirty needles and paraphernalia, risky sexual behaviour for drug exchange) associated with IDU facilitates the transmission of infections particularly HIV and hepatitis (3) and considerably increases (13 - 38 times) the morbidity and mortality than general population (8,9). Only 5.6% of IDUs in India are receiving opioid substitution therapy with buprenorphine (10).

IDUs are at an increased risk of various medical and psychiatric disorders and have poor quality of life.

Aims & Objectives

To provide a comprehensive knowledge and better insight regarding the socio-demographic profile and pattern IDUs.

Material & Methods

This cross sectional was conducted among all the new IDUs of age > 18 years and <60yrs of age, of either sex attending the Opioid Substitution Therapy [O.S.T.] centre in Sarojini Naidu Medical College (SNMC), Agra for one-year period from April 2014 to March 2015, and have injected drugs at least once in past 3 months have been included in the study after taking written informed consent. Each IDU is interviewed in detail by separate questionnaires regarding socio-demographic parameters (Kuppuswami scale), pattern, type and frequency of drug used in injection.

Inclusion criteria: Age 18 to 60 yrs, those IDUs of one-year duration, current IDUs (who have injected drugs at least once in last 3 months), those giving consent to participate in study.

Exclusion criteria: age <18 and >60yrs, pregnant and lactating women.

Ethical Clearance: The study was approved by the ethical committee as post graduate thesis.

Results

A total of 158 IDUs are enrolled in the study and all of the participants are male as none of the female IDUs have attended the OST centre during the study period. As shown in (Table 1) most of the participants were less than 40 years of age, urban resident and 64.6% of them are unmarried, divorced or separated. Most of the IDUs are of lower educational status and educated up to primary or middle school. 63.3% of

the participants are unskilled worker and 50% of the IDUs are homeless and live on the street. Most of the IDUs spent 51-75% of their income on drug use and 10.8% of the participants are unemployed are totally dependent on the family and friends for their financial expenses related to drug use and other chores (Table 2). As shown in (Table 3), 86.1% of IDUs are of upper-lower socio-economic status. 50% of the participants are using injection drug for last 4-6 years with mean duration of use of 4.9 ± 2.9 years (Table 4). As shown in (Table 5) all the participants are using a combination of a pharmaceutical opioid injection (POI) mostly in combination with benzodiazepine or antihistamine and only 20.9% of IDUs are using POI alone. Sharing of needle and paraphernalia is present in 57% of the IDUs mostly 1-3 times in 10 injecting practices (Table 6). Sharing of needles and paraphernalia is more commonly seen in younger age groups (18-30 years) 65% which contributed to 50% of overall needle sharing, illiterate, low income group and unemployed participants (Table 7, Table 8 & Table 9).

Discussion

A total of 158 IDUs who have attended the OST centre in SN Medical College, Agra are included in the study. As shown in Table 1, most of the IDUs (~82) belong to 18-40 years of age with mean age of 33.13 ± 9.19 years, and only 12.6 of them were aged 45 years or older. In a study conducted by Armstrong *et al* (11) in 2013 among 420 male IDUs at Delhi found that mean age of participants was 36.7 years and one quarter (26) aged 45 or older. Medhi *et al* (12) described that the typical IDUs in India are male; aged between 15 and 35 & only. Mean age of first illicit drug injection in our participants is 28.2 ± 8.8 years (13,14). So the most productive years of life of an IDU are wasted due to drug abuse. After 40 years of age tendency to dependent on opioids remit spontaneously and has been called "maturing out" (15).

35.4% of our participants are married, rest are unmarried, divorced or separated. In a study by Sarin (16) and colleagues on 449 IDUs in New Delhi shows that 35% of the participants were married, but only 26% lived with their spouses and rest were separated. In another study by Kermode *et al* (13) on IDUs in Nagaland shows that 66% were single and 34% were married. It might be because IDUs spent most of their time and money in drug use and are unable to fulfill their social responsibilities.

