



## Safety in Pediatric and Neonatal Care by Unani Perspectives: A Narrative Review

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### ABSTRACT

**Background:** Patient safety in pediatrics and neonatology is a critical concern, as infants and children are highly vulnerable to medical errors and preventable causes of morbidity and mortality. Globally, neonatal deaths constitute nearly half of under-five mortality, with India bearing a significant burden due to infections, prematurity, and poor quality of care. Revisiting Unani perspectives on neonatal and pediatric safety provides valuable historical and culturally relevant insights.

**Objective:** This narrative review explores neonatal and pediatric safety from the Unani system of medicine, focusing on preventive and therapeutic strategies outlined in *Tadabeer-e-Naumaalood* (newborn care) and *Amraz-e-Atfal* (childhood diseases).

**Methods:** Classical Unani texts, including *Al-Qanun fi'l-Tibb*, *Kitab al-Hawi*, *Kamil-us-Sanaa*, and *Kulliyat*, were examined alongside contemporary Unani literature, PubMed, Google Scholar, and WHO/UNICEF reports. Relevant information was thematically synthesized to highlight neonatal and pediatric care practices, preventive measures, and therapeutic approaches.

**Conclusion:** Unani pediatrics offers a holistic model of child care integrating maternal health, preventive strategies, and herbal and dietary management of common pediatric disorders. Emphasis on moderation, hygiene, proper feeding, and environmental control reflects early awareness of child safety. Incorporating these insights alongside modern evidence-based pediatric protocols may enhance culturally sensitive, comprehensive approaches to neonatal and child health care.

**Keywords:** Unani medicine; Pediatric safety; Neonatal care; *Tadabeer-e-Naumaalood*; *Amraz-e-Atfal*

### Introduction

Patient safety is defined as the prevention of harm to patients. In neonatal and pediatric cases it refers to preventing harm to infants and children during healthcare delivery. It remains critical because children are especially vulnerable. Errors such as misidentification in newborns, diagnostic mistakes, and medication or technology-related issues highlight the need for strict safety measures.<sup>1</sup>

Globally, an estimated 2.3 million newborns died in 2022, accounting for nearly 47% of under-five deaths, with leading causes including prematurity, birth complications, infections, and congenital anomalies—most of which are preventable with timely care.<sup>2,3</sup> India faces similar challenges, where about 40% of neonatal deaths occur within 24 hours of birth, largely due to poor quality care, prematurity, and infections.<sup>4</sup> Malnutrition remains a significant contributor to pediatric suffering, with South Asia among the worst-affected regions, reflecting gaps in safety, prevention, and healthcare access.<sup>5</sup>

Unani physicians recognized the importance of child health and give important attention to childhood diseases, their management, and strategies for maintaining overall well-being in children. Their guidelines are found under the topics of *Tadabir-e-Naymawlud* (care of the newborn) and *Amraz-e-Atfal* (diseases of children).<sup>6</sup> These cover essential aspects such as newborn care, breastfeeding and infant nutrition, dentition, prevention and treatment of childhood illnesses, and therapeutic principles tailored for pediatric care.

### Background

The Unani system of medicine, traced to Hippocrates, is based on maintaining balance among the body's four humors—blood, bile, black bile, and phlegm. Disease occurs when these humors are disturbed, and health is restored by re-establishing equilibrium. Its treatment methods include regimental therapy (lifestyle and diet), pharmacotherapy, and surgery.<sup>7</sup>

Unani physicians emphasized the importance of child health, detailing childhood diseases, their treatment, and health maintenance regimens. Comprehensive guidelines are found under *Tadabeer-e-Naumaalood* and *Amraz-e-Atfal*, covering newborn care, infant feeding, dentition, disease management, and therapeutic principles. Extensive references on child care are available in key Unani texts, including *Firdaus-ul-Hikmat*, *Kitab-ul-Mansoori*, *Kamil-us-Sanaah*, *Al-Qanoon Fit Tib*, *Kitab-ul-Mokhtarat Fit Tib*, and *Kitab-ul-Kulliyat*.

