The social ecology of maternal infant care in socially and economically marginalized community in southern Israel

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Abstract

This study aims to better understand the social ecology of infant care (IC) as experienced and perceived by mothers living in a deprived Arab Bedouin community in Israel, where children’s health indicators are poor. We used the integrative model of García Coll et al. (García Coll C, Lamberty G, Jenkins R et al. An integrative model for the study of developmental competencies in minority children. Child Dev 1996; 67: 1891–914) and constructs of the Health Beliefs Model as a study framework for conducting focus groups with 106 mothers in 2007. Results show that mothers believe IC and infant well-being are high priorities. However, distal barriers, including land disputes, a transition from herding to low-paid labor and lifestyle changes have interacted with proximal barriers in Bedouin families, including poor living conditions, poverty and weakened familial relations to inhibit adequate IC practices. Specifically, distal and proximal barriers affect IC directly (e.g. lack of nearby clinics) or indirectly (mothers’ self-efficacies) to limit mothers’ choices and control over IC, thereby posing threats to infant health. Our findings demonstrate the importance of understanding the complexity of social context in shaping IC among marginalized minority mothers and suggest new ground for addressing proximal and distal barriers through policy interventions. Without contending with both, interventions to strengthen mothers’ self-efficacy will have limited success in improving the environment of IC and, consequently, infant health.

Introduction

Infant care (IC) includes a variety of actions aimed at maintaining good health and reducing exposure to disease and illness among infants. The underpinning common value of these practices is the preservation of life and well-being in the newborn infant [1]. Mothers in socially and economically marginalized minority groups are challenged by multiple barriers in their environment that diminish their belief that they can provide optimal care, which, in turn, prohibits that optimal care and poses threats to infant health, early child development and sometimes life [2, 3]. In many countries, morbidity and mortality rates among minority-group infants are higher than in other groups in the society [4–8]. Understanding
the pathways to this inequality is crucial for informing policies and for developing effective health education frameworks and interventions to improve minority children’s health.

In health research, behavioral theories have long been used to understand the nature of individual parents’ IC. These theories are seen by many as providing a framework for understanding individuals’ cognitive perceptions, attitudes and beliefs about IC, which, in turn, provides a ‘roadmap’ for health promotion interventions [9]. For example, the Health Beliefs Model (HBM) [10], in practice for over 50 years [11], has been used to study curative and preventive infant and child care practices [12–14]. The HBM assumes that mothers’ or parents’ beliefs about the severity of threats to their infant’s health, and the infant’s susceptibility to these motivate mothers’ or parents’ IC, but that practices take place after consideration of the benefits of, and barriers to given IC practices. IC practices are thus mediated by mothers’ or parents’ self-efficacy, or their beliefs in their ability to successfully overcome the barriers to provide optimal or adequate care.

While cognitive-behavioral theories (such as the HBM) provide important insights into parental beliefs about child care, they lack context. Developed to fit a North American white middle-class context, these theories nonetheless presume universality; they fail to take into account unique social environments or how social context shapes people’s perceptions and beliefs [15–17]. These theories might therefore be culturally inappropriate in other settings [15–17]. This limitation is important when studying minority IC among marginalized families who have limited control over their life circumstances. In the past, sole use of health behavior theories to study such populations has produced an incomplete picture of how IC is shaped, resulting in victim blaming and overblown results showing child neglect [18–21].

One alternative to behavioral frameworks that has garnered increasing interest among public health researchers and health educators is found in social ecological models [22, 23], which emphasizes the social context [15, 17, 24]. These models consider the complex and multiple influences of intrapersonal and interpersonal factors, as well as institutional, community and public policies that result in the social construction of health and health behaviors [15, 17, 24]. Sociocultural forces shape people’s day-to-day experiences, which shape their perceptions and, in turn, their health behavior [16]. These forces incorporate different layers of influence, including historical, political and legal structures and processes; organizations and institutions; and individual trajectories [15]. None of these can be neglected in understanding the developmental environment and care of minority children.

