

## Narratives on Obliging Worms: Childhood Illness in Rural Garhwal

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**Abstract:** *As against the commonly held scientific viewpoint, in many cultures, the intestinal worms are considered friendly and helpful. One can dichotomize cultures into worm-philic and worm-phobic, wherein the former subscribing to 'assisted digestion' theory naming intestinal worms as playing crucial role in digestion while the latter considering intestinal worms as unworthy parasites needing extermination from the intestines. The paper examines the worm-philic ethos of inhabitants of Pauri Garhwal through the narratives of two women healers. It also presents the folk model of worm beliefs. The implications of worm-philic beliefs are examined within the context of vulnerabilities of early childhood and the young Garhwali mothers.*

**Keywords:** *narrative, worm, culture, worm-philic, Joku, illness, Garhwal.*

### INTRODUCTION

Abdominal worms or helminthes have been a major public health problem in developing countries; held responsible for morbidity and mortality among the children. Abdominal worm eradication campaign was taken up in the early years of international public health initiatives, like the Rockefeller Foundation's hookworm eradication campaign in Cylone (Srilanka) (see Philips, 1955). Since then, eradication of abdominal worms has been in the agenda of the public health functionaries. As per World Health Organization, approximately 1.5 billion people or 24 percent of the world population is under the grip of abdominal worms which are typically concentrated in poor and underdeveloped tropical and sub-tropical regions of Asia, Africa and Americas. The impact of worms has been estimated to be extremely severe on children who become physically, nutritionally and cognitively impaired due to worm infections. It is estimated that nearly 880 million children are infected by the abdominal worms in the world. The children infected with abdominal worms suffer nutritional impairment due to intestinal bleeding along with developing complications like loss of appetite, diarrhea, dysentery and disturbance in the absorption of micronutrients. The major impediments in the task of worm eradication

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are the social and cultural factors, since its occurrence and spread is closely linked to hygienic and sanitary practices prevailing in a community. The prevalence of helminthes disease has been considerably reduced in developed countries which have been able to improve upon the hygienic and sanitary practices through scientific and engineering interventions.

As against the clinically propagated viewpoint, many folk communities from Asia, Africa to Americas subscribe to an alternative theory holding abdominal worms as human friendly. Indeed, one can classify human cultures into worm-philic and worm-phobic wherein the former subscribing to 'assisted digestion' theory naming intestinal worms as playing crucial role in digestion while the latter considering intestinal worms as unworthy parasites needing extermination from the intestines. In the framework of 'assisted digestion' the digestion is held to be performed by the friendly worms which exist in the human intestines to help human. There are considerable variations in this set of beliefs but undeniably the human-worm relationship is held to be commensal and mutualistic rather than parasitic or amensalistic. For example, the Dominicans consider worms to be indispensable. As stated by Quinlan, Quinlan and Nolan (2002), "From a Dominican viewpoint, all human should have some intestinal worms at all times, humans and worms have a symbiotic relationship. Worms function in the digestive process to refine food turning it into rich blood, much the way that earthworm convert composting material to rich soil" (p. 78). In this typical 'assisted digestive' paradigm, killing of worms is unthinkable amounting to almost killing of an individual who would not be in a position to digest food. Thus, "...worms are generally beneficial and only dangerous or painful if they grow or multiply beyond the capacity of their wormbag" (*ibid.*, p. 78). In many cultures, it is an acceptable fact that the worms are inseparable components of the human body and their mere presence is not indicative of any problem (see Sobo, 1993; Geissler, 1998; Kendall *et al.*, 1984; Weiss, 1988; Bierlick, 1995, Green, 1997 and Zoundi and Kvalsvig, 1996).