Galen advised sprinkling mild salt on newborns for protection, “preferring non-irritant types added by Ibne Rushd” and “*Roghan-e-Baloot* advice by Abu Marwan” for this purpose, along with bathing in a hammam<sup>8</sup>. Rabban Tabri recommended light diet, moderate exercise, wrestling practice barefoot, and avoidance of liquor, with hot baths for development.<sup>9</sup> Zakaria Razi cautioned against excess fruits, sweets, cheese, milk, and heavy foods to prevent urinary stones.<sup>10</sup> Ali Ibne Abbas Majoosi stressed bathing before meals, offering preferred foods twice daily, and avoiding frequent feeding, sweets, *Hareesa*, eggs, which cause indigestion and calculus<sup>11</sup>. Ibne Sina, in *Al Qanoon Fit Tib*, dedicated four chapters to pediatrics—covering newborn care, breastfeeding, wet nurse qualities, pediatric diseases, and management till adulthood.<sup>7</sup> Ibne Hubal Baghdadi advised light, nutritious foods post-lactation, mild exercise, daily freshwater baths, massage, cardio-tonic diets, and good habits<sup>12</sup>. Ibne Rushd recommended morning exercise, massage, baths before meals, moderate diets, avoiding heavy exercise, favoring hot baths, and prohibiting *Nabeez*, hypnotics, fruits, and meat during epidemics to prevent illness<sup>8</sup>.

## Methodology:

This narrative review examined pediatric and neonatal safety from a Unani perspective. Data were collected through PubMed, Google Scholar, WHO/UNICEF reports, and classical Unani texts (*Al Qanoon fit Tib*, *Kulliyat*, *Kamil-us-Sanaa*, etc.) along with contemporary Unani literature, then thematically synthesized to highlight preventive and therapeutic approaches.

### Care for child during pregnancy:

Parental health, especially maternal, directly affects the child’s health, and fetal growth strongly influences future disease risk. In Unani medicine antenatal care described as *Tadabeer-e-Hamil* or *Tadbeer-i-Hawamil*.<sup>13</sup>

In pregnancy, from the diet of *Sakht arziyat*, the bones of the child are formed. From substances having a lesser degree of *Salabat* and *Ghalazat*, the nervous tissues are formed. From *Narm maddah* and food, flesh is produced. Hair and nails are formed from those waste products which the *Tabiat* expels and throws away. When the child is born and suckles mother’s milk having elements resemble the four humors, through which the body of the child attains growth and development.<sup>9</sup>

Pregnant women should prioritize their health by drinking wholesome water and eating small, frequent meals of soft, nutritious, and easily digestible food. They must reside in a well-ventilated space and wear loose, seasonal clothing. Key avoidances include emotional stress, intimate partner violence, strenuous physical activity, journeys, narcotics, alcohol, and wet environments. Medical procedures like bloodletting are contraindicated. To manage common issues like anemia, a hematonic diet is recommended; for low appetite, a mix of fox grape, fennel, and anise is advised; and for nausea, stringent fruit juices are suggested. During labor, a moderate, clean environment is essential, attended by a few skilled, infection-free midwives. Facilitation methods include warm baths, gentle abdominal massages with oils, and specific diets like oily gravies. Finally, pregnant women must isolate from infectious diseases to ensure a safe pregnancy and delivery.<sup>14</sup>

### Neonatal care:

Unani scholars have provided a comprehensive framework for newborn and child care, addressing health needs from birth to early childhood. Their writings cover essential practices such as umbilical cord care, bathing, swaddling, breastfeeding, weaning, and early behavioral training. The following sections discuss these aspects in detail.

#### Umbilical cord cutting and care:

At birth, if the child has a balanced temperament, the cord is cut four fingers above the navel and tied with clean wool. A cloth soaked in olive or mustard oil, preferably warm, is placed on the navel. For wound care, turmeric, cumin, *Dam-ul-Akhwain*, *Anzaroot*, and *Ushna* powder is applied to stop bleeding, dry the wound, and prevent infection. The umbilicus is gently pressed to avoid eversion, while ensuring all materials are clean. Before cutting the cord, mucus is cleared from the child’s mouth.

#### Cleaning of the skin:

After birth, the infant’s skin is rubbed with light saline (slightly more for males) mixed with *Shadanj*, *Qust-e-Samaq*, *Methi*, and *Sa’atar* to strengthen it, while avoiding the nose and mouth. If needed, this is repeated and followed by a lukewarm bath. Nostrils are gently cleaned, olive oil drops instilled in the eyes, and the rectum lightly stimulated to expel retained stool. Once the cord falls (3–4 days), the navel is dusted with powders like *Khakistar-e-Sadaf*, *Khakistar-e-Uroqob-e-Ijl*, or *Qalai-e-Sookhta* mixed with alcohol for healing.

