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Infant formula donations and code violations during earthquake relief efforts in Türkiye in 2023: an observational study

Jiayi Guan^{1*}, Alessandro Iellamo², Jodine Chase³ and Mija Ververs⁴

Abstract

Background On 6 February 2023, an Mw 7.8 earthquake struck southern and central Türkiye and north-western Syria, affecting the lives of 4.6 and 2.5 million children, respectively. In such crises, infants who are dependent on commercial milk formula (CMF) face increased vulnerability to diseases and malnutrition as safe preparation of CMF becomes difficult and sometimes impossible. The Operational Guidance on Infant and Young Child Feeding in Emergencies (OG-IFE) provides guidance on protecting and supporting recommended infant and young child feeding and minimizing the risks that come with CMF feeding. In addition, the International Code of Marketing of Breastmilk Substitutes (the Code) ensures adequate nutrition for infants by protecting and promoting breastfeeding and ensuring the proper usage of CMF. This study aims to document violations of the Code and the OG-IFE during the earthquake relief efforts to help strengthen infant and young child feeding emergency responses and inform future disaster relief policies.

Methods Data was collected from 6 February to 10 March 2023 through Internet sources. Social media, news websites, and the Emergency Nutrition Network forum were used for data collection. Turkish content was translated into English for analysis, with a focus on donation-related information and Code violations related to baby food and infant feeding.

Results A total of 40 reports on CMF, complementary food, and feeding equipment donations were collected. Three main types of violations of the OG-IFE and the Code were identified, with the majority of them being incidences of individuals, humanitarian organizations, and government agencies seeking or accepting donations. Infant formula companies continued to violate the Code by donating large quantities of CMF and feeding equipment to the Turkish Red Crescent, government agencies, and disaster relief infant and young child feeding (IYCF) coordination authorities.

Conclusions These incidents reflected a systematic violation of the Code and non-compliance with the OG-IFE. Globally accepted IYCF standards and recommendations were not consistently followed due to fragmented early responses. There is a critical need to step up efforts to ensure appropriate and safe IYCF practice protecting and supporting breastfed and non-breastfed infants in emergencies.

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Keywords Infant and young child feeding, Breastfeeding, Emergency preparedness, Commercial milk formula, Türkiye earthquake, Infant formula marketing

Background

People living in an emergency context, such as natural disasters or conflict zones, often face significant challenges in accessing basic needs, services, and protection. Amongst populations affected by humanitarian emergencies, infants and young children are most vulnerable to diarrheal diseases, infections, and malnutrition. The sharp rise in morbidity and mortality rates among these children in emergency context is attributable to compounded effects of compromised feeding practices, limited or no access to health services, and poor living conditions, thus making the promotion and protection of Infant and Young Child Feeding in Emergency (IYCF-E) vital. In general populations, appropriate infant and young child feeding, especially exclusive breastfeeding for the first six months, could prevent 823,000 annual deaths in children under five years [1, 2]. The World Health Organization and UNICEF's Global Strategy on Infant and Young Child Feeding acknowledges the risk associated with compromised feeding practices and highlights the need to protect, promote and support breastfeeding in emergency settings [2]. Breastfeeding and recommended IYCF practices save lives, even more so in disaster settings [3].

In these settings, infants who are dependent on commercial milk formula (CMF) have an even greater risk of diarrhea and other childhood diseases, as safe preparation of CMF becomes difficult and sometimes impossible [4]. Common challenges include the impairment of clean water and sanitation infrastructure, limited access to fuel (to sterilize water and feeding utensils), and economic instability [5]. Furthermore, the untargeted distribution of CMF has been the major factor that undermines appropriate infant feeding practices by directly altering breastfeeding behavior and leading to early discontinuation of breastfeeding [4, 6, 7].

The Code

The International Code of Marketing of Breastmilk Substitute, hereafter referred to as “the Code”, is a set of recommendations endorsed by the World Health Assembly to address the marketing of CMF and protect breastfeeding. The Code regulates the marketing of CMF and feeding equipment intended for babies and young children. It sets standards for the labelling and quality of products and outlines legislative measures to ensure the proper usage of CMF. Detailed aim and scope are outlined in Table 1.