Most of the participants in our study are either illiterate or of lower educational status and only 10.7% of the participants have passed high school as is shown in previous studies Kermode *et al* (13), Ambekar *et al* (17). 63.3% of the IDUs are unskilled worker and earn their livelihood mainly by rag picking and rickshaw driving. Sarin *et al* (16), Solomon *et al* (18) and Ambekar *et al* (19) shows that rag picking is the main occupation of IDUs in India and only few have respectable jobs or business. Mean monthly income of IDUs in the present study was Rs 2823.4 ± 1811.8, as is the income of IDUs of New Delhi (23) (less than Rs 100 a day) and of Manipur and Nagaland 13 (mean=Rs 3662/month, median= Rs 3000/ month, SD=31.3). Most of the participants spent substantial amount of their income on injection and paraphernalia (mean =Rs 2153.2 ± 818.8 per month) and it shows positive correlation with their monthly income. 52.5% of our participants are currently (in last 3 months) homeless and live on the street. These are mostly rag pickers and rickshaw drivers. Sarin *et al* (21), Ambekar *et al* (19), Armstrong *et al* (22), have also shown that 60-70% of the IDUs in India are homeless and others mostly have poor living arrangement.

In India here is geographical variation in type of Opioids used for injection (23,24). Although heroin injecting is reported from the northeastern states as well as the metropolitan cities, Pharmaceutical Opioid Injecting (POI) has been reported from other states of India. All of our participants were using POI. 87.3% (N=138) were using injection buprenorphine and rest 12.7% (N=20) were using injection pentazocine. 79% of the IDUs combine POI with injection diazepam and/or pheniramine in various fractions and combinations (the so called "South Asian Cocktail") (25), and only 21% were using it alone. They get these drugs from certain specific drug stores and chemist shops. 56.3% of our participants were injecting daily and 29.8% three to four days per week. Similar pattern of drug use was reported by Sarin *et al* (16), Ojha *et al* (25), Armstrong *et al* (22) and Ambekar *et al* (17). POIs are the predominant type of Opioids injected in India. Almost every state, with the exception of Manipur, reported injecting one or the other POI. This might be because POIs are cheaper than heroin in India (26). Most of these POIs are procured from neighborhood pharmacy shops without medical prescription due to lax mechanisms regulating pharmaceutical sales (27) and is safer than obtaining

heroin from a drug dealer, which can be associated with dangers, including getting arrested or landing into other legal problems.

Sharing of needle and paraphernalia is seen in 57% of our participants. Most of the participants share 1-3 times in 10 injecting practices in last 3 months and many of them share used, re-used and even discarded needles & syringes. Most of them shared only with close friends and regular injecting partners. Sharing is more among the low income group IDUs and illiterate participants. Most of the IDUs procure needles and syringes from friends and chemist shops. They must be properly informed about the needle syringe exchange program (NSEP) and educated about needle sharing, needle hygiene and safe acquisition and disposal

Conclusion

Thus all the participants in our study were males, with a mean age of 33.13 ± 9.19 years. Most of them were of lower educational & socio-economic status; their main occupation was rag picking & rickshaw driving and majority of them were homeless. All of them were using POI (buprenorphine or pentazocine), mostly along with diazepam and / or pheniramine making a cocktail. Sharing of injection and paraphernalia was present in 57 of the participants, mostly among young, illiterate and low income group participants and proper education and information to the target population might help to reduce the harm caused by illicit drug injection

Recommendation

1. Opening of more oral substitution therapy (OST) centers at the district level and at high risk sites, maintaining the anonymity of subjects and free distribution of syringes and needles will help to tackle the problem of IDUs.
2. Psychological evaluation of these patients for behavioural therapy can be done at OST centres.