#### Swaddling:

In the practice of Swaddling also known as *Taqmeet* in Unani (binding of an infant’s hands and feet), the midwife first gently presses and adjusts the infant’s limbs, broadening or refining parts as needed, using her fingertips softly and repeating this for several days. The infant’s eyes should be frequently wiped with a delicate material such as silk, and during urination, the bladder should be pressed lightly to ease discharge. While binding, the infant’s hands

should be extended and placed near the knees to remain straight, and a turban or cap should be tied snugly on the head to shape it and protect the brain from cold, preventing *Nazla*.

#### **Sleeping of the children:**

For proper sleep, infants should rest in moderate air, on their back, with the head slightly elevated by raising the cot's head side. Swaddling cloth is loosened after waking for comfort and excretion. The sleeping area should be shaded and dark, avoiding sunlight except in winter when some consider it beneficial. Care is taken to prevent bending of the neck, limbs, or back.

#### **Bathing:**

In summer, infants are bathed with moderately warm water, gradually cooled to lukewarm, while in winter slightly warmer water is used. Bathing is best after waking, 2–3 times daily, with the infant kept in the Hammam only until the body warms and reddens slightly. Cotton is placed in the ears to prevent water entry, which should be removed if it occurs.

During bathing, the infant is held on the midwife's left forearm for posterior washing, and supine on her thighs for anterior washing while water is poured. Afterward, the infant is gently dried with a soft cloth, limbs lightly massaged and shaped, then swaddled, with a drop of olive oil instilled in the eyes for cleansing and protection.<sup>6</sup>

#### **Preference of food:** <sup>6</sup>

1. The best milk for a baby is the mother's own milk. It suits the baby's body best and keeps the baby calm and healthy.
2. The baby should be fed 2–3 times a day, not too often.
3. In the beginning, the baby should not drink too much milk at once. Short breaks while feeding help the baby rest.
4. Only the mother should feed the baby in the early weeks, until she has recovered from delivery.
5. Soon after birth, giving the baby a little honey before breastfeeding is good for cleaning the stomach and giving energy.
6. Before each feed, the first drops of milk should be pressed out, and it is better if the nipple is washed. This keeps the baby safe and healthy.
7. If the milk is too watery or sharp, the baby should not drink it on an empty stomach. Mixing it with other liquids makes it less harmful.

When the child begins to eat food, he should be given honey. By eating honey, the child will develop an appetite for other foods, and it will help in *Tanqiya* his body.

When the child grows older, he should be given warm and delicate foods. In the *Hammam*, oil massage should be done on his body. The child should be given *Sharab* instead of water, for *Sharab* is better than water. *Sharab* is like fire which strengthens another fire.<sup>6,9</sup>

#### **Wet Nurse**

A wet nurse or midwife is required because they provide essential support in early child care, ensuring proper breastfeeding when the mother is unable, guiding safe practices like swaddling, bathing, and weaning, and preventing harm through their experience. Their role ensures the infant's nutrition, growth, and protection during the most delicate stage of life.

#### **Qualities in the wet nurse/Midwife:**

In Unani guidance, a wet nurse (Dayah) should be healthy, well-built, of good character, ideally aged 25–30 years, with her own child 1–2 years old, and preferably a mother of a male child. Her diet should be light and balanced, including meat of small animals and birds with wheat or barley bread, and she should breastfeed only after digestion. Foods like garlic, onion, mustard, strong spices, Hing, and Ajwain must be avoided as they can harm the infant through milk. She should remain active with light exercise and household tasks. Excessive crying may indicate pain, for which remedies like letting the child suck chicken or pig's flesh are suggested. Infants should be rocked in a cradle, dressed in loose clothes, protected from extremes, and not overfed, as overfeeding causes sluggishness and hampers growth.<sup>6,9</sup>

#### **Weaning:**

Weaning should be gradual, starting with light foods like porridges and soft meats, while bitter substances may be applied to the nipple to discourage prolonged suckling. Children need moderate, natural exercise but should not be forced to sit or walk before readiness. During teething, hard chewing should be avoided; remedies like rabbit's brain, chicken fat, or olive oil massage ease pain, while liquorice root strengthens gums and prevents ulcers. Salt with honey maintains gum health, and tongue rubbing supports speech development.<sup>6</sup>

#### **As child grows:**

When the child grows a little older, he should engage in moderate exercise. The diet should also be light. When the child becomes capable of learning, he should be taught wrestling. He should go to the gym barefoot. He should be prohibited from drinking *Sharab*, for excessive use of *Sharab* makes the body *Ratab* (moist) and fills the brain with vapors.<sup>9</sup>

## **Disease of the Children:**

### **Teething**

Typical symptoms of teething include gum inflammation, swelling in the temporal area, and jaw stiffness (trismus). Relief can be provided by gentle finger pressure and massaging the gums with oil. A blend of honey with chamomile oil or turpentine resin may also be applied. Another traditional remedy involves pouring a decoction of dill over the head from a height.