The Luos of Kenya hold two contrasting model, namely traditional and biomedical, depicting relationship between worm and human being. In the traditional model (Geissler, 1998a), which approximates worm-philic model, worms are held as inseparable part of the human existence. The worms are believed to be born with human. They primarily digest the food and get provoked due to improper habits or outside influence. The provoked worms can cause physical problems. Such provoked worms need to be appeased. In actual day to day discourses of the children, both the model are used simultaneously – the traditional model in informal family setting while the biomedical model in formal institutional settings (Geissler, 1998b).

Among the Sinhala, the worm-philic traits are exhibited in their attitude attributing presence of some category of worms as essential for good health. As stated by Nichter (1988), "...food worms, ... are considered a natural and necessary symbiote of the gut transmitted to a child *in utero* or through breast milk. These worms, assist a young child to digest food by turning heavier foods into lighter easier to digest substances, by cleaning the stomach of impurities and by helping to remove toxins." (P. 43). Among the Tehri Garhwali hailing from Jaunpur, the belief in intestinal worms helping in digestion was an undisputed idea. As stated by Langford in her conversation with a local healer around 'assisted digestion' by the worms (2003):

For Gokulji this was not local belief but simple fact. After he had told me that worm in the stomach were sometimes harmful and sometimes not, I asked, "Do they do some work in the stomach?" he replied, "They do the work of digestion. They eat." "Eat what?" I asked. "Whatever food I eat," he replied. "They carry out that process." "You mean digestion occurs through worms?" "Yes." (Pp. 286-287).

In her study of neighboring Ravvain, Saklani (1992) could see the burn marks of hot niddle *dam* therapy on the abdomen of young children, principally done to calm the worms.

The worm-philic model is widely prevalent in the Central Himalaya and the symbolism of worm is a dominant explanatory model used in understanding and managing childhood illnesses. In the present paper, the discourse on the intestinal worms to the children are presented in the intensive interview of two women healers of Pauri Garhwal. The intestinal worms in Pauri Garhwal are called Joku. Both the women are elderly and experience healers who treat the worm related conditions free of charge.

## NARRATIVES ON WORM

### Interview No 1

QUESTION : Joku illness affects which age-group of children?

ANSWER : From one to five year old children.

QUESTION : Which part of the body is affected by Joku?

ANSWER : It affects entire abdomen.

QUESTION : How do you ascertain that the child actually has Joku?

ANSWER : When the child cries, vomits, dysentery, water discharge from nose (*naksipani*). Children sometimes take out their tongue under Joku influence.

QUESTION : How a child gets Joku illness?

ANSWER : By feeding on mother's 'hot' milk and by eating tit-bits (*kachar-bachar*).

QUESTION : What do you mean by *kachar-bachar* food?

ANSWER : Like the child has eaten again immediately after first eating. In such a case, the earlier eaten food has not even digested and the child has eaten again. It will cause Joku.

QUESTION : Do we take Joku out?

ANSWER : No.

QUESTION : Why not?

ANSWER : Because Joku help in our digestion. We call them 'digestion helping Joku'.

QUESTION : When the Joku show bad effect on a child, then what is to be done?

ANSWER : We treat a child with medicines and the medicine also makes its impact on the Joku as well.

QUESTION : What is the effect of medicines on Joku?

ANSWER : When the Joku get agitated, then they get intoxication of the drug which makes them return back to their respective place.

QUESTION : What are the different types of Joku?

ANSWER : Joku is one kind only but when the Joku get disfigured or agitated, they are given different names. Like, Khar Joku, Soldu Joku and Kurari Joku.

QUESTION : How can one know that the child has Khar Joku?

ANSWER : When the child vomits while breastfeeding. When child asks for water again and again during summer. When the child cries continuously and leaves water from the nose.

QUESTION : And how would one know that the child has Soldu Joku?

ANSWER : When the child tries to move to cold places, hits the head. When the child cries occasionally, when feels pain. *When the summer season is ending, the child's shit smells very badly.*

QUESTION : What are the symptoms of Kurari Joku?

ANSWER : This happens when after many days it rains and the smell of soil getting wet by rain results in this Joku. The child has 'hot-cold' (*sheet-garam*).