Limitation of the study

1. It's a hospital based study and only those IDUs could be accessed who themselves attended the OST centre
2. Effect of drug could not be assessed as it was an observational study

Relevance of the study

Studying socio-demographic variables of IDUs will lead to better understanding of the who's and why's of the Injectable drug use in India and will be helpful in planning useful studies on the subject

Authors Contribution

All the authors had made substantial contributions to conception, design, data collection, analysis and interpretation of data; drafting the article, revising it critically for important intellectual content; and final approval of the version to be published.

Acknowledgement

Authors, acknowledge the work of Dr Manjeet Singh, Dr Ramashankar Maddeshiya, Dr Narveer Yadav for their contribution to the above study.

References

- Mathers BM, Degenhardt L, Phillips B, Wiessing L, Hickman M, Strathdee SA, Wodak A, Panda S, Tyndall M, Toufik A, Mattick RP; 2007 Reference Group to the UN on HIV and Injecting Drug Use. Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review. *Lancet*. 2008 Nov 15;372(9651):1733-45. doi: 10.1016/S0140-6736(08)61311-2. Epub 2008 Sep 23. Review. PubMed PMID: 18817968. [[PubMed](#)]
- Aceijas C, Friedman SR, Cooper HL, Wiessing L, Stimson GV, Hickman M. Estimates of injecting drug users at the national and local level in developing and transitional countries, and gender and age distribution. *Sex Transm Infect*. 2006 Jun;82 Suppl 3:iii10-17. Review. Erratum in: *Sex Transm Infect*. 2006 Aug;82(4):344. PubMed PMID: 16735287; PubMed Central PMCID: PMC2576733. [[PubMed](#)]
- Injecting drug use and HIV remain a public health concern : World drug report 2013;(ix)
- Bergstrom AM, Abdul-Quader AS. Injection drug use, HIV and the current response in selected low-income and middle-income countries. *AIDS*. 2010 Sep;24 Suppl 3:S20-9. doi: 10.1097/01.aids.0000390086.14941.91. Review. PubMed PMID: 20926924. [[PubMed](#)].
- National AIDS Control Organization (NACO): Ministry of health and family welfare, government of india: annual report 2011–2012. New Delhi: NACO; 2012.
- Deany P. 'HIV and Injecting Drug Use: A New Challenge to Sustainable Human Development: for UNDP HIV and Development Programme and UNDP Asia-Pacific Regional Programme on HIV and Development , 2000
- US Department of Health and Human Services (HHS), Office of Disease Prevention and Health Promotion. Healthy People 2010 midcourse review: Focus area 26, substance abuse. 2010.
- Hulse GK, English DR, Milne E, Holman CD. The quantification of mortality resulting from the regular use of illicit opiates. *Addiction*. 1999 Feb;94(2):221-9. PubMed PMID: 10396790. [[PubMed](#)]
- Bargagli AM, Sperati A, Davoli M, Forastiere F, Perucci CA. Mortality among problem drug users in Rome: an 18-year follow-up study, 1980-97. *Addiction*. 2001 Oct;96(10):1455-63. PubMed PMID: 11571064. [[PubMed](#)]
- Armstrong G, Kermod M, Sharma C, Langkham B, Crofts N. Opioid substitution therapy in manipur and nagaland, north-east india: operational research in action. *Harm Reduct J*. 2010 Dec 1;7:29. doi: 10.1186/1477-7517-7-29. PubMed PMID: 21122129; PubMed Central PMCID: PMC3003202. [[PubMed](#)]