In 1996, a multidisciplinary group of researchers García Coll et al. [21] proposed an ecological model, called the Integrative Model (IM) [21], to achieve a fuller understanding of infants’ developmental outcomes in minority families. Unlike other social ecological models, the IM is based on stratification theory and highlights the role of discrimination, racism and segregation in minority children’s development. It assumes that minority child development and care are a function of an interaction between distal and proximal components [19, 21]. The distal components include five macro system factors: (i) social position or class, which defines access to critical resources; (ii) racism or discrimination and oppression, which impact families’ ability to meet children’s needs; (iii) segregation, including the creation of segregated environments that define opportunities and resources; (iv) ‘adaptive culture,’ which is the concept of community-level forms of response to transitions in the social and physical environment informed by a group’s cultural legacy, socio-political history and patterns of acculturation; and (v) inhibiting environments, which relate to the quality and standards of child care services available to meet the specific needs of minority children (health care, education, etc.). The two proximal components include individual child characteristics and family context [19]. Family context includes parent–child interactions, such as IC practices, which, in turn, include parents’ health beliefs. Proximal factors interact with the macro distal ones to determine parents’ competencies with regards to a child’s development and health. Researchers have used this understanding of near and distant barriers to study, for example, the health of Black children in the United States [19].
The aim of the current study is to understand the social ecology of maternal IC in the Bedouin community, a socially and economically marginalized minority in Israel.

**Bedouins in Israel**

Bedouins are an indigenous Arab minority who had been living in Negev more than six centuries before the State of Israel was established in 1948 [25]. That year, like other Arab citizens of Israel, Bedouins lost autonomy over their lands and became part of a new Arab minority in Israel that comprises about 18% of the country’s total population and 25% of the southern population in Israel [26].

Since 1948, Israeli governments have been engaged in massive land confiscation of areas where Bedouins have traditionally lived, greatly eroding the main sources of the Bedouins’ livelihood [27], such as sheep herding and small agriculture [28]. Consequently, fundamental transitions in the once semi-nomadic community’s economic and social situation have occurred, including lifestyle changes, such as being more settled and sedentary. Successive Israeli governments have planned to resettle the Bedouins in seven permanent new towns. However, since Bedouin want to keep their lands and traditional lifestyle, only about 50% have moved to these new localities. The rest have remained on disputed lands and live in what are called ‘unrecognized localities’. These lack basic infrastructure, such as water supply, electrical connections, sewage disposal, public transportation and health services [27]. Today, Bedouins are among Israel’s most deprived populations, experiencing poor education and high unemployment [29].

Several factors among them, such as tradition, a tribal, patriarchal social structure, the lower status of women and the need to maintain strong economic ties within extended families, have encouraged high rates of cousin marriages and polygamy among Bedouins [28]. Consanguineous unions are estimated to account for 60% of all marriages [30] and are associated with higher congenital malformations and genetic disease rates [29]. Following a practice in place since ancient times, about 25% of all Bedouin marriages are polygamous. Traditionally, women in polygamous marriages helped each other with household duties and provided mutual support during sickness and after birth. Despite this, polygamy has been shown to have an adverse influence on women’s mental health [31] and children’s psychosocial indicators and scholastic achievements [32].

It is not surprising, therefore, that Bedouin children have Israel’s highest rates of infant mortality [29], infectious disease and hospitalization [33], anemia and iron deficiency [34] and low birth weight and slow growth indicators [29]. Bedouins are entitled to health care services through Israel’s National Health Insurance Law, enacted in 1995 [35]. Maternal and child preventive services are provided mainly by the Ministry of Health through local Maternal and Child Health Clinics (MCHCs) [28]. At the time of the study, MCHCs charged a per-family fee every 6 months.