QUESTION : When is Joku troubles most?

ANSWER : In summers between *chait* (March-April) and *Ashuj* (October-November), there are more chances of children having Joku.

QUESTION : Why are there more chances of Joku in summers?

ANSWER : Because in the summer, the feet are cold but the body is hot; then the breastmilk is also 'hot' and as a result the digestion is not proper. Thus, there is 'hot-cold' (*sheet-garam*) leading to Joku problem.

QUESTION : Why Joku trouble the children alone?

ANSWER : Because children are not able to digest the food as their 'digestive power' (*pachan shakti*) is poor.

QUESTION : When is mother's milk improper for the child?

ANSWER : It can happen any time.

QUESTION : Can it be cleaned?

ANSWER : Yes, with medications.

QUESTION : How can we know that the mother's milk is improper for the child?

ANSWER : If her first child had developed Joku after drinking her milk, then we give her medicines before the birth of her second child.

QUESTION : What kind of medicines are given to such mother?

ANSWER : The intestines of porcupine (*syala*) are given to such mothers whose breast milk is improper

QUESTION : Why is the meat of porcupine is given and not of any other animal?

ANSWER : Because we believe that porcupine eats roots of different kinds of medicinal plants by digging. The meat of porcupine therefore is highly medicinal fit for a *jokanku* mother.

QUESTION : What happens when a mother with bad milk (*Jokanku*) breast feeds any other child?

ANSWER : The child will suffer from Joku.

QUESTION : How it happens?

ANSWER : Due to bad milk.

QUESTION : Can Joku come out of the body?

ANSWER : Generally not but sometimes Joku come out.

QUESTION : How and when Joku come out of the body?

ANSWER : These are unfit Joku not able to digest the food. Sometimes their population increases and in the struggle, many Joku become sick and therefore are driven out of the body.

QUESTION : Does there coming out affects the child as Joku help in digestion.

ANSWER : No, because these are unfit and of no use in digestion.

QUESTION : How do the Joku look like who come out of the body?

ANSWER : These are white in colour, thin and long like a thread.

QUESTION : Is Joku a contagious disease?

ANSWER : No. But if a *jokanku* mother will feed some child then the child will definitely have Joku. But it is not a contagious disease.

QUESTION : When people come with Joku problem to you, then what you do?

ANSWER : First of all I ask them to sit; then I ask the people accompanying child like, mother, father, grandparents, etc.

QUESTION : What you ask generally?

ANSWER : I ask since when the child is under this condition; what all the child does? Whether the child eats or not? have they shown the child somewhere else? The guardians generally reply that the child has vomiting, diarrhea, pukes while eating, throws milk out; the child was treated at home but did not show any improvement; they generally narrate Joku symptoms.

QUESTION : What kind of treatment do people take at home?

ANSWER : Generally people inform that they had given home medicines (of different types) and used *dam* (hot needle therapy).

QUESTION : What kind of hot needle is used?

ANSWER : Hot needle can be of gold and in some places *chofalya* (*trident*) *dam* is used.

QUESTION : Who provides the gold for *dam*?

ANSWER : It can be taken from any one.

QUESTION : What is *chofalya*?

ANSWER : It is made up of iron which is trident shape having pointed ends. It is heated and touched at the abdomen of the child suffering with Joku. Before application the area to be touched by tips of the trident, abdomen is smeared with ash so that the rashes are prevented.

QUESTION : Why is *dam-chofalya* used?

ANSWER : When the Joku start standing in large number and start showing their agitated form, then *dam-chofalya* is used to calm them and keep them to their respective place.

QUESTION : What kind clientele do you have – rich or poor people?

ANSWER : All kind of people come to me; those who know about me.

QUESTION : What do you do after asking the parents?

ANSWER : I feel the pulse of the child and try to find out if the child has fever and how hot is the child.

QUESTION : What you try to feel in the pulse of the child?