- Armstrong G, Nuken A, Samson L, Singh S, Jorm AF, Kermod M. Quality of life, depression, anxiety and suicidal ideation among men who inject drugs in Delhi, India. *BMC Psychiatry*. 2013 May 27;13:151. doi: 10.1186/1471-244X-13-151. PubMed PMID: 23711075; PubMed Central PMCID: PMC3680014. [[PubMed](#)]
- Medhi GK, Mahanta J, Adhikary R, Akoijam BS, Liegise B, Sarathy K, Thomas CJ, Sarmah B. Spatial distribution and characteristics of injecting drug users (IDU) in five Northeastern states of India. *BMC Public Health*. 2011 Jan 31;11:64. doi: 10.1186/1471-2458-11-64. PubMed PMID: 21281465; PubMed Central PMCID: PMC3048534. [[PubMed](#)]
- Kermod M, Longleng V, Singh BC, Hocking J, Langkham B, Crofts N. My first time: initiation into injecting drug use in Manipur and Nagaland, north-east India. *Harm Reduct J*. 2007 Dec 5;4:19. PubMed PMID: 18053266; PubMed Central PMCID: PMC2254384. [[PubMed](#)]
- Solomon SS, Desai M, Srikrishnan AK, Thamburaj E, Vasudevan CK, Kumar MS, Solomon S, Celentano DD, Mehta SH. The profile of injection drug users in Chennai, India: identification of risk behaviours and implications for interventions. *Subst Use Misuse*. 2010 Feb;45(3):354-67. doi: 10.3109/10826080903452447. PubMed PMID: 20141452; PubMed Central PMCID: PMC2924430. [[PubMed](#)]
- Sadock BJ, Sadock VA. Ruiz P. Substance use and addictive disorders.. Sadock BJ, Sadock VA. Ruiz P. Synopsis of Psychiatry 11th edition; 660
- Sarin E, Singh B, Samson L, Sweat M. Suicidal ideation and HIV risk behaviors among a cohort of injecting drug users in New Delhi, India. *Subst Abuse Treat Prev Policy*. 2013 Jan 15;8:2. doi: 10.1186/1747-597X-8-2. PubMed PMID: 23320480; PubMed Central PMCID: PMC3565907. [[PubMed](#)]
- Ambekar A *et al*, "Drug Use Patterns among Clients Receiving Services from Targeted Interventions for People Who Inject Drugs: Findings from Bihar, Haryana, Jammu and Uttarakhand" New Delhi: India HIV/AIDS Alliance, 2014.
- Solomon J, Zimberg S, Shollar E. (1993). *Dual Diagnosis: Evaluation, Treatment, Training and Program Development*, Spinger, ISBN 978-0306445439, London, UK
- Ambekar A, Rao R, Mishra AK, Agrawal A. Type of opioids injected: does it matter? A multicentric cross-sectional study of people who inject drugs. *Drug Alcohol Rev*. 2015 Jan;34(1):97-104. doi: 10.1111/dar.12208. Epub 2014 Oct 10. PubMed PMID: 25302827. [[PubMed](#)]
- Sarin E , Samson LJ, Sweat MD. Impact of Acts of Discrimination on Quality of Life Among Injecting Drug Users in Delhi: India Social Indicators Research. August 2013, Volume 113, Issue 1, pp 319-334
- Sarin E, Samson L, Sweat M, Beyrer C. Human rights abuses and suicidal ideation among male injecting drug users in Delhi, India. *Int J Drug Policy*. 2011 Mar;22(2):161-6. doi: 10.1016/j.drugpo.2010.09.011. PubMed PMID: 21439808; PubMed Central PMCID: PMC3070048. [[PubMed](#)]
- Armstrong G, Jorm AF, Samson L, Joubert L, Singh S, Kermod M. Suicidal ideation and attempts among men who inject drugs in Delhi, India: psychological and social risk factors. *Social Psychiatry Psychiatry Epidemiology*. 2014 Sep;49 (9):1367-77.