**Transitions in child rearing and care**

Child rearing and care in this community used to be a collective responsibility of Bedouin kin networks or extended families. Grandmothers took care of small children, while mothers worked in the household and did some herding and domestic agriculture, which contributed to household income and helped families avoid extreme poverty. After 1948, the number of women who herded or farmed was reduced due to land confiscations and limits imposed on use of government lands by Bedouins. Transitions in the economic structure of society since then have been accompanied by changes in Bedouin family structures. Extended family has become fractured and independent nuclear families are now the norm; they bear nearly sole responsibility for child rearing and care. As a result, in many cases Bedouin mothers are the sole caregivers of children, as husbands mostly work outside the home.

In the current study, the basic concepts of the IM [21] were used as a framework. But we combined this framework with constructs of the HBM (health threats, barriers and self-efficacy), which we used to
guide the focus group discussions with the aim of capturing maternal perceptions of Bedouins' children' health and development. We assumed that mothers' IC reflects these perceptions as much as it does their daily experiences, which are shaped by the social context in which IC takes place. This context includes important social transitions lived by this community in recent decades.

### Method

#### Study participants and data collection

In 2007 we conducted 10 focus group discussions (FGDs) with 106 Bedouin Arab mothers from five officially recognized and five unrecognized localities in southern Israel. A snowball method was employed to recruit the mothers. A local lay health advisor invited mothers to participate. These mothers, in turn, invited others. Each focus group included 8–15 mothers with infants less than 2 years of age. The FGDs were held in the home of a local participant and took place in the mornings, when husbands are normally at work. Discussions were facilitated by the first author in the presence of the lay health advisor and audiotaped after obtaining the mothers’ signed or finger-stamped consent. An anonymous, short demographic questionnaire was completed at the beginning of each FGD.

Three questions, each based on a HBM construct, led the FGDs: (i) Infant health threats: 'In your opinion, what are the main threats to Bedouin infants health?'; (ii) barriers: ‘What are the barriers that prevent you from providing the best care for your infant?’. The second question, though phrased at the individual level, aimed to capture examples of distal and proximal challenges faced by mothers in the overall community, as we were building on the insight, emerging from the IM, that both levels of barriers impact IC. We did not explicitly ask questions using IM language since we wanted our queries and the resulting discussion to be as open-ended as possible. The third question: (iii) self-efficacy: ‘Thinking about yourself, do you think Bedouin mothers can meet the needs of their infants’ in an optimal way?’

#### Date analysis

Group discussions were transcribed verbatim. A thematic analysis of the transcripts was conducted for each question [36]. Constructs of the HBM and IM informed our coding. The list of barriers identified by the mothers was analyzed using the lens of distal or proximal components of the IM. At the same time, these were based on the HBM construct of perceived barriers.

For example, while we coded harsh living conditions a proximal barrier for Bedouin families as it relate to household factors, a distal or macro-level barrier that interconnects with this barrier is the lack of government’s investment in the infrastructure of these localities.

To achieve quality control for our findings, items for each question were identified and coded independently by two co-authors. The codes were then discussed with the other co-authors. To examine internal and external homogeneity of themes, we compared these within and across the discussion groups.

#### Findings

Mean maternal age was approximately 33 years. Mean number of children was 5. Most mothers had been born in Israel and were married, with 23% reporting polygamy. Only 21% worked outside the household. Low education levels were apparent: about 40% did not know how to read or write Arabic. About one-third of the women reported lower family income (subjective income compared to other Bedouin families). About 55% lived in unrecognized localities.

Below, we organize FGD findings using the questions that governed the discussions (focus group numbers appear as attribution).