ANSWER : I try to see the movement of pulse, whether it is slow or fast.

QUESTION : How you diagnose that the child is actually suffering from Joku?

ANSWER : A child with Joku will show following symptoms:

1. Firstly, the child will have frequent diarrhea and vomiting.
2. The child will have abdomen ache from time to time due to which the child will cry.
3. Many children keep on taking their tongue out due to Joku.
4. Child demands water frequently.
5. Eyes are sunken and pus comes out of the eyes.
6. Watery nose.
7. Child tries to keep the chest in cool place.

QUESTION : What do you do when you see these symptoms?

ANSWER : I give medicines.

QUESTION : What kinds of medicines?

ANSWER : I give 'root-herbs' (*jadi-buti*).

QUESTION : What kind of 'root-herbs' do you give?

ANSWER : The root of *gorakhpān* and *mukundi keshar*, flower of *nag keshar*, wood of *indjo*, *kadui*, etc. are grinded and mix with black and white pepper.

QUESTION : How this medicine is taken?

ANSWER : It is taken in boiled water because of which the thirst reduces and this water also helps in digestion and maintaining the heat in the abdomen.

QUESTION : What is the full course of this medicine?

ANSWER : Twice in a day for five days is the course of my medicine.

QUESTION : You seems to believe a lot in 'root-herbs'. Has it ever happened that the child has not got relief with your medicines?

ANSWER : Till now it has not happened; I do not know what will happen in future.

QUESTION : Was this skill known to any one in your family before you?

ANSWER : No.

QUESTION : How have you learnt it?

ANSWER : Just by hit and trial.

QUESTION : Have you taught any one in your family?

ANSWER : No.

QUESTION : Why not?

ANSWER : Because if I teach now, this medicine will not be effective.

QUESTION : Will you tell about it to some one?

ANSWER : Yes, when the time comes.

QUESTION : Whom will you teach it?

ANSWER : Someone in my family.

QUESTION : Do you charge money for your medicine?

ANSWER : No, but people sometime force it saying that otherwise the medicine will not work on their child.

QUESTION : Is this your source of income?

ANSWER : Not at all. My children are in service, we have field to cultivate.

QUESTION : When you give medicine, do you also advice mothers to breastfed their child?

ANSWER : No because the child will quickly vomit the milk.

QUESTION : When a child has Joku, do you also advice for forbidden food (*perhej*)?



ANSWER : Yes.

QUESTION : What do you advise?

ANSWER : I advise mother not to take meat and fish, garlic, onion, sour things, spinach and black gram. I also advice that the child should not be fed on large quantity of tit-bits (*kachar-bachar*).

## Interview No. 2

QUESTION : What is Joku?

ANSWER : Joku is a kind of disease of the children.

QUESTION : What age group of the children is susceptible to Joku?

ANSWER : Joku mostly affects children up to five year old.

QUESTION : Which part of the body do Joku live?

ANSWER : In the abdomen of the child.

QUESTION : Which side of the abdomen do the Joku live – left, right upwards or downwards?

ANSWER : How do I know about inside of abdomen; they can pinch in any part of the abdomen.

QUESTION : How do you know that the child is suffering from Joku?

ANSWER : It has following symptoms:

1. Child cries (*karandu*).
2. Child vomits.
3. Water comes out of the nose (*nak sipani*).
4. Throws head and goes to cold places in summers.
5. Watery dysentery (*pechis*).
6. Abdomen ache and crying.
7. Thin, long and white worms in the latrine of the child.

QUESTION : How the Joku look like?

ANSWER : Joku are found in the abdomen of the children; they are worm like, white, long, thin and having red colour mouth. They exist in large number in the abdomen.

QUESTION : How does one gets Joku disease?

ANSWER : How one gets a disease?

When the child demands more water; the mother comes from sun and feds her child with her 'hot' milk; the child eats 'tit-bits' (*kachar-bachar*); mother eating of sour things; by wetting

in the rains or when the child gets 'cold-hot' (*sheet-garmi*) – are the causes of Joku.

