

Children's Exposure to Mildly Cold Environment

Luay Al-Nouri, Siham Al-Zubaidy , Zayd Al-Nouri ,Ahmad Al-Ali

ABSTRACT:

BACKGROUND:

Exposure to mildly cold environment was considered to be the cause of many children illnesses during winter, or even during summer. Understanding these beliefs is essential for improving the care of children.

OBJECTIVE:

To find out in what ways mild exposure to a cold environment was believed to affect children health , and how did mothers respond.

METHODS:

Mothers of 200 children who brought their children to Al-Mansour Children Hospital , Baghdad, in the period Jan.^{1st} to April 30th 2002 were interviewed to fill a questionnaire form about the harmful effect of mild cold exposure.

RESULTS:

The mothers held beliefs regarding mild cold exposure that ranged from causing coryza 96.5%, fever 96%, cough 94% , chest pain 85% , pneumonia 74% , to vomiting 88% , diarrhoea 95.5% and abdominal colic 94% . The sources of exposure described included : giving a bath, inadequate clothing , uncovering during sleep, walking barefooted , crawling on a cold floor , or taking a cold drink or food .

CONCLUSION:

These beliefs lead to improper care of children including over warning or over clothing, while distracting attention from useful measures like avoiding contact with infected persons or consumption of contaminated food or drink .

KEY WORDS: cold exposure, children

INTRODUCTION:

There is a variability in health beliefs in different cultural groups all over the world . Baer and co-workers taking common cold as an example , found variation in belief concerning this common condition in people from different Latin – American countries and United States citizens. ⁽¹⁾ Saudi Parents had serious misconceptions about fever ill effects in their children⁽²⁾ . Interviewing Iraqi mothers similar and different perceptions of fever harmful effects were found⁽³⁾. Misconceptions regarding care of the umbilical stump in the newly born infant were found among Iraqi mothers and of other parts of the world⁽⁴⁾. One of the commonly held beliefs is the harmful effect of transient exposure to a mildly cold environment.

Department of Pediatrics, University of Baghdad .

These beliefs often distract mothers' attention from real causes of children disorders like viruses, bacteria and parasites, resulting in improper preventive measures and incorrect management. We wanted to know in what ways, the mothers in our survey thought, can mildly cold environment affect the health of their children, how they reacted, and from whom they got their knowledge concerning the exposure to cold.

SUBJECTS AND METHODS:

A random sample of mothers who brought their children to Al-Mansour children's hospital, Baghdad, for various medical reasons from the poorer districts and surrounding areas of Baghdad . Every third mother was interviewed by a trained interviewer who utilized standardized questionnaires. Two hundred mothers were interviewed in the period Jan.1st to April 30th, 2002. All the children were under 12 years of age. The questions included the ways exposure to cold could affect the health of children, what were the

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ill effects on the health of children in winter and summer times. They were also asked about the sources of their information.

RESULTS:

The interviewed mothers were of different educational levels: From illiterates 38.5% , to college graduates 12% (fig. 1) . Almost two thirds (64%) were from urban districts and one third from rural areas (36%).

More than half of the mothers thought that giving the child a bath can be harmful. Almost half believed that a nursing mother if exposed to a cold environment, her milk will be cold; an ill effect that may lead to diarrhoea (Table 1).

A little less than a third thought that inadequate clothing, or inadequate covers during sleep including the child's abdomen exposure will be harmful. Also, if the clothes were wet (26%) or if the baby was not swaddled (16%), the ill effect of the cold would take place.

Further, being indoors in an inadequately warmed room, walking barefooted or crawling on uncovered floor (e.g. tile), were all thought to have harmful effects (Table 1).

A sudden change of temperature as in going outdoors leaving a warm house or playing in the garden were other ways thought to bring about the ill effects of cold exposure. Moreover, intake of a cold food item or drink was considered harmful leading to sore throat or tonsillitis (table 1).

All the above were associated with the cold weather in winter , but can a similar ill effect take place during summer time when the temperature outdoors is in the high forties Celsius ? Many of the interviewed mothers believed it may; in case of going out of the bathroom, following a bath, into an air cooled room (48.5%), or outdoors (1%). A sudden change of the room or environmental temperature where the child is from hot to cold was also blamed (2.5 %). Loss of bed cover while sleeping overnight on the roof of the house (1.5%) ,which is usual in Baghdad during summer months especially with electricity outages (table 2) .

Furthermore, Taking a cold drink from the refrigerator, or ice cream were blamed for sore throats and common colds (3.5%). Sleeping on uncovered floors inside the house (e.g. tile, marble) was sought by some children during the warmer season such floor can be colder than their beds during electricity outages (table 2).

Answering a question regarding what the ill effects of exposure to cold environment are, (96%) of the mothers thought that fever may result , while (77%) thought that headache may be the result (table 3) .