23. Kumar MS. Injecting drug use and HIV/AIDS in India: an emerging concern. New Delhi: UNODC, Regional Office for South Asia and Ministry of Social Justice and Empowerment, Government of India, 2004.
24. Ambekar A, Tripathi B. Size estimation of injecting drug use in Punjab and Haryana. New Delhi: Joint UN Programme on HIV/AIDS (UNAIDS), 2008.
25. Ojha SP, Sigdel S, Meyer-Thompson HG, Oechsler H, Verthein U. 'South Asian cocktail'--the concurrent use of opioids, benzodiazepines and antihistamines among injecting drug users in Nepal and associations with HIV risk behaviour. *Harm Reduct J.* 2014 May 23;11:17. doi: 10.1186/1477-7517-11-17. PubMed PMID: 24886095; PubMed Central PMCID: PMC4035730. [[PubMed](#)].
26. Subramaniam G, Stitzer M. Clinical characteristics of treatment-seeking prescription opioid versus heroin using adolescents with opioid use disorder. *Drug Alcohol Depend* 2009; 101:13–19.
27. Loranger, A.W., Sartorius, N., Andreoli, A., Berger, P., Buchheim, P., Channabasavanna, S.M., Coid, B., Dahl, A., Diekstra, R.F.W., Ferguson, B., Jacobsberg, L.B., Mombour, W., Pull, C., Ono, Y. & Regier, D.A. The International Personality Disorder Examination, IPDE. The WHO/ADAMHA International Pilot Study of Personality Disorders. *Archives of General Psychiatry*, 1994, 51, 215-224.

Tables

TABLE 1 DISTRIBUTION OF STUDY PARTICIPANTS AND SOCIO DEMOGRAPHIC VARIABLES

| AGE GROUP | Frequency (n) (N=158) | Percentage (%) |
|------------------------------|-----------------------|----------------|
| 18-30yrs | 71 | 44.9 |
| 31-40yrs | 59 | 37.3 |
| 41-50yrs | 18 | 11.4 |
| 51-60yrs | 10 | 6.3 |
| RELIGION | | |
| HINDU | 137 | 86.7 |
| MUSLIM | 21 | 13.3 |
| LOCATION | | |
| URBAN | 123 | 77.8 |
| RURAL | 35 | 22.2 |
| MARITAL STATUS | | |
| Married | 56 | 35.4 |
| Unmarried | 76 | 48.1 |
| Divorced or Separated | 26 | 16.5 |
| EDUCATION | | |
| Illiterate | 59 | 37.3 |
| Primary school | 56 | 35.4 |
| Middle school | 26 | 16.5 |
| High school | 9 | 5.7 |
| Intermediate | 6 | 3.8 |
| Graduate or post graduate | 2 | 1.3 |
| Professional | 0 | 0 |
| OCCUPATION | | |
| Unemployed | 17 | 10.8 |
| Unskilled worker | 100 | 63.3 |
| Semi skilled worker | 31 | 19.6 |
| Skilled worker | 5 | 3.2 |
| Clerical, shop owner, farmer | 4 | 2.5 |
| Semi professional | 1 | 0.6 |
| Professional | 0 | 0 |
| LIVING ARRANGEMENT | | |
| JOINT FAMILY | 24 | 15.2 |
| NUCLEAR FAMILY | 32 | 20.3 |
| ALONE AT HOME | 10 | 6.3 |
| AT WORK PLACE | 9 | 5.7 |
| HOMELESS | 83 | 52.5 |

TABLE 2 PORTION OF INCOME SPENT ON INJECTABLE DRUGS AND SYRINGES

| Percentage of income spent on IDU | Frequency | Percentage | |
|-----------------------------------|-----------|------------|------|
| ≤25% | 8 | 5.1 | 5.1% |
| 26-50% | 30 | 19 | |
| 51-75% | 46 | 29.1 | |
| 76-100% | 35 | 22.2 | |
| 101-150% | 14 | 8.9 | |
| 151-200% | 4 | 2.5 | |
| >200% | 4 | 2.5 | |
| Borrowers * | 17 | 10.8 | |

* who did not earn on their own and borrowed money from friends or family members