QUESTION : When the children get Joku disease?

ANSWER : Generally children get it from *chait* (April-May) to *Ashuj* (October-November).

QUESTION : Why Joku affect a child during these months?

ANSWER : These are summer months when rural women have heavy agricultural work load. The spring is the season of rejuvenation and re-growth, a time when the fields are full of new buds and fruits which the women eat as food. This food then becomes the reason for the child to have Joku problem as the child feed on mother's milk. Besides this, the mother may breastfed the child immediately after she has come from the field as the child is crying and hungry. Her milk in such a situation will be 'hot' as she has come under mid-day sun.

QUESTION : How then the children of the mothers, who are not working in the fields and also keeping up the *perhej* (avoiding improper food), get the Joku?

ANSWER : If the children of such a mother have Joku then it is considered that the mother's milk is Jokanku. Such milk is *bakul* (thick) which the child is unable to digest.

QUESTION : If a mother has *bukul* milk then what her child will feed on?

ANSWER : We give cow's milk to such children. There are so many different kinds of baby milks available in the market which we give to such children.

QUESTION : Will cow's milk not led to Joku in a child?

ANSWER : No but if the cow's milk is thick then we mix water in such milk-like in one glass of cow's milk, we mix half a glass of water.

QUESTION : Why we mix water in cow's milk?

ANSWER : Because thick milk will not be digested by the child so we mix water to reduce its thickness; if we do not mix water then the child will develop cramps.

QUESTION : What is the difference between abdominal ache due to Joku and general abdominal ache?

ANSWER : In Joku caused abdominal ache the food is not digested and the child vomits it out while in general abdominal ache the

Joku worms create itching in the abdomen due to hunger and therefore the child cries in abdominal pain. Such Joku are called *khajni* or 'itching Joku'.

QUESTION : What is the difference between Joku induced diarrhea and ordinary diarrhea?

ANSWER : The Joku diarrhea is 'thin' and watery white consisting of undigested material while ordinary diarrhea is thicker as digested food is the component of ordinary diarrhea.

QUESTION : Should we give food to a child having ordinary diarrhea?

ANSWER : Yes, the child can be given mung bean and rice gruel (*khichri*) and fruits so that the motions of the child remain 'thick'.

QUESTION : Should we give food during Joku induced diarrhea as well?

ANSWER : Yes, but the child will vomit while eating.

QUESTION : Why it happens?

ANSWER : It happens when the child has Joku then the digestion is not proper and Joku throws the food outside so that the child does not have the capacity to digest and therefore this disease is very dangerous for the children.

QUESTION : What do we call the Joku who throw the food outside?

ANSWER : Such Joku are called *khar* (standing) Joku which stand in the abdomen of the child with their mouth up side and any thing eaten by the child is immediately thrown outside as vomit by the *khar* Joku.

QUESTION : What are the different types of Joku?

ANSWER : Joku is one but it works (behave) differently in different season and they are named as such accordingly. Like *Khar* Joku, *Soldu* Joku and *Kurari* Joku.

QUESTION : What is *Khar* Joku and when it affects a child?

ANSWER : *Khar* means 'to stand'. This Joku troubles during extreme summer months between *Baisakh* (April-May) to *Ashad* (June-July). Mother milk in such times is 'hot' in quality and the Joku stand with their mouth up wards and therefore they throw back the food outside as vomit.

QUESTION : What is *Soldu* Joku?

ANSWER : *Soldu* means 'to get relief'. Under the condition of *Soldu* Joku, the Joku did not trouble the child much and the child

cries only when the Joku 'pinches' which results in momentary pain and diarrhea: under Soldu Joku effect, the child never vomits.

QUESTION : What are Kurari Joku?