### **Gingivitis**

Swollen gums may be soothed by massaging them with an oil and wax mixture. Rubbing the gums with salted meat can also help ease discomfort.

### **Diarrhea**

Diarrhea is common during teething, often due to digestive disturbance rather than swallowed gum pus. Mild cases resolve naturally, while severe ones may be treated with abdominal fomentations of rose, celery, anise, or cumin, or with plasters of cumin and rose seeds in vinegar, or millet boiled in vinegar. If ineffective, lamb rennet in cold water can be given. During this period, curdled milk should be avoided, and light foods like half-boiled egg yolk, soft bread, or roasted barley flour in water are recommended.

### **Constipation**

Childhood constipation can be managed with suppositories prepared from solidified honey or honey combined with wild mint, plane, or burnt lily root. Honey may also be administered orally, while a small amount of olive oil mixed with turpentine resin (about the size of a gram seed) can be gently massaged onto the abdomen. Applying maidenweed or ox-bile over the navel is another effective remedy.

### **Colic**

Colic, usually due to poor-quality milk or diarrhea from indigestion, is treated by applying warm water, wax, or oil fomentations to the abdomen.

### **Weak Digestion**

Weak digestion is addressed with applications of lily wine, myrtle, and rose water. Oral remedies include embelia extract with quince juice or quince wine.

### **Intestinal Worms**

Threadworms are frequent in infants. They are treated with absinth water mixed with milk, or abdominal plasters made from worm-seed, embelia, colocynth pulp, or ox-bile. A remedy of turmeric, Roman ginger, and sugar can also be administered.<sup>6,7,11</sup>

### **Dysentery:**

Children may sometimes develop dysentery due to cold exposure. A useful remedy is to grind and sieve three drams each of watercress and cumin seeds, mix them with aged clarified cow's butter, and administer a small amount with cold water.

### **Rigidity:**

Children may sometimes experience rigidity, which can be treated with squirting cucumber decoction or its oil, often combined with violet oil. When associated with dryness, fever, or severe diarrhea, massaging the joints with violet oil (alone or with wax) is recommended, while violet or olive oil may be applied liberally to the head. The same approach is followed for rigidity of the dry type.<sup>15</sup>

### **Cough and Cold**

For cough and cold, pouring hot water over the head is advised. Applying honey to the tongue and gently pressing the back to induce vomiting helps clear phlegm and ease cough. A soothing remedy can also be prepared by mixing gum acacia, gum tragacanth, powdered quince seed, and licorice extract with sugar, administered in small doses along with fresh milk.

### **Excessive Sneezing**

Sneezing may result from inflammation near the brain. It is treated with cooling remedies, such as applying soothing juices or oils to the head. If unrelated to inflammation, powdered wild basil seeds may be insufflated into the nose.

### **Convulsions**

Convulsions, commonly linked to teething, result from nervous instability and digestive upset, especially in children with moist and strong constitutions. Management involves massaging the body with oils of iris, lily, henna, or gillyflower.

### **Dyspnea**

Breathlessness can be relieved by inducing vomiting, either by rubbing olive oil on the tongue and behind the ears or by pressing the tongue with a finger. Vomiting may also be stimulated with warm water. As a soothing remedy, linseed mixed with honey can be used as linctus.

**Earache and ear discharge**

Earache resulting from dampness or trapped air can be managed with oil infused with barberry, rock salt, lentil, myrrh, colocynth seed, or juniper, which is boiled and strained before use. As the condition often stems from excess moisture in the body and brain, treatment may also include inserting a wick dipped in honey or wine mixed with alum, saffron, or nitre into the ear. Alternatively, linen soaked in astringent wine with saffron can be applied.

**Stomatitis**

Infants often develop stomatitis from delicate oral mucosa irritated by milk, leading to ulcers. Black gangrenous ulcers are severe and often fatal, while white or red ones are milder. Treatments include violet powder (alone or with roses, saffron, or carob), juices of nightshade, lettuce, or purslane, and bruised lily root for persistent cases.