TABLE 3 SOCIO-ECONOMIC STATUS OF INJECTION DRUG USERS

| SES | Frequency | Percent |
|--------------|-----------|---------|
| Lower | 13 | 8.2 |
| Upper-lower | 136 | 86.1 |
| Lower-middle | 8 | 5.1 |
| Upper-middle | 1 | 0.6 |

TABLE 4 DURATION OF INJECTION DRUG USE

| DURATION (years of use) | FREQUENCY | PERCENTAGE |
|-------------------------|------------|------------|
| 1-3 YEARS | 49 | 31.01 |
| 4-6 YEARS | 79 | 50 |
| 7-9 YEARS | 20 | 12.6 |
| 10-12 YEARS | 7 | 4.4 |
| >12 YEARS | 3 | 1.9 |
| TOTAL | 158 | 100 |

TABLE 5 PATTERN OF DRUG USED BY INJECTION DRUG USERS

| DRUG USED | FREQUENCY | PERCENTAGE |
|-------------------------------------|------------|------------|
| BUPRENORPHINE+ DIAZEPAM+PHENIRAMINE | 77 | 48.7 |
| BUPRENORPHINE+ DIAZEPAM | 18 | 11.4 |
| BUPRENORPHINE+ PHENIRAMINE | 30 | 19.0 |
| BUPRENORPHINE | 13 | 8.2 |
| PENTAZOCINE | 20 | 12.7 |
| TOTAL | 158 | 100 |

TABLE 6 FREQUENCY OF NEEDLE & PARAPHERNALIA SHARING (NUMBER OF TIMES IN 10 INJECTING EPISODES)

| NUMBER OF TIMES IN 10 INJECTING EPISODES | FREQUENCY (n) | PERCENTAGE (%) |
|--|---------------|----------------|
| 1 | 19 | 12 |
| 2 | 31 | 19.6 |
| 3 | 23 | 14.6 |
| 4 | 9 | 5.7 |
| 5 | 8 | 5.1 |
| Not sharing | 68 | 43 |
| TOTAL | 158 | 100 |

TABLE 7 RELATION OF AGE WITH SHARING OF NEEDLES, SYRINGES OR OTHER EQUIPMENTS

| Age group (years) | Sharing of needle and paraphernalias* | | Chi-square |
|----------------------|---------------------------------------|-----|--------------------------|
| | No | Yes | |
| 18-30 | 25 | 46 | 3.454 df=3 p=0.327 |
| 31-40 | 30 | 29 | |
| 41-50 | 8 | 10 | |
| 51-60 | 5 | 5 | |
| *equipment's sharing | | | |

TABLE 8 SHARING OF NEEDLE WITH EDUCATION

| Sharing of needle and syringe | | Education | | Chi square | df | Asymptomatic significance |
|--|-----|------------|----------|------------|----|---------------------------|
| | | Illiterate | Literate | | | |
| Sharing of needle and syringe | No | 16 | 52 | 9.734 | 1 | 0.02* |
| | Yes | 43 | 47 | | | |
| *Significant at 0.05 level **Significant at 0.01 level | | | | | | |

TABLE 9 FREQUENCY OF SHARING NEEDLE WITH INCOME OF THE STUDY PARTICIPANTS

| Income | Frequency of sharing in 10 injecting practices | | | | | | Chi-square | df | Asymptomatic significance |
|--|--|-----|-----|-------|------|------|------------|----|---------------------------|
| | zero | one | two | three | four | five | | | |
| No income | 6 | 0 | 4 | 4 | 3 | 0 | 38.46 | 15 | 0.001*** |
| Upto 2000 | 11 | 6 | 11 | 11 | 5 | 5 | | | |
| >2000-4000 | 31 | 8 | 14 | 8 | 1 | 3 | | | |
| >4000 | 20 | 5 | 2 | 0 | 0 | 0 | | | |
| *Significant at 0.05 level **Significant at 0.01 level ***Significant at 0.001 level | | | | | | | | | |