The Code was endorsed by the World Health Assembly (WHA) in 1981 (WHA 34.22). The WHA has since

passed resolutions clarifying the Code provisions. The Code and its relevant resolutions hold the same legal status and provide for a minimum set of recommendations to be enacted in its entirety.

Operational Guidance on Infant and Young Child Feeding in Emergencies

The Operational Guidance on Infant and Young Child Feeding in Emergencies (OG-IFE), first published in 2001 by the Interagency Working Group on Infant and Young Child Feeding in Emergencies, provides guidance on assessing and monitoring breastfeeding status and supporting non-breastfed infants by minimizing the health risks that come with CMF feeding in emergency settings [8]. It was endorsed by the World Health Assembly (WHA) resolution 63.23 in 2010 [9]. WHA 63.23, which calls for the protection, promotion, and support of appropriate infant and young child feeding in these contexts, is one of the subsequent relevant resolutions comprising the Code [9]. The OG-IFE is regularly updated to reflect operational experiences and needs, with three versions published since 2001. The latest, OG-IFE Version 3.0 was produced by the IFE Core Group in collaboration with the Emergency Nutrition Network (ENN) and UNICEF.

Despite these measures, adequate IYCF-E assistance is often limited or non-existent in disaster settings followed by detrimental consequences [5]. The influx of CMF donations has frequently been observed after an emergency, followed by untargeted distribution of infant formula and eventually a decline in exclusive breastfeeding (EBF) prevalence in the affected area [4, 5]. Evidence shows that receiving free CMF or formula supplementation to breastmilk is linked to early breastfeeding cessations [10]. For instance, during the Ukraine conflict in 2015, emergency responders violated the Code by distributing infant formula in baby food assistance packages, which further discouraged breastfeeding in a population that had a high pre-crisis mixed-feeding rate of 25–47%, jeopardizing existing good IYCF practice [6, 15]. After the 2006 Yogyakarta earthquake, where there was a widespread untargeted distribution of CMF, the risk of diarrhea among infants who received donated infant formula was more than double that of those who did not receive it [12]. In past earthquakes, health infrastructure destruction, displacement, and lack of social cohesion posed numerous challenges, and detrimental impacts on both lactating women and their infants have been well described [11–14].

The OG-IFE recommends additional measures to meet the nutritional needs and minimize health risks

Table 1 The International Code of marketing of breastmilk substitutes articles included in Turkish National Policy

Aim	To contribute to the provision of safe and adequate nutrition for infants by the protection and promotion of breastfeeding and the proper use of breastmilk substitutes, when these are necessary, based on adequate information and through appropriate marketing and distribution.
Scope	Applies to breastmilk substitutes or any food being marketed or otherwise represented as a partial or total replacement for breastmilk. This includes the following: <ul style="list-style-type: none"> • Infant formula • Follow-up formula (sometimes referred to as follow-on milk) • Growing-up milk • Any other milk for children 0 - < 36 months • Any other food or liquid (such as cereal, jarred food, infant tea, juice, and mineral water) that is represented as suitable to be fed to infants less than six months of age. The International Code also applies to feeding bottles and teats.
Article 4. Information and Education	Government is responsible to ensure information about infant formula including the negative effect on breastfeeding of introducing partial bottle-feeding and the difficulty of reversing the decision not to breastfeed, and to inform about the health hazards of unnecessary or improper use of infant formula and other breastmilk substitutes.
Article 6 Healthcare systems*	Article 6 ensures that health care systems are not used to promote BMS. Articles 6.6 and 6.7 on donated supplies must be interpreted alongside additional WHA resolutions 39.28, 43.3, 45.34 and 47.5 brought in to address the need to minimize the risks of artificial feeding in emergencies by ensuring that any required BMS is purchased, distributed and used according to strict criteria, which is set out in the OG-IFE, endorsed by WHA 63.23 (2010.) Article 6.8 allows a company name and logo to appear on donated equipment but no references to any products covered under the Code. This partial implementation of the Code appears to have the opposite effect to the intent of the Code and subsequent relevant resolutions drafted to address the risks of donations during emergencies.
Article 7. Healthcare workers	<ul style="list-style-type: none"> • No gifts or samples to healthcare workers • Health workers should not give samples of infant formula to pregnant women, mothers of infants and young children, or members of their families. Financial support and incentives should not create conflicts of interest.
Supplies	No free or low-cost supplies of breastmilk substitutes to any part of the health care system.
Article 9. Labelling	9.2 Manufacturers must ensure that labels include instructions for appropriate preparation, and a warning against the health hazards of inappropriate preparation.