The vast majority believed that exposure to cold usually led to respiratory disorders especially coryza (96.5%), cough (94%) , chest pain (85%) , and even pneumonia (74%). Tonsillitis was more likely to be the result from a cold drink or cold weather (4%).

The gastrointestinal symptoms were also correlated to a mildly cold environment exposure including vomiting (88.5%) , diarrhoea (95.5%) , and colic (94%) (table 3).

As a reaction to these beliefs children were bathed less often; 40% of the mothers gave a bath to the child once a week and only 0.5% gave a daily bath. Others gave a bath once a month (6.5%), twice a month (8.5%) or three times a month (0.5%). One child was given a bath once every two months, and another once every three months (table 4).

The other reaction was over wrapping or over clothing. Some were using two layers of clothing (16.5%), three layers (35%) , four layers (39.5%), five layers (7.5%) and occasionally six layers (1.5%) (table 5).

The sources of mothers' information regarding the exposure to a cold environment and its harmful effects ranged from the maternal grandmother (73%), paternal grandmother (22.5%), other relatives (24%), to friends and neighbours (10%) (table 6).

DISCUSSION:

Prolonged exposure to extreme degrees of low atmospheric temperature may result in injuries like cold nip, cold bite, trench foot, chill blains neonatal cold injury syndrome or hypothermia ⁽⁵⁾ ' a serious hazard in this age group but rarely encountered in Baghdad . ⁽⁶⁾

Hypothermia is a medical emergency that is completely preventable. It occurs when persons are exposed to ambient cold temperature without appropriate protection for an extended period of time . ^(7,8)

The presence of a lactating mother in a cool room will not have a harmful effect on her baby, as her milk is always available at the proper temperature. ⁽⁹⁾

When a child is given a bath during winter, the water used for bathing is usually reasonably warm and the bathroom is normally heated properly, and going out to a less warmed room is unlikely to lead to a harmful effect.

Clothing entraps air next to the skin, and in the weave of cloth, thereby increasing the thickness of the so-called private zone of air adjacent to the skin and also decreases the flow of convection air current. Consequently the rate of heat loss from the body by conduction and convection is greatly

depressed. A usual suit of clothes decreases the heat loss to about half from a nude body⁽¹⁰⁾. The circumstances mentioned by the mothers did not mean a nude child. Many children feel uncomfortably warm and attempt to reduce their clothes. Over-clothed children and those over-covered during sleep may attempt to throw away their covers and expose more of their skin to air including their abdomina. Some of the mothers used as many as 6 layers of clothing during winter. (table 5)

Swaddling is usually done with a thin sheet of cotton cloth that is unlikely to insure good warmth in winter. It is often tightly wrapped around the infant body that it reduces muscular activity which is a major source of heat production in the body⁽¹¹⁾. The majority of mothers believed that a mildly cold weather exposure can cause respiratory tract infection (coryza, cough, chest pain and pneumonia), gastrointestinal problems (diarrhoea, vomiting and abdominal colic), or fever whether this exposure happened in winter or summer. Interestingly, similar beliefs were held in other countries like Latin Americans.⁽¹⁾

Although upper respiratory tract infections are encountered more frequently during fall or winter months, there is no evidence that low environmental temperature and "cold air" per se either promote the spread of the viruses or decrease our resistance to them^(9,10).

Sudden exposure to cold air may induce sneezing and reflex rhinorrhoea, but does not cause common cold. In addition, cold exposure can lead to bronchorrhoea or bronchospasm which may be diagnosed as coryza by the mother.⁽²⁾

An upper respiratory tract infection or otitis media may lead to diarrhoea in infants (Parenteral diarrhoea) that may be considered by some as a result of exposure to cold weather. A crawling infant is quite likely to pick up contaminated objects from the floor causing diarrhoea rather than the coldness of the floor.

The occurrence of a common cold after a bath does not mean a causal relationship between them. It could be that the child was exposed to an infection earlier and was within the incubation period; such a chronology of events can be easily missed or misinterpreted by the mother.

Another possible scenario would be exposure to carriers of the virus who are asymptomatic. A member of the family may be infective for days before the appearance of the symptoms. The mother being unaware and the baby is given a bath concurrently with the onset of a respiratory infection.

Sneezing or rhinorrhoea may also be due to allergic rhinitis. Emotional stress and exposure to a cold atmosphere may produce a vasomotor response with a nasal discharge.

Even during summer time when the indoor temperature may be as high as 40 c. and outdoor temperature approaching 50 c.⁽¹⁴⁾, many mothers think that the child may have the harmful effect of exposure to cold air by going out of the bathroom into an air-cooled room or sleeping on the floor. Many of these children may be seeking a cold surface when no cooling device is available in the house. (table 2)

Taking a cold drink or ice cream was considered the cause of sore throat or tonsillitis and many children were denied them because of this belief. An effect following such intake is more likely to be due to contamination with bacteria or viruses, given that some families buy ice cream made with unpasteurized milk and other refreshments from unregulated street vendors.