For gum ulcers, myrrh, galls, and olibanum with honey, or sour mulberries and grapes are used. The mouth is rinsed with honey water, syrup, or wine before applying astringents. Stronger remedies include powders of turmeric, pomegranate rind and blossoms, sumach, galls, and alum.

**Fever**

Fever in infants is managed mainly through regulating the wet nurse's diet. Remedies for both infant and nurse include pomegranate juice with vinegar and honey syrup or cucumber juice combined with camphor and sugar. To promote sweating, fresh bamboo leaf juice is applied to the head and feet, and the child is wrapped in warm clothing.

**Conjunctivitis**

Inflamed eyelids can be treated with a barberry and milk mixture, while chamomile decoction and wild basil juice are used to wash the eyes.

**Corneal Ulcer**

Prolonged crying may cause corneal ulcers and white spots, which can be treated with green nightshade juice.

**Meningitis**

Meningitis, a severe brain inflammation, extends pain to the throat and eyes and gives the face a pale-yellow hue. Management involves frequent application of cooling and soothing agents such as cucumber or pumpkin peel, nightshade or purslane juice, and rose oil blended with vinegar or egg yolk.

**Boils**

Black gangrenous boils are often fatal, while red or white are less serious. They are managed with astringent washes (roses, myrtle, mastic, tamarisk) and oils. Simple boils are left until ripe. Ulcers are treated with white ointment or honey water with nitre, and vesicular eruptions with decoctions of myrtle, roses, bog-rush, or young mastic leaves.

**Umbilical Hernia**

This condition, resulting from excessive crying or ruptures, is treated by applying a paste of ground Ajowan with egg white to the navel and covering it with linen. Other remedies include bitter lupine ashes soaked in wine or strong agents like myrrh, cypress, aloes, or acacia.

**Navel Inflammation**

If the umbilical cord is improperly cut, it may cause inflammation. Treatment involves applying and orally administering Celtic juice with turpentine resin dissolved in sesame oil.

**Insomnia**

Sleeplessness is treated by applying poppy seed or rind plasters to the head, or by massaging the head and temples with lettuce or poppy oil. For stronger therapy, powdered seeds such as bugle, mangosteen, poppy, celery, and others are mixed with sugar and given in small amounts, with a trace of opium added if required.

**Vomiting**

Vomiting due to overfeeding is treated with cloves and a mild astringent plaster applied to the abdomen.

**Hiccups**

Hiccups, often from bad milk, are relieved with coconut mixed with sugar.

**Throat Inflammation**

This condition causes swelling between the mouth and esophagus, sometimes extending to the neck. Management includes constipation-relieving suppositories and remedies such as mulberry syrup.

**Prolapse Ani**

Prolapse is treated with lukewarm sitz baths made from pomegranate rind, myrtle leaves, roses, chestnuts, hart's horn, or alum.

#### Abrasions on thigh:

Irritated areas are treated with a dusting powder prepared from myrtle leaves, lily root, and dried roses, or alternatively with powdered galingale, lentil flour, or barley flour.<sup>15</sup>

## Discussion

The Unani system of medicine provides comprehensive guidance on neonatal and pediatric care under *Tadabeer-e-Naumaalood* and *Amraz-e-Atfal*. Classical authorities such as Razi (*Kitab al-Hawi*) and Ibn Sina (*Al-Qanun fi'l-Tibb*) emphasized the importance of breastfeeding, gradual weaning, proper hygiene, and regulated physical activity for infants. Preventive principles are central, including recommendations on maternal and wet nurse diet, safe bathing practices, swaddling, and environmental regulation.<sup>7,16</sup> Common ailments such as teething-related diarrhea, stomatitis, and fevers were managed with herbal and dietary remedies, including rose, violet, purslane, and barley preparations.<sup>10</sup> Although these practices were not outlined within the framework of modern safety protocols, their underlying emphasis on moderation, prevention, and avoidance of irritants reflects an early concern for infant well-being. Notably, these approaches share parallels with contemporary pediatric recommendations, particularly in hygiene, maternal nutrition, and appropriate feeding practices.

## Conclusion

Unani pediatrics, as preserved in classical works like *Al-Qanun fi'l-Tibb* and *Kitab al-Hawi*, presents a holistic model of child care integrating maternal health, preventive measures, and therapeutic guidance for common pediatric disorders. Despite the absence of structured modern safety standards, the principles of moderation, prevention, and individualized care remain relevant. Revisiting these insights alongside evidence-based neonatal safety protocols can enrich culturally sensitive, holistic approaches to pediatric health care.

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