*Turkey's laws are based only on articles 6.6 and 6.8. Article 6.6 says donations or low-price sales to institutions or organizations may be made and used or distributed for infants needing to be fed breastmilk substitutes

associated with CMF. Families with non-breastfed infants should be urgently identified, assessed, and supplied with a package of essential support, including where appropriate support for wet nursing or donor human milk, or in specific circumstances, provision of CMF (powdered infant formula or ready-to-use infant formula), equipment and supplies for hygienic preparation and storage and for cup feeding, practical training on hygienic preparation and storage, psycho-social support and counselling on responsive feeding [8]. The full package of support should be provided as long as the infant needs it (until at least six months of age) or until breastfeeding is re-established [8].

On 6 February 2023, an Mw 7.8 earthquake struck southern and central Türkiye and north-western Syria, affecting the lives of 18 million people [16]. As of 6 April 2023, the death toll had reached 50,399 in Türkiye, and more than 4,500 deaths have been reported in north-western Syria [17, 18]. UNICEF reported that 4.6 and 2.5 million children were affected by the earthquake in Türkiye and Syria, respectively [19]. Among them were infants who relied solely on their caregivers for adequate nourishment. In Türkiye, the EBF prevalence among

infants under six months was approx. 41% before the earthquake, approx. 52% received mixed feeding (breastmilk with something else such as water, animal milk, CMF) and 7.5% were not breastfed at all [20]. In Syria, the EBF rate stands at 29% with a high percentage of children partially or fully dependent on CMF [21].

To prevent untargeted CMF donations during the early stage of the earthquake, UNICEF, WHO, the Whole of Syria Nutrition Cluster, the Global Nutrition Cluster, and partners released a Joint Statement on 12th February 2023 explicitly stating they did not call for support, accept or distribute donations of CMF, other milk products, commercial complementary foods, and feeding equipment (such as bottles, teats, and breast pumps) [21]. If the procurement of CMF was needed, UNICEF's Guidance on the Procurement and Use of Breastmilk Substitutes in Humanitarian Settings states that UNICEF can act as the provider of first resort and procure CMF [22, 23]. The required CME, procured by UNICEF or other partners in line with the OG-IFE recommendations should be part of a lifesaving response in humanitarian contexts and in line with the Code, and subsequent relevant WHA resolutions [9, 22] (Table 1). If CMF is needed

it is important to prevent donated CMF as it can be of low quality, of the wrong type, supplied disproportionately to need, lacking instructions on correct preparation or be in the wrong language. Ensuring consistent supply of CMF is also necessary and many CMF donors are not liable to maintain a sustainable supply, nor are they responsible for the targeting of distributions, i.e. based on individual needs, of their donations [22].

As of 2022, Türkiye has developed a national action plan based on their National Breastfeeding Policy in adherence to WHO infant feeding recommendations. As a part of this plan, Türkiye's "National Programme for Breastmilk Promotion and Baby-Friendly Hospital Initiative" (Anne Sütünün Teşviki ve Bebek Dostu Sağlık Kuruluşları Programı), coordinated by a multi-sectoral National Breastfeeding Committee and led by Turkish Public Health Institute, ensures the promotion and protection of breastfeeding for the first six months, provides training for maternity care service teams on their obligations under the International Code and regularly assesses and maintains the implementation of national IYCF policies [24].