#### In your opinion, what are the main threats to Bedouin infant health?

Mothers mentioned a broad range of physical and mental health problems. Three main health threats were emphasized: developmental delays and disabilities, injuries and seasonal infectious diseases.
A healthy infant has no physical or mental problems, he grows up without any defect or disabilities or disease...many Bedouin children have many health problems-disabilities. (G2)

Generally, when the mothers described a health problem, it was put into context, linking it to broader issues in the child’s environment that establish the ground for health threats:

A baby who has an environment that is lacking something will suffer some problems. (G10)

Accidents and injuries were often linked to changes in Bedouin living conditions. Mothers perceived hazards in the traditional home environment (cooking fires, proximity of domesticated animals, etc.) as part of a familiar environment they could control. Since changes in their lifestyle have come to pass, isolating children from extended family, mothers say they must pay more attention to children:

Life is not the same, in the past life was better. A child will be playing all time around, under every one’s eyes there was no fear of cars or the stairs [like today]. (G5)

Such observations were made mainly but not exclusively by mothers from unrecognized localities. Their families are under constant threat of government relocation to a more urban setting. Some mothers emphasized the advantage of the traditional Bedouin lifestyle and argued that moving to semi-urban localities can be harmful:

Living in an unrecognized village is better for the children; they’re used to living where there isn’t much traffic. If they [the government] — move us to another locality, it’s like sending us to a big prison... (G1)

Similarly, vulnerability to disease was linked to changes in Bedouin living conditions and family income:

Life is hard today... in the past there used to be a better situation... they [men] used to have their job (herding) and thanks to God all was going well, there was no diseases and problems like we have today... (G1)

Some mothers described a seasonal pattern of infant illness among their children, thereby linking an illness in this community to living conditions in unrecognized localities, where services like water and electricity are denied as part of government policies to pressure Bedouins to move. Many families do not own a refrigerator, and limited access to water makes hygiene problematic, leading to illnesses:

The common diseases here are the flu and fever in the winter, and in the summer we have diarrhea. (G1)

One positive health-related side effect of policies that deny services in the unrecognized localities is longer breastfeeding:

A mother should continue breastfeeding as there is nowhere to keep bottled milk. We have no electricity. (G8).

While the health-beneficial tradition of breastfeeding seems to be enhanced by recent difficult transitions, however, other Bedouin traditions, such as consanguineous marriage, remain unchanged despite community knowledge of associated health risks. Many participants said they have witnessed these risks in their own families and in the community:

Some are afraid of cousin marriages, but they still get marry... one woman has 10 children, but no one is ‘normal’... one is blind the other is deaf or they have brain problems (mental disorders) she brought all this from her parents. (G7)

First-cousin marriage is an old tradition associated with the relatively high prevalence of genetic disabilities, but one that is unlikely to undergo substantial change in the near future. Genetic tests for pregnant women are now available free of charge. Still, many do not use them due to mistrust of government-run health care services. Mothers
provided examples of why they do not trust the genetic tests:

My husband is a first cousin, when in the fourth month of my pregnancy I did the protein test [alpha-feto protein] and the amniocentesis test, they told me that I had to come to a committee [which approves] abortions after I had an ultrasound. I didn’t agree to do the abortion...This boy is the most clever one in my children, he just gets high scores in the school...There are many cases of which they tell you to abort but at the end you give birth and all is just fine with the baby...(G7).

Generally, the mothers displayed ‘significant’ knowledge and familiarity with details of infant health problems, a finding that could help establish new ground for skills-building health education. That there is interest in issues such as prenatal health and genetic tests reveals an opening for culturally competent health education that would allow people to make decisions based on correct information.

**What are the barriers preventing you from providing the best care for your infant?**

Barriers for IC dominated the FGDs. We identified four groups of key barriers: poor living conditions; financial problems; patriarchy and women’s low status and inaccessibility of health care services. While these are interconnected, we describe them separately as a means of clarifying each issue.

Mothers in all groups discussed poor living conditions and housing instability. However, these were of particular concern for mothers from unrecognized localities, where building permanent houses is illegal and can be undone by demolition. Mothers in recognized localities, meanwhile, discussed overcrowding due to the large families that are typical of their community:

The conditions at home are difficult...A family like mine [my family] with ten children living in two rooms, what do you expect?...it is hard for everyone. (G10)

Lack of public transportation and paved roads were also highlighted in this category, since most of the women do not drive. Traditionally, they have been forbidden to. Now, many cannot get a license due to limited literacy.

