



Research paper

Study on the Impact of Water Pollution With Reference To Heavy Metals on Human Health Based on Questionnaire, Vicinity of Bandhwa Dam, Murna River

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Abstract: Murna River flows from south to north-east. Murna River provides the necessary water requirements for few villages of Shahdol city. During observation we found that there was lack of forest in bank of Murna River and there were large and small slum encroachments along the river which converted the river into drainage in some places.

Keywords: Shahdol, Son River, Madhya Pradesh

Introduction:

Bandhwa Dam is situated in Kelmaniya village near Shahdol. Dam is constructed on Murna River and Murna River is the tributary of the Son River. Shahdol Town, eastern Madhya Pradesh state lies along the Murna River about 1.10 miles (177 km)

northwest of Bilaspur. Murna River flows from south to north-east. Murna River provides the necessary water requirements for few villages of Shahdol city. During observation we found that there was lack of forest in bank of Murna River and there were large and small slum encroachments along the river which converted the river into drainage in some places.

This dam is used for irrigation (total irrigation area 240 Ha) as well as fish culture. The water and fishes of this dam are used as a food, drinking water and other domestic purposes. That is why this study was conducted because the quality of water should be known.

Kelmaniya village is located in Sohagpur Tehsil of Shahdol District in central India. It is 16 km away from Shahdol. Shahdol is the districts headquarter of Kelmaniya village.

According to 2011 census, the village code of Kelmaniya village is 501238. The Kelmaniya is the gram panchayat. The total geographical area of village is 1276.01 hectares and has a total population of 2,021 peoples and about 494 houses.

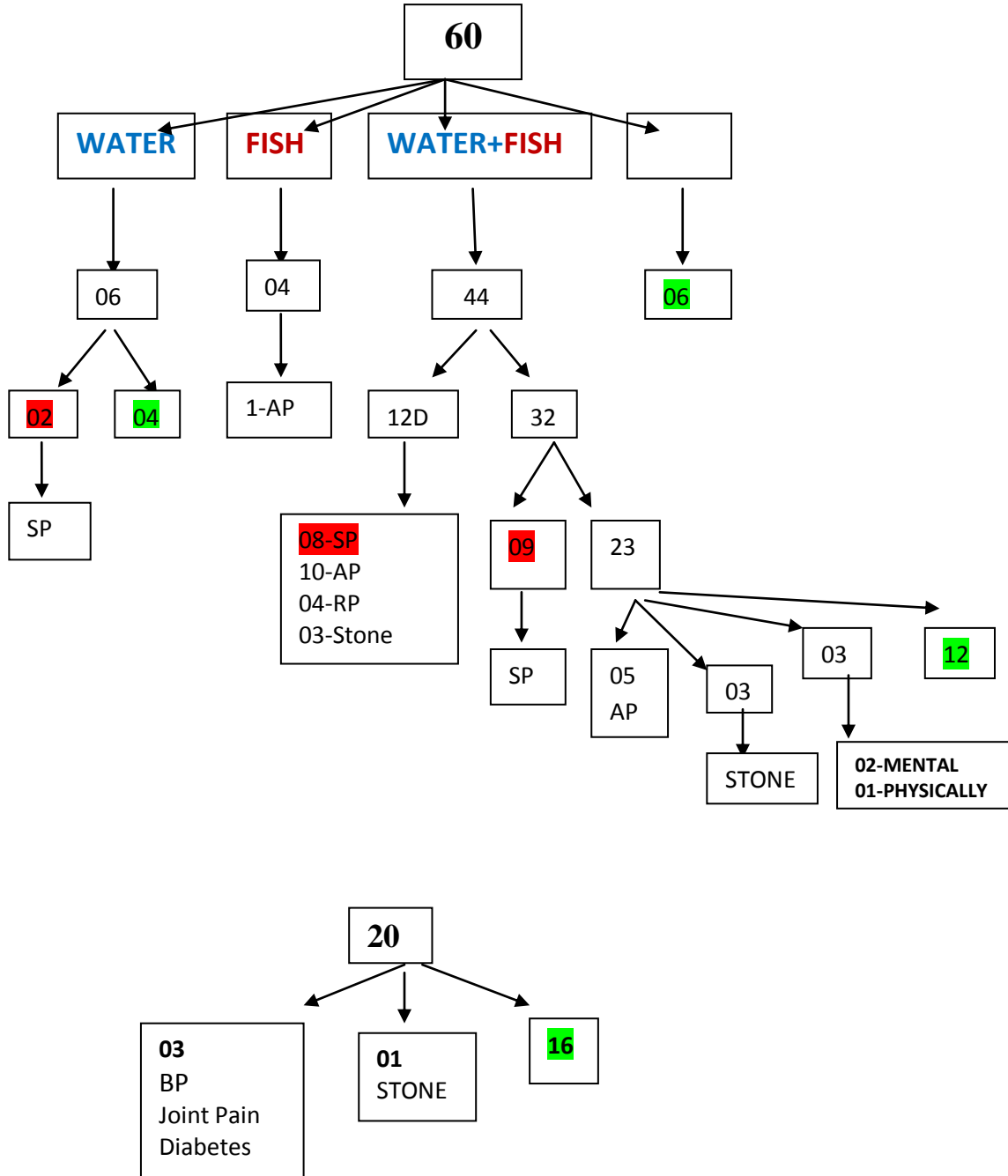
Material and Method:

For collecting information regarding impact of water pollution on human health we did survey based on questionnaire among nearby villagers living in this site and using this water for domestic use and drinking. These peoples are eating fish also of the same river. As our observations showed metal pollution in water and fish, in this site, drinking this water and using fish as a food are not safe, that is why we designed questionnaire comprising questions related to health problems caused by heavy metal pollution especially for Mercury and Lead. (Alrumman SA (2016), Briggs D (2003), Bibi S (2016), Khan N (2013), Pawari MJ (2015), Juneja T (2013), Khan MA (2011), Owa FD (2013), Kamble SM (2014), Ho YC (2012), Desai N (2014), Jabeen SQ (2011), Yonglong Lu (2015), Khurana I (2008), Ebenstein AY (2008), Halder JN (2015), Ahmad SM (2014), Corcoran E (2010), Nel LH (2009), Ullah S (2014), Krishnan S (2006), Currie J (2013), Ahmed T, Scholz F (2013), Salem HM (2000), Chowdhury S (2015), Ballester F (2000).

QUESTIONNAIRE/प्रश्नावली

1. Name/नाम
2. Age/ आयु
3. Occupation/ व्यवसाय
4. आप कितने साल से यहां रह रहे हैं?
How many years have you been living here?
5. क्या आप यहाँ के पानी का उपयोग करते हैं?
Do you use the water here?
6. यदि हाँ, तो किस कार्य के लिए?
If yes, for what work?
7. क्या, आप भी इस पानी को पीते हैं?
Do you drink this water too?
8. क्या आपको लगता है, कि यह पानी पीने योग्य नहीं है?
Do you think this water is not drinkable?
9. यदि हाँ, तो क्यों?
If yes, why?
10. क्या आप इस नदी की मछली भी खाते हैं?
Do you also eat the fish of this river?
11. यदि हा तो हफ्ते में कितने दिन?
If yes, how many days in the week?
12. क्या आपको ये हेल्थ प्रॉब्लम है?
Do you have these health problems?
 1. Skin problems/त्वचा संबंधी समस्याएं
 2. Cardiovascular disease/ हृदय रोग
 3. Vitiligo disease/विटिलिगो रोग
 4. Respiratory illness/साँस की बीमारी
 5. Joint pain/जोड़ों का दर्द
 6. Abdominal pain/पेट में दर्द
 7. Reduced vision/कम दृष्टि
 8. Burning sensation in the limbs/अंगों में जलन
 9. Cancer/कैंसर
 10. Blood pressure/रक्त चाप
 11. Anaemia/खून की कमी
 12. Diabetes/मधुमेह
 13. Sterility/बाँझपन
 14. Miscarriage/गर्भपात
 15. Kidney problem
13. क्या कोई ऐसी हेल्थ प्रॉब्लम है जो यहाँ के लोगों में ज्यादा दिखाई देती है ?
Is there any health problem that is more visible in the people here?

Result and Discussion:



We asked questions to 60 people (10-85age) living on the bank of river and 20(10-73age) living away from the River. According to our survey, we found following results:-

1. Peoples living there were belonging to mostly Gond, Baiga and Kol tribe (70%) and others (30%).
2. They were not much educated and working as a labor, Driver, Farmer.
3. Among 60 people 06 people were using water for domestic work, bathing and washing clothes but not for drinking.02 peoples among 06 were suffering from Skin problems. Among 06, 04 had not any health problem.
4. Among 60 only 04 people found who were not using water of this river for any work, they were eating only fish in 2 or 3 days within 15 days and they had not any health problem except one person with abdominal pain.
- 5.44 peoples among 60 were found, using water and fish both, in which 12 peoples were using water for drinking too and we observed that all these 12 were suffering from Skin problems Abdominal pain, respiratory problem and three had stone problem also.
Among 44, 32 peoples were using water for other work (washing, bathing, planting, and cooking) except drinking and fish as food about 3-5 days in a week. In these peoples 09 had Skin problem specially itching and white spots, 05 were suffering from abdominal pain, 03 had stone problem, 02(13y, 15y) mentally retarded and 01 physically handicap