Türkiye has adopted several articles of the Code into law (articles 4; 5; 6.6; 6.8; 7.4 and 9). The Turkish government implemented legal measures covering CMF up to 36 months but did not include complementary foods or bottles and teats [24, 25]. The law defines sanctions for violations but does not have a monitoring and enforcement mechanism system in place, nor does it require the independence and transparency of the monitoring process. Promotional devices at the point of sale, the distribution of free or low-cost supplies in the healthcare system, or including nutrition and health claims on labels are prohibited [25]. However, the Turkish national policy does not include provisions on advertising to the public or contact with mothers or an overall prohibition on use of healthcare facility for promotion [25]. Under the current legislation, donation of equipment or services, CMF company sponsorship, and using healthcare facility for promotion or public or contact with mother are also not prohibited [25].

Türkiye has a National Emergency Response Plan, led by the Red Crescent, that includes some basic elements of OG-IFE [24, 26]. However, health professionals receive no specific training regarding supporting breastfeeding in emergency settings [24]. The Ministry of Health's "Guidelines on nutrition in emergencies" also does not outline measures to minimize the risk of feeding with CMF [24].

Effective monitoring of CMF distributions is difficult in an emergency context, thus creating fertile ground for CMF companies to flood the local market with donated CMF and equipment that are not Code compliant [27–29]. In the past, companies have repeatedly taken advantage of donations to humanitarian assistance

organizations in an emergency as marketing opportunities to promote their products and improve their public image [27]. Our study aims to describe and document the Code violations related to CMF donations and the compliance to the OG-IFE during the earthquake relief efforts. Capturing the extent of formula donations and other Code violations in emergencies can help inform emergency relief staff and program managers to strengthen their infant feeding programs or inform future disaster relief policies.

Methods

This report aimed to identify Code and OG-IFE violations and to provide a snapshot of CMF donations during earthquake relief efforts in Türkiye in 2023. From 6 February 2023 until 10 March 2023, appeals and activities by various entities such as CMF companies, national and international NGOs, Red Cross and Red Crescent Movement, government agencies, third-party organizations, and private citizens were documented. The data were collected via two major methods: searches by keyword entry on search engines, including social media, company websites, news websites, and requests of voluntary reporting from members of the Emergency Nutrition Network (ENN) forum.

For data collected via search engines, keywords related to the study's focus, including "infant formula," "baby food," "infant milk," "baby formula," and "breastmilk substitute" were used. Additionally, the term "bebek maması" was included to enhance search coverage, particularly on Twitter. "bebek maması" translates to "baby food" in English. While this term strictly denotes food, including infant formula, it is colloquially used to refer to infant formula in the local context. To overcome language barriers, Turkish content was translated into English using Google Translate. Translations were then verified for accuracy and interpretation by two native Turkish speakers (Fig. 1).

Voluntary reports of the Code violations were identified and provided by members of La Leche League Türkiye and Emergency Nutrition Network. The ENN forum request was posted on 15 February 2023 in English, asking for ENN forum members to post links to news reports, social media posts, or pictures of any relief requests/call for CMF and feeding equipment donations. No limitation on language was specified in the original forum post. On 17 February 2023, the first author provided an email address to collect screenshots/pictures and evidence that members wished to submit privately.

The collected data encompassed donation-related information and Code violations pertinent to baby food and infant feeding. Content collected from the internet and voluntary reporting was scanned primarily for non-compliance with OG-IFE articles in Table 2 and further