Everything is far, you need to travel to places. If there is no car to take me, it is hard to get to places, now the village is big. (G10)

In addition to these problems, mothers living in unrecognized villages have other, more pressing barriers. They said they perceive life in these localities as temporary, since the government considers these villages illegal. The threat of demolition precludes home improvements that would ensure a suitable environment for healthy infant development. Most homes in the unrecognized villages are shacks or tents built from cheap materials, since families know that, this way, rebuilding will be inexpensive if their home is demolished. Mothers spoke about how these living conditions can pose threats to infants’ health:

Mentally, we’re prepared, every day this could happen [house demolition]...we just wait...every time we see a strange car we think here it is...it’s coming to destroy!...(G3)

‘Financial difficulties’ created a set of barriers that the mothers also linked to their living conditions. Some stated that they were unable to buy basic food products, could not pay for medications or afford MCHC fees (required at the time of the data collection but stopped in 2010). Despite high immunization levels among Bedouins overall, some mothers even felt lack of money could jeopardize this important practice:

Children mightn’t get their immunizations on time because of the fees. (G5)

As most Bedouin mothers are totally financially dependent on their husbands, mothers cannot make independent spending decisions, aggravating...
their sense of being without resource. In general, unemployment rates are very high in this community, but most Bedouin mothers also lack the formal education that would enable them to find jobs. Poverty makes some mothers yearn for ‘a past when’ traditional life included herding by women:

In the past, things were more manageable. We used to have a herd and life was better without the diseases and problems we have today. (G8)

‘Polygamy and patriarchy’ also create major barriers, according to the mothers, intensifying their financial helplessness and poor living conditions. As discussed earlier, polygamous marriage is common, and many Bedouin husbands support more than one household, which was a concern among some mothers:

If the husband is married to two or three [wives] and has six to seven children, and each of them needs food and clothing, the father’s salary will be insufficient. (G5)

But most distress over polygamy related to a new phenomenon of husbands abandoning one family upon marrying a new wife. Abandonment was viewed as the most extreme threat to the family’s stability and well-being, since, in many instances, it led to the loss of their main income source:

Everybody now marries more than one woman and abandons his first wife and children…their situation becomes simply terrible! (G10)

Mothers also expressed concern about the impact of polygamy-related abandonment on their children’s mental health:

Yes…this [polygamy] certainly affects the children when they see their father in another house with other woman and he doesn’t fulfill his obligations towards them. (G3)

‘Inaccessibility of health care services’ adds another layer to the challenges Bedouin mothers face in seeking care for their infants. These barriers sometimes make mothers’ visits to MCHCs or primary-care clinics difficult, unpleasant and time consuming. The distance to these clinics, lack of paved roads and the need for most mothers to physically carry their babies there were mentioned as major barriers for accessing health care services:

It takes a whole day to go to Tipat Halav [MCHC]; sometimes you miss your appointment. (G5)

You need to walk a long distance along the wadi while you carry the baby, and in the winter it is dangerous because it is full of rain water. (G6)

Absence of public transportation further reduced access to these health care services:

…some women start walking in the morning until they find a transit [van providing transportation] or they catch a ride with the school bus. Then you wait from noon till the evening to find a car to take you back. (G8)

Long waiting times exacerbated the mothers’ inability to keep their appointments, and some mothers complained about discrimination on the part of some nurses:

In the MCHC the nurses are arrogant and condescending. They shout at the mothers: don’t do this and do that, and don’t give the mother any chance to respond. (G4)

Can you imagine, the nurse refused to give me the key to use the rest room even when I was pregnant! (G6)

Other mothers perceived some staff attitudes as prejudiced and discriminatory because they accuse Bedouin mothers of child neglect:

I say this happens because we are Bedouins, they think we don’t care about our babies…(G6)