ANSWER : 'Kurari' means smell. Such Joku are named under condition when in the summer months there is rain and when again the sun light falls on the surface and the water evaporates. The smell of such evaporation is called 'kurari'. It is this smell which makes the Joku of a child disturbed. The mother and child are prevented from coming out under such situation for the fear of getting the bad effect of Kurari Joku. There are chances of 'sheet-garam' (cold-hot) under such a situation.

QUESTION : You have said that mother's milk lead to Joku so when is mother's milk bad for the child?

ANSWER : There are many conditions which may make the breast milk unfit for the child. By working excessively in hot sun; by getting excessive heating from working in front of the fire hearth; by eating sour things and by eating things coming from outside; the smelling the Kurari air and by eating meat-fish during summer or by eating newly harvested onion and garlic.

QUESTION : Has this disease occurred to anyone in your family recently?

ANSWER : Not in my family but sadly it affected my daughter's son.

QUESTION : What happened to him?

ANSWER : My daughter was a school teacher and a new room was under construction in her house. She worked very hard. Besides going to school, she would go to forest to bring wooden logs. She was also very particular of cleanliness and used to follow food related rules as well but her fate was not favoring her and her son got Joku trouble and was not cured after extensive treatment and finally passed away.

QUESTION : How it happened when she used to follow all food restrictions?

ANSWER : With heavy heart I have to say that it was the fate; her milk must have been Jokanku so that she had to face this and after few years she also died.

QUESTION : Was the child not properly treated?

ANSWER : He was.

QUESTION : Where did you take the child for treatment?

ANSWER : Firstly he was treated at home and when this was not helping they took him outside *vaid* (local healer) but it was not in his fate to be cured.

QUESTION : What kind of treatment was taken at home?

ANSWER : There are different traditions in different places. In her place, for child's treatment they had used '*murkhayalya dam*'. Under this type of treatment, the tip of golden ear-ring was heated and after application of ash around the navel, its tips were gently touched so that the disturbed Joku will properly sit.

### JOKU IN FOLK MODEL

The worm-philic ideas are specific to the central Himalayan Garhwali culture and yet there is great similarity in the 'assisted digestion' theory of Garhwal and elsewhere. The folk-model of worm actions is a very complex set of beliefs having clinical implications for management of childhood illness. In the first place, Joku trouble is a distinctive childhood illness, happening to the child ranging from one to five years. In appearance, the Joku are white, long, thin having red colour mouth which is used in eating of food taken by the child. The early childhood period is considered to be a very critical period as the Joku of the child have not yet adjusted and adapted and therefore these are amenable to getting disturbed and agitated quite easily. Joku are ever present in the abdomen coming *in utero*.

The folk model also emphasize that the Joku are primarily responsible for the digestion as human being do not have the capacity to independently digest their food. If the Joku are not performing their duties of digesting the food, the child will be under trouble. The typical sign of Joku not performing their duties is the presence of undigested food in the child's excrement. It is for this reason that the diarrhea due to worms can be differentiated from other types of diarrhea as in the diarrhea caused due to Joku, the watery diarrhea will have pieces of undigested broken food rather than having continuous stool which in case of non-Joku diarrhea will be the indication of digested food.