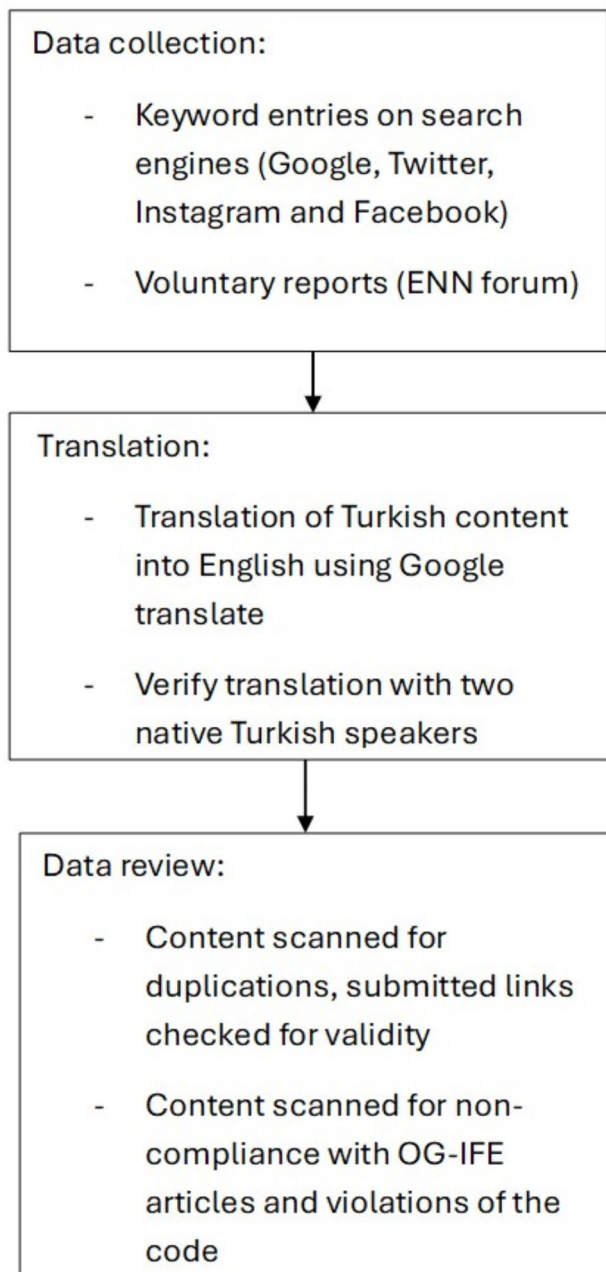


Fig. 1 A flowchart visualizing the data collection, translation and review process

examined for violations of the Code's provisions adopted by Turkish regulations listed in Table 1. Only examples specifically referring to baby food or infant feeding were selected for further analysis. We did not identify any duplicates within the collected data. In cases where content included multiple types of violations (e.g., promotion to healthcare workers/direct contact to mothers), each violation was counted separately, allowing for a comprehensive analysis.

Based on this analysis and review, 40 examples collected were deemed to violate the Code and contravened the recommendations of the OG-IFE (Table 3 and Supplemental file 1).

Results

Out of the total of 40 results analyzed: 14 were sourced from search engine searches, seven were derived from the ENN network's voluntary reports, and 19 were voluntary reports specifically from an ENN and Le Leche League member in Türkiye.

Three main types of non-adherence to OG-IFE and Code violations were observed during the studied period. Actions related to CMF marketing and online advertisements that are not prohibited by the Code or OG-IFE were included in other findings. The collection of reports originated from six countries (Australia, Canada, Germany, Türkiye, the United States, and the United Kingdom) and seven major companies were identified to be involved in violation of the Code or non-adherence to the OG-IFE.

Local and international NGOs/public agencies and civil society seeking donations of milk products (including CMF) and milk feeding equipment (including bottles, teats, and breast pumps)

OG-IFE sections 5 and 6 state that donations of BMS, other milk products or feeding equipment (including bottles, teats and breast pumps) and complementary food should NOT be sought or accepted in emergencies.

A total of 26 incidents of NGOs, Red Cross Red Crescent Movement, government agencies, and civil society appeals for CMF, baby food, or feeding equipment were recorded.

Donation appeals initiated by civil societies and NGOs outside of Türkiye

In 18 incidences, local communities in Australia, Canada, Germany, the United Kingdom, and the United States organized donation drives for earthquake-affected areas in Türkiye and Syria [30–37].