Several mothers complained about poor quality care and high doctor turnover, especially in the primary care clinic, increasing their feelings of mistrust
towards health care services. As most staff in the clinics do not speak Arabic (the mothers’ language), communication problems were common and sometimes perceived as contributing to poor care quality. In addition, mothers in the unrecognized localities, where there is often no MCHC or primary care clinic, view their isolation from services as a major problem:

It is important to have a MCHC here as well. A mother goes in the morning [to the MCHC] and comes back in the afternoon... they have to give us the opportunity to get these shots [immunizations]. (G6)

A duality between traditional and modern IC practices added to the mistrust Bedouin mothers felt towards health care services. The main theme that emerged in this regard was the comparison between traditional, familiar IC practices and those recommended by MCHC nurses. Some mothers perceived traditional practices as beneficial, whereas others thought some practices were dated and had rightfully been abandoned. The only traditional practice all mothers highly valued was breastfeeding, which was also recommended by the MCHC nurses. As one mother put it,

Mothers who breastfeed more, their children will be sick less. (G3)

Benefits of traditional IC practices, such as dressing babies in a certain way and swaddling them were also highlighted:

We are used to swaddling the baby while straightening up the body, hands and legs. This way we keep the baby healthy. It protects the infant from cold and heat. The hands will be near the body; this will prevent skeletal problems and their shoulders will be strong. (G1)

Some women still use traditional practices with their babies:

When we bathe the baby, we add salt, it protects him from insects, his ears will be clean... We massage the baby and then we put olive oil on his skin. (G1)

These practices appeared to differ from one locality to another. Mothers stated that they stopped traditional practices when they learned of negative side effects, such as those that can follow from lining babies’ eyes with black kohl.

Benefits of practices recommended by the MCHC nurses but that were not inherent to the Bedouin traditional lifestyle were less accepted by the mothers. The most frequent MCHC recommendation mentioned as being somewhat accepted by this community was to have babies sleep on their backs.

Thinking about yourself, do you think Bedouin mothers can meet the needs of their infants’ in an optimal way?

We formulated this question to elicit answers that would help us learn about solutions or strategies that the mothers use for IC. We hoped the question would open a discussion about solutions mothers enact to overcome the barriers they described to us. This was also important for group dynamics: we did not only want to highlight barriers.

The most common answer to the question was ‘everything is in God’s hands’. While this reflects strong religious beliefs typical of Arab women in traditional societies, it might also indicate the lack of trust and support the mothers felt in relation to their social environment and to government health care and social services. These feelings might, in turn, influence their self-efficacy. The mothers did not seem to fully trust either official services or social support systems, such as community and extended families. They appeared to rely on themselves and on their faith.

People used to rely on God to heal them. Today if a person is sick he goes to the doctor as if the doctor will heal him, instead of mentioning Allah and asking for God’s help to heal him. (G10)

Doctors can’t prevent disease. (G7)

People need to have more faith. (G10)
While these answers can be interpreted as culturally embedded, as these speakers live as traditional Muslim women, they also reflect religious beliefs that are embodied in all aspects of their lives. However, we think that these statements were something more: an expression of frustration on the part of the mothers arising from the stymieing of their efforts to provide the quality of care they wanted for their infants. They emphasized that they would do anything ‘in their power’ to protect those infants.

There is no such mother who wants to neglect her child, never. A mother will take care of her child by trying everything. However, there are some conditions that make it hard for her to do it the way she wants. (G6)

**Discussion**

This study has aimed to understand the social ecology of IC in a socially and economically marginalized minority in Israel from the point of view of Bedouin mothers. It adds to the existing literature by integrating components of the HBM (mother’s perceptions of infant health threats, barriers to IC and mothers’ self-efficacy) with the IM, which was initially developed as a theoretical model for minority child development [19, 21], to study maternal perceptions of the IC environment for minority children. It is the first study that we know of to use the IM outside the context of the United States. Our findings indicate that although the IM was developed to study US minority children, many of the macro-level components are comparable to those of the Bedouin minority in Israel.