As a result of these beliefs many of these children are over wrapped or over clothed and may not be bathed for weeks. This makes the child irritable and sweaty which predisposes to miliaria, pyoderma, seborrhoeic dermatitis, and napkin dermatitis. Also, excessive sweating may make clothes less insulating⁽¹⁰⁾. Whereas, over heating of babies increases the risk of sudden unexpected death,^(15,16) and possibly febrile convulsions.

Each mother in the survey either cited her own mother, mother in law or relatives as her source of information regarding beliefs and practices towards their children's exposure to cold environment. (table 6)

CONCLUSION:

While the effects of prolonged exposure to extreme fall of environmental temperature such as cold nip, cold bite, trench foot, chill blains or neonatal cold injury rarely encountered in Baghdad, mild and transient reduction of environmental temperature was considered the cause of many acute disorders of children like coryza, tonsillitis, pneumonia or diarrhoea. These conditions are usually due to children exposure to infection from lack of proper protection and not due to lowered environmental temperature.

The mothers got these concepts from their relatives or friends rather than reliable and well informed medical sources.

RECOMMENDATIONS:

Families should be educated through mass media especially television and radio, and even the internet in communities where access is widespread. Other important sources of health

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education include: child welfare centres and health care providers like doctors and nurses as well as leaflet distribution . The advice should focus on avoiding over clothing young children and unduly limiting their outdoor activities. They also should not be denied frequent bathing, cold drinks or ice cream. Their contact with persons suffering from

respiratory infections should be limited to avoid or minimize the chance of acquiring respiratory infections.

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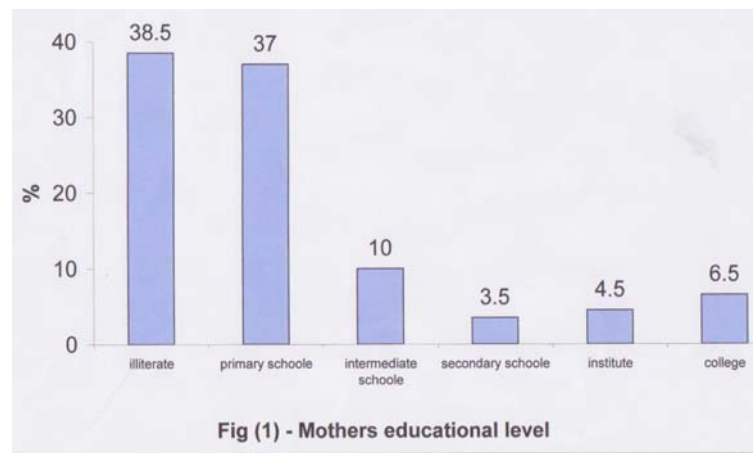


Table 1 :Exposure circumstances to a mildly cold environment in winter.

Circumstances	%
Nursing mother cold exposure	47.5
Bathing	54
Inadequate clothing	31.5
Uncovering during sleep	28
Wet clothes	26
Lack of swaddling	16
Cold room	11
Walking bare footed	24
Crawling on floor	1
Rapid change to outdoor temperature	20.5
Playing out door	2.5
Cold drink or food consumption	3

N.B. Mothers stated more than one way each

Table 2:Circumstances of exposure to cold environment during summer.

Circumstances	%
Air-cooled room after taking a bath	48.5
Going out of the house after a bath	1
Sudden entry from warm to a cold place	2.5
Loss of cover during sleep on roof	1.5
Ice-cream ingestion	6.5
Drinking cold water	3.5
Sleep on uncovered floor	0.5

N.B . Mothers stated more than one way each

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Table 3: Harmful effects of exposure to a mildly cold environment.

Harmful effect	%
Coryza	96.5
Fever	96
Diarrhoea	95.5
Cough	94
Colic	94
Vomiting	88.5
Chest pain	85
Headache	77
Pneumonia	74
Tonsillitis	4

N.B. – Mothers stated more than one ill effect each.

Table 4 :Frequency of bathing children during winter.

Bathing per week	%	Bathing per month	%
1	40	Once	6.5
2	32	Twice	8.5
3	9	Thrice	0.5
4	2		
7	0.5		

_ One child had a bath every two months.(0.5%)

- One child had a bath every three months.(0.5%)

Table 5 : Layers of clothing used for the child.

Number of layers	1	2	3	4	5	6
Number of children	0	16.5	35	39.5	7.5	1.5

Table 6: Sources of mothers information on cold exposure.

Source	%
Mother	73
Mother- in- law	22.5
Other relatives	24
Friends	10

N.B. Mothers have had more than one source of information

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