For example, in Canada, local Turkish communities that led the effort to organize earthquake relief donation appeals often asked for both in-kind and monetary donations. "Baby formula" and "baby bottles" were listed together with diapers and baby wipes as a part of the appeals (Fig. 2) [30–32]. A donation effort organized by the City of Kitchener was led by a Turkish-Canadian Musician, on behalf of the Turkish Culture and Folklore Society of Canada, the Grand River Friendship Society and the Turkish Society of Waterloo Region. Appeals for in-kind donations, which included baby formula, were broadcast by a local news station. Donated items were collected at local community centers and the fire

Table 2 Subsequent WHA resolutions and OG-IFE articles relevant to commercial milk formula donations in emergency context

WHA 63.23 (2010)	URGES Member States to ensure that national and international preparedness plans and emergency responses follow the evidence-based Operational Guidance for Emergency Relief Staff and Programme Managers (OG-IFE) on infant and young child feeding in emergencies: protection, promotion and support for optimal breastfeeding, and the need to minimize the risks of artificial feeding ensuring that any required breastmilk substitutes are purchased, distributed and used according to strict criteria.
OG-IFE (endorsed by WHA 63.23)	3.5: IYCF-E coordination responsibility includes mitigation and management of risks “including prevention and management of donations of BMS, milk products, complementary foods, donor human milk and feeding equipment” 5.28: “Do not send or accept donations of complementary foods in an emergency.” 6.1 “Do not donate or accept donations of BMS, other milk products or feeding equipment (including bottles, teats and breast pumps) in emergencies.” 6.25 “BMS, other milk products, bottles and teats should not be included in a general or blanket distribution”
WHA65.60/2012	URGES Member States to put into practice, as appropriate, the comprehensive implementation plan on maternal, infant and young child nutrition, including: ... establishing a dialogue with relevant national and international parties and forming alliances and partnerships to expand nutrition actions with the establishment of adequate mechanisms to safeguard against potential conflicts of interest
WHA61.20/2008	URGES Member States: (1) to strengthen implementation of the International Code of Marketing of Breastmilk Substitutes and subsequent relevant Health Assembly resolutions by scaling up efforts to monitor and enforce national measures in order to protect breastfeeding while keeping in mind the Health Assembly resolutions to avoid conflicts of interest
WHA49.15/1996	URGES Member States to take the following measures: to ensure that the financial support for professionals working in infant and young child health does not create conflicts of interest, especially with regard to the WHO/UNICEF Baby Friendly Hospital Initiative
WHA47.5(1994)	Confirms that free and subsidized infant formula should not be used in health care system & includes guidelines for donations in emergencies
WHA45.34(1992)	Calls on member nations to end discounted or donated supplies of BMS
WHA43.3(1990)	Recognizing that, in spite of resolution WHA39.28, free or low-cost supplies of infant formula continue to be available to hospitals and maternities, with adverse consequences to breastfeeding
WHA39.28/1986	Instructs that infant formula needed should not be procured through subsidized or free supplies

department. No follow-up reporting on the shipment of these items was found.

In Edmonton, donations were collected at a local warehouse and reportedly shipped to Türkiye (Fig. 3) [30–32, 35, 36]. The exact destinations or recipients of these shipments were not disclosed.

In the United States, multiple reports stated that donations collected from local communities were sent to the closest Turkish consulate or the Turkish Embassy and subsequently transported to Türkiye via Turkish Airlines [38]. The organizers often utilized social media platforms such as Facebook or Instagram to amplify their appeals for both monetary and in-kind donations.

Donation appeals initiated by civil societies and NGOs in Türkiye

Six incidences of civil society appeal for BMS donations were reported from Türkiye [39–43]. Similar to self-organized donation drives in aforementioned foreign countries, Turkish local organizations and individuals used their Instagram accounts to amplify their efforts to collect and transport donated items. Izmir Health Worker Union (SAĞLIK-SEN) posted pictures of their members collecting donations of CME, follow-up milk, and baby bottles (Fig. 4) [38]. A Turkish Academic Dietetic Association used their Instagram account to amplify an individual account’s appeal for infant formula and baby biscuit donation (Fig. 4) [41].