Figure 1 illustrates this synthesis of two models. It shows the interconnections we found between mothers’ lived reality and their IC practices. Macro-level components interacted with proximal barriers at the family level. Each of the proximal and distal components affects the mother’s IC either directly or through mother’s self-efficacy. These proximal and distal components can also influence health threats faced by Bedouin children, either directly or through mothers’ IC.

IM categories of distal and proximal barriers were identified in the FGDs. Distal barriers included historical land disputes, political transitions and changes in the structure of the Bedouin economy from herding to semi-industrial. Distal barriers interact with proximal barriers at the family level, including harsh living conditions, financial problems, inaccessibility of health care services, lack of social support and abandonment by husbands following polygamous marriages. These proximal barriers, in turn, affect mothers’ IC and children’s health. Distal barriers, however, can also directly affect both IC practices and perception and practices. For example, mothers in our FGDs connected practical safety concerns to their transitional reality in which both traditional and new ways of living imperil their infants’ health.

A strong proximal component that interacts with the distal components and dominated the mothers’ discourse in the FGDs was their living conditions. Mothers expressed strong perceptions of inequality, systematic discrimination and injustice [35], and provided many examples demonstrating how these infrastructural problems and unavailability of health care and welfare services hinder optimal child care. This was particularly notable in unrecognized localities. In these localities there was also the added sense of living in a temporary, ‘illegal’ dwelling under threat of demolition, an insecurity that to some extent deterred parents or mothers from investing in childproofing their homes. Health care providers and educators need to be aware of this contextual reality in order to avoid blaming Bedouin parents for failing to secure adequate living conditions for their children, a judgment akin to erroneous views of child neglect among African American parents in the United States [18, 20, 37]. Awareness of the interconnections between the distal and proximal barriers and how these affect IC practices can lead to better interventions that can mitigate hazards in the Bedouin infant’s developmental environment. These interventions will also be acceptable to those embedded in current Bedouin culture, like the mothers in our study.
Another example of how the distal components translate into proximal barriers relates to the mothers’ difficulties in bringing their infants to the MCHC for appointments. Their failure to keep appointments may be regarded as neglectful by others, but this judgment is deaf to the access barriers mothers spoke of so loudly in our study and in another previous study [38]. While additional MCHC facilities have been built in the Bedouin communities in the past decade [39], many unrecognized localities still lack services. MCHC services in southern Israel in general suffer from budget cuts and a chronic shortage of health professionals. While widely utilizing MCHC services for recommended immunizations (82–95% of infants under 2 years have received their immunizations) [29], Bedouin mothers have difficulties meeting expectations of regular appointments due to the many barriers they face. Most delay their infants’ first postnatal visit to the MCHC and fail to attend follow-ups in a timely fashion [40]. Then again, mothers in our study did not see the MCHC as addressing their most pressing needs. Rather, these clinics’ services, which addressed issues the mothers were likely to consider of relatively low priority in their lives, were seen as a burden on top of their infants’ already unfulfilled needs. While trying to meet the expectations of the MCHCs, the mothers felt that the provision of these services was poor (long waits, high turnover of providers, language barriers), resulting from discrimination and, as a result, that the services failed to meet their needs, thus affecting their children’s health.

As factors limiting mothers’ autonomy, the new face of polygamy and patriarchy are also part of how distal components interact with proximal barriers. We can begin to think about polygamy and patriarchy in the context of what García Coll et al. (1996) have called ‘adaptive culture’ in the IM [21]. In this view, the significant contributions polygamy made in the past to household economies, which could positively impact infant health, outweighed the negative aspects of women’s subordination. Women in polygamous marriages helped each

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**Fig. 1.** The ecology of IC as perceived by Bedouin mothers: an adaptation of the integrative model of García et al. (1996) and constructs of the Health Beliefs Model [10].
other with the household workload. While modern polygamy has been linked with adverse health outcomes in both mothers and children [31, 41], this is mainly due to the new phenomenon of paternal abandonment of the first wife and her children, which has severe socioeconomic implications for families. Mothers’ lack of economic autonomy compounds this new cultural obstacle. As mentioned earlier, most Bedouin women are unemployed [26]. As well, the economic transition from a herding-based community, in which women participated, to low-wage work mainly for men, has weakened women’s status in the family [42].