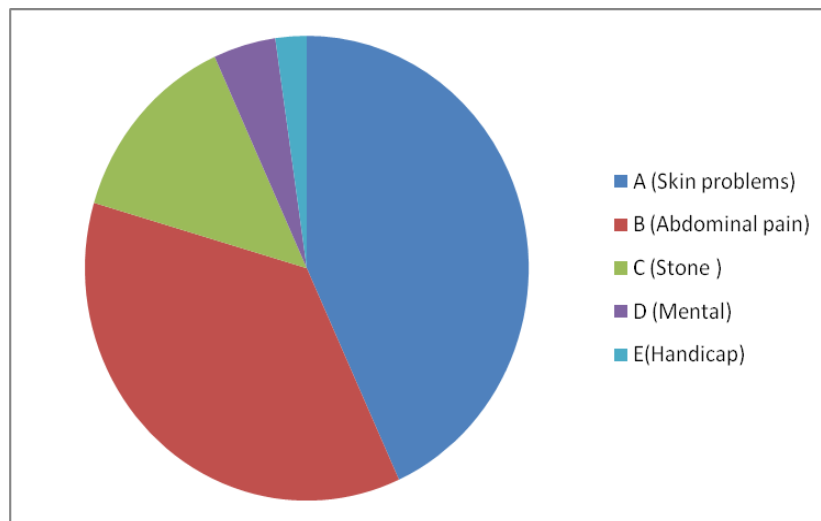
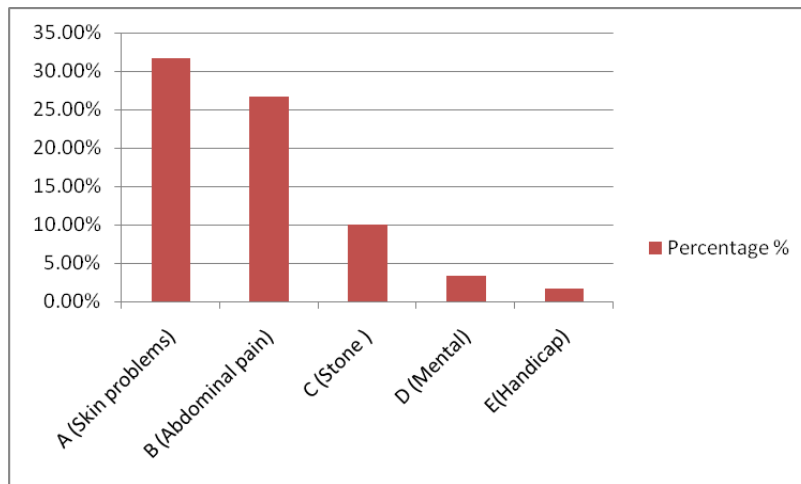
person was found; only 11 had no health issues.

6. Only 06 among 60 were not using water as well as fish too in daily routine and they had not any permanent health issues.
7. Except this, we observed, 20 other people living near village but not using water and fish in any form. We found that only 01 person was suffering from skin problem, 01 had stone problem and 03 were suffering from blood pressure and other health issues.16 people had not any permanent health problem.

Conclusion:

The study showed that the water of River Murna is deteriorated very badly due to addition of urban waste, domestic sewage which enters into the river from both the banks through Shahdol city. Direct discharge of human and animal waste not only imparts the water quality but human health also where the same water is used for washing, bathing, other domestic purpose and sometimes for drinking too. The urban and rural runoff and continuous dumping of sanitary waste materials are affecting the water quality of river Murna. There is considerable need for understanding of these small tributaries, which fulfill the basic requirements of human living its bank. Peoples using water and food in any form, 31.67 % of these are suffering from Skin problems as Itching, discoloration with 26.67% people had abdominal pain,10% people suffering from Stone, 3.33% people were mental and 1.67% physically handicap were found.

Health Problems	Percentage %
A (Skin problems)	31.67 %
B (Abdominal pain)	26.67%
C (Stone)	10%
D (Mental)	3.33%
E(Handicap)	1.67%



According to results we can say that these health problems specially related to skin may caused by water pollution because all peoples who were using water for drinking, Bathing and fish as a food they were found suffering from skin, abdominal and other health problems whereas peoples who were not using water and fish in daily routine they had not these permanent health issues.

So, as previous researchers Alrumman SA (2016), Briggs D (2003), Bibi S (2016), Khan N (2013), Pawari MJ (2015), Juneja T (2013), Khan MA (2011), Owa FD (2013), Kamble SM (2014), Ho YC (2012), Desai N (2014), Jabeen SQ (2011), Yonglong Lu (2015), Khurana I (2008), Ebenstein AY (2008), Halder JN (2015), Ahmad SM (2014), Corcoran E (2010), Nel LH (2009), Ullah S (2014), Krishnan S (2006), Currie J (2013), Ahmed T, Scholz F (2013), Salem HM (2000), Chowdhury S (2015), Ballester F (2000) have proved that metals especially mercury and Lead pollution might responsible for the Skin, abdominal problems, Cardiovascular problems, respiratory problems in human. In our Study we also found about same cases and this is alarming condition, now the authorities should think about it and take appropriate action.

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