Appeals for monetary donations

There were 8 incidences of donation appeals initiated by NGOs, the Red Cross Red Crescent Movement, and government agencies. In one case, an earthquake relief fund was set-up by U.S. based NGO Bridge to Turkey to purchase items that included “baby food and diapers” through “direct procurement” and donating them to the NGO’s Turkish partner İhtiyaç Haritası for distribution. Although the major local humanitarian aid agencies were only asking for monetary donations via their website, the Turkish Red Crescent included “baby formula” in their list of “basic needs in earthquake zones” on their donation page (Fig. 5) [37]. Despite it not being a direct appeal for in-kind donations, public announcements of needs for infant formula without further justifications from a source like Turkish Red Crescent may mislead the general public and generate in-kind donations through private channels. An article published under the title of “How to donate to international aid groups to help victims of Türkiye-Syria earthquake” listed Red Crescent organization as one of the organizations asking for donations in cash and in-kind: “It said it urgently needs items including biscuits, bread, energy bars, flour, ready-to-eat meals, pasta, rice, milk, and baby formula” [36].

Table 3 Brief description of 40 incidences of code violations and OG-IFE non-compliance and other findings documented in the study

Incidences	Actors/entities/organizations involved	Types of violations	Note
Accepting in-kind donations of baby formula	The City of Kitchener & local Turkish communities	OG-IFE 5.28, 6.1	
Accepting in-kind donations of baby formula	Okanagan Turkish community members	OG-IFE 5.28, 6.1	
Accepting monetary donations to purchase infant formula form suppliers and donating them to local partners in Turkey	Bridge to Türkiye Earthquake Relief Fund (facebook.com)	OG-IFE 5.28, 6.1	
Baby food included in donated relief items from Amazon fulfillment center in Istanbul	Amazon	OG-IFE 5.28, 6.1	
Donation appeal links: "baby milk for 1 week" and "baby milk for 4 weeks" with pictures of children and infant holding canned powdered milk products (NIDO)	MATW International	OG-IFE 5.28, 6.1	
Donation appeals for baby formula	Isle of Wight local charity	OG-IFE 5.28, 6.1	
Seeking and accepting donated infant formula	Turkish-Canadian Society of Edmonton	OG-IFE 5.28, 6.1	
Local community/healthcare workers seeking donations of infant formula	Turkish Red Crescent/Memur-Sen (Confederation of Public Servants Trade Unions)**	OG-IFE 5.28, 6.1	**Turkish Red Crescent and Trade Union logos are displayed side by side.
Donation of infant formula and baby biscuits	Izmir Health Worker Union	OG-IFE 5.28, 6.1	
News website advertised donation appeal for infant formula from a local NGO in Ephesus	Izmir Time 35/Çocuklar için Gıda Dayanışması (Food Solidarity for Children)	OG-IFE 5.28, 6.1	
Dietetic association amplifying personal donation appeal for baby food and infant formula	Academic Dietetic Association/ personal	OG-IFE 5.28, 6.1	
Donation appeal for baby formula	Turkish Embassy in Valetta	OG-IFE 5.28, 6.1	
Seeking donations of baby formula	Turkish Red Crescent	OG-IFE 5.28, 6.1	
Accepted and distributed CMF products like SMA, Bebelac, Aptamil	Ümmetin Sesi İnsani Yardım Derneği	OG-IFE 5.28, 6.1	
Accepted and transported humanitarian aid (including baby food) from the Netherlands to Türkiye	AerCap	OG-IFE 5.28, 6.1	
Seeking and accepting infant formula donation	Turkish Consulate in Boston	OG-IFE 5.28, 6.1	Appeal was amplified by US Embassy in New Zealand twitter account
Donation appeal for baby formula	Turkish Embassy in US	OG-IFE 5.28, 6.1	Video evidence of Similac infant formula being displayed
Seeking and accepting infant formula donations	Turkish Federation in Canada	OG-IFE 5.28, 6.1	
Accepting donated baby food and infant formula	Gate Charity Türkiye	OG-IFE 5.28, 6.1	
Baby food included in part of donation appeal	The Disaster Emergency Committee	OG-IFE 5.28, 6.1	
Student organization at the university collecting donations of baby food	Individuals at Munich Institute of Robotics	OG-IFE 5.28, 6.1	
Local charity in Norfolk seeking donations of baby food	Dereham Ukraine Aid Centre	OG-IFE 5.28, 6.1	
Donation of baby food, packaged and sent to Türkiye	Turkish Consulate in Los Angeles	OG-IFE 5.28, 6.1	
Donated baby formula	Turkish Consulate in New York City	OG-IFE 5.28, 6.1	