The nexus of traditional polygamy and paternal abandonment is one example of adaptive culture. Another is the duality between ‘traditional’ and ‘modern’ IC practices among Bedouin mothers, a duality that exists in other indigenous populations [43]. Bedouin mothers understand the importance of ‘modern’ IC practices recommended by MCHC nurses (immunizations, sleeping position), or at least try to adhere to them, but they may not fully trust them and may even regard them with suspicion, as these practices emerge from the same system they feel has marginalized and discriminated against them. This raises questions about the power dynamics between the health care system and Bedouin mothers. To what extent do official services meet the real care needs of this community? And to what extent does the system possess the required competencies to work with the mothers to achieve positive health goals of their infants?

Self-efficacy appears in the middle of Figure 1, as we wanted to emphasize its role as a mediator in overcoming both barriers. The mothers in our study believed IC is an important value, and they assume full responsibility for infant and child care, but they reported that multilayered barriers interfered with the IC they would optimally provide for their infants. This feeling of powerlessness among Bedouin mothers stems from their sense of frustration over failing to provide what they consider good care to their infants in the face of obstacles. Lack of social support (emotional, material, etc.) was evident in all the mothers’ discussions and might have contributed to their low self-efficacy. Needed resources for optimal IC were outside the mothers’ control. This external locus of control is consistent with their attribution of total power to God and could contribute to the low level of self-efficacy these mothers have. However, religious beliefs are also inherent to this traditional society and seem to reflect an important spiritual need. Health education interventions must be planned with this in mind, as religion might be a source of strength for these women.

In sum, Bedouin mothers’ IC practices were strongly shaped by their perceptions of their context. Mothers’ perceptions of the environment in which IC occurs define the space and limits for IC and affect both their coping skills and the skills they teach their children. These skills, in turn, impact children’s development and health. For example, socialization skills imparted by mothers have been associated with cognitive child development [44]. Therefore, strengthening maternal coping skills through community interventions might be crucial for improving IC. However, these interventions will have a limited effect in the absence of policies that tackle the social determinants of health mothers in our study have pointed to, such as housing, living conditions, infrastructure, transportation, economic status, employment opportunities and health care services.

This study has some limitations. The first relates to the fact that it was based on a snowball sample, which limits our ability to generalize from the study results to the entire Bedouin population. For this reason, future research on a more representative sample of Bedouin mothers is required.

The second limitation is related to the third question used in the FGDs. We phrased the question to try to capture mothers’ suggestions for solutions to their IC challenges, based on their experiences. It could be that the question was not understood by the mothers as open-ended and that, as a result, mothers provided more concise answers rather than explanations like those we received for the previous two questions. Future research could benefit from eliciting more reflections about mothers’ experiences of solutions.
Conclusion

In this study we have shown how Bedouin mothers’ perceptions of their social context help to reveal the social ecology of IC and the complex interactions between distal social, political, economic and cultural components and proximal barriers that determine IC and infant health in this specific context. Providing social support to mothers of infants through community based, culturally appropriate interventions could improve self-efficacy and build capacities for IC based on what mothers consider necessary. These interventions, however, will have a limited effect without policies that tackle the social determinants of health the mothers have pointed to in this study, such as housing, living conditions, infrastructure, transportation and health care services. Future research into the social ecology of IC in marginalized groups needs to fine-tune the integration of proximal and distal components of the IM with HBM constructs to further explore the pathways from macro to micro to maternal perceptions of IC.

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Conflict of interest statement

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