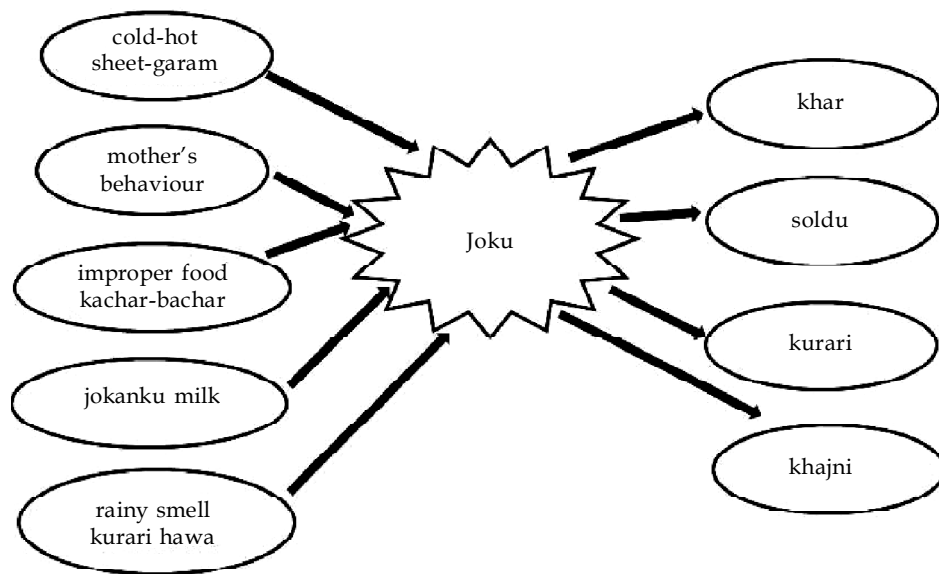
The Joku are also held to be extremely sensitive to the activities of the child and nursing mother. The humoral 'hot-cold' imbalance is very closely linked to the disturbance and disorder among the Joku. Besides this, the conceptualization of *kachar-bachar* is used with the child as the child may undergo uncontrolled and unregulated eating. For example, the children

have the habit of putting anything in their mouth and may also eat quite frequently. Both of these activities will be improper, disturbing and irritating the Joku.

The symptomatology of Joku problem includes the symptom such as – crying, vomiting, watery diarrhea, abdominal ache, watery nose, child throwing head, child trying to lie down at cold places and worm in the stool. These symptoms are general symptoms and the child may exhibit some of these. A cursory look at the symptoms would indicate that the symptoms of Joku cover a large variety of childhood diseases and any childhood disease may be identified as Joku problem.

The Joku problem is primarily a problem of these getting disturbed and agitated and in the process leaving their designated place in abdomen. In the neighboring Jaunsar-Bawar, the Joku (locally called Sonu) are believed to be appearing in a bundle form (Joshi, 1995) which under agitation results in Sonu falling out. The agitated Joku need to be taken back to their respective place by medicines which act as intoxicants resulting in calming or soothing of the Joku. Under extreme agitation, the hot needle dam therapy is applied in Garhwal. Considered to be very effective in Joku problems, the *dam* therapy involves heating of pointed metal instruments and then applying gently over the abdominal region of the sick child. In order to minimize the effect of burn marks, ash is first applied over the skin surface to be touched with *dam* (Saklani, 1992).

Figure 1: Joku Folk Model



Some kind of Joku classification is also prevalent in Garhwal but the different names are indicative of the different conditions of the Joku rather than different classes. Mainly four types are identified with the Joku namely, *Khar*, *Soldu*, *Kurari* and *Khajri*.

### **Why some cultures chose to be Worm-philic?**

There are a large number of cultures which have chosen worm-philic explanatory model for comprehending childhood illnesses. It would be quite wrong to equate the folk childhood illness conditions Joku as intestinal worm infestation because it is much more than mere presence of worms in the abdomen. A very cursory look at the symptoms pertaining to Joku is indicative of the fact that almost all conditions which may trouble the child within the framework of internal medicines can be attributed to Joku. Crying of the child in pain is such a generalized condition that it can be an indication of any internal disease to the child which may imply Joku in the folk explanatory model. While gastro-intestinal problems are dominantly represented under Joku, it explains many other pathological states to the child as well. A child under five years of age is not much communicative of exactly describing the symptoms and therefore, Joku comes as a very common illness label in Garhwal. The Joku which are very crucial factors for the health of the children are inconsequential in the later life. In the folk belief, though Joku remain in the body of human beings for the performance of digestive function, the childhood is a stage of Joku trouble because the Joku try to become habituated and adjusted to human body which takes nearly five years. Once the Joku had adjusted, they are a lifelong friendly creatures maintaining symbiotic relation with the human.

Joku belief system forcefully emphasizes upon the critical link between child and mother. While a Jokanku mother will need to get her breast milk medically cleaned, her behaviour in general is critically linked to the well-being of the child. A young mother, in Garhwal is put under great restriction in her day to day behaviour and food habits. She is required to undergo regimented dietary intake as long as she is breast feeding her child. Under the controlled guidance of the elder women of the family and neighborhood, she learns the art of child rearing. The early married years for a Garhwal bride are really troublesome as she has to adjust to the demanding circumstances of her family of procreation. Her links with her natal family are very special as it is amply reflected in many folk songs (see Capila, 2002). She longs to visit her natal family and to meet her close friends and lead the life of freedom. The family of procreation is where all kinds of restrictions are imposed on her. It is for this reason that belief in the *maite*

*ka chhal* ('shadow of natal family') exists to explain the misfortunes to her children. A woman in Garhwal and Kumaon is required to appease her *maite ka chhal* at least once in her life-time for the well-being of her progeny. For performance of this ritual in her natal family, all expenses in the ritual are to be borne by her husband's family. In the neighboring Jaunsar-Bawar, the natal house is linked with *maite ki dista*, a feminine evil force which can adversely affect the well-being of a woman's children. In order to save the children from the evil influence of the *maite ki dista*, the woman has to *severe her relations* with her natal family by keeping a *chhinga* with them (Joshi, 1994). The belief in *maite ki dista* act as a very strong deterrent in not only gluing a young bride to her family of procreation but also prevents her from divorcing her husband which a very frequent occurrence in Jaunsar-Bawar.

### **Are Worms really so bad?**

While the official positioning of the governments and world bodies is in favour of de-worming of young children, an alternative fad is simultaneously emerging in the developed world. Known under the labels of Hygiene Hypothesis, Biome Depletion Theory and Old Friends Theory, it advocates for the re-worming of the elementary canal. Critiquing the developed world which under reductionist paradigm, attempts to achieve extreme cleaning of the body which is held to be a cause of many of the ills of the developed world as cleaning of the gut ecosystem results in deriving out of the micro-organisms which have been living in the gut environment since millions of years. In the words of Parker and Otterton (2013, p. 94), "A wide range of eukaryotic pathogens, parasites, commensals and...mutualists that were once ubiquitous in humanity have been all but annihilated in industrialized populations". The obsession with extreme cleanliness by the developed and industrialized world is held to be responsible for conditions such as Crohn's disease, uncreative colitis, asthma, Type I Diabetes, multiple sclerosis and horde of allergic, auto-immune and other inflammatory related diseases. Some experiments with the rodents have shown very encouraging results when helminthes were introduced in the laboratory. The results showed that there was healthier balance in the gut ecosystem after the helminthes were introduced (Mckenney *et al.* 2015). The actual merits of the de-worming therapy are already under suspicion. In a large scale RCT study conducted by Awasthi *et al.* (2013) on one million children in Uttar Pradesh, it was found that de-worming had no significant impact on weight gain and mortality.

Worm therapy or helminthic therapy is fast emerging as new age therapy to treat non viral auto-immune disorders including celiac disease,



multiple sclerosis, ulcerative colitis, and atherosclerosis. Introduction of the whip worm is proving to be helpful in treatment of certain conditions. Nobody questions the merits of worm therapy and people are demanding that the worm therapy should be regulated by the government so that spurious suppliers are controlled. Many folk societies who were worm-philic, were dutifully following emergentism, an inclusive approach for treating the worms as friendly beings acknowledging their support to human. The Garhwali folks were supportive of the worms as friendly creatures and at the same time they were not averse to deriving out of worms from the intestines. The Garhwali folk wisdom was in support of keeping only the helping worms and at the same time it was in favor of deriving out the sick and useless ones. It is exactly what the upcoming evidences are favoring. Afterall, the Garhwali folks did not get it absolutely wrong.

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