Table 3 (continued)

Incidences	Actors/entities/organizations involved	Types of violations	Note
Donation collected (including baby formula) are transported to Türkiye by Turkish Airline	Turkish American Association of Northern Texas	OG-IFE 5.28, 6.1	
Seeking and accepting infant formula donations (Kirkland ProCare)	Minnesota Turkish American Association (TAAM)	OG-IFE 5.28, 6.1	
Seeking and accepting donations of baby food	Turkish Student Association at Purdue	OG-IFE 5.28, 6.1	
Accepting and donating infant formula and feeding equipment to Türkiye	Turkish Consulate in Boston	OG-IFE 5.28, 6.1	
Infant formula included in general distribution	Doctors Worldwide	OG-IFE 6.25	
Blanket distribution of infant formula (13500 units on 2/27, 3500 units on 2/13)	Çare Solidarity and Association	OG-IFE 6.25	
"Distributed 500 baby nappies, baby food and 500 sleeping mattresses to Turkey's earthquake victims."	Muslim Charity UK	OG-IFE 6.25	
Offering free online classes with a focus on IYCF-E that were advertised on company social media	Danone (Aptamil & Bebelac)	The Code Article 5, WHA58.32 [2005] and WHA63.23 [2010]	
Shipping bottles and pacifiers to the region with the coordination of AFAD	AFAD/Philips	Close collaborations between local NGOs/public agencies and CMF companies	
Sent aid packages containing bottles and pacifiers to disaster areas via Kızılay	Turkish Red Crescent/Wee baby Türkiye	Close collaborations between local NGOs/public agencies and CMF companies	
Hero Baby Türkiye providing baby food donations without specifying the recipients	Turkish Red Crescent/Hero baby Türkiye	Close collaborations between local NGOs/public agencies and CMF companies	
Delivered "80 tons of baby food, medical nutrition and other food products"	Turkish Red Crescent, AHBAP, AKUT, AFAD, SUDER/Nestle Türkiye	Close collaborations between local NGOs/public agencies and CMF companies	
Distributed "135,000 baby and continuing milk (Aptamil) & complementary baby foods, 250,000 UHT pudding and milk"	AFAD, Pharmaceutical Industry Employers Union, medical nutrition industry employers' union/Danone Türkiye	Close collaborations between local NGOs/public agencies and CMF companies	
Aptamil working with AFAD to distribute baby milk	AFAD/Aptamil*	Close collaborations between local NGOs/public agencies and CMF companies	*Subsidiary of Danone
Delivered baby and continuation milk, infant supplementary food and special nutritional needs to the disaster area in coordination with AFAD	AFAD/Bebelac*	Close collaborations between local NGOs/public agencies and CMF companies	*Subsidiary of Danone
Private Instagram account spreading false information regarding infant food donations	Personal Instagram & LinkedIn account	Misinformation on infant formula donations	

CMF, complementary foods, other milk products, or feeding equipment (including bottles, teats, and breast pumps) in emergencies being included in a general or blanket distribution

Four examples of CMF (referred to as bebek mamasi) included in a general distribution were recorded, including a one-off blanket distribution by Save the Children [44]. Doctors Worldwide (DWW) reported via their Twitter account that they distributed "emergency

materials" that included blankets, heaters, diapers, and infant formula to 4,391 "beneficiaries" in affected areas [45]. It was likely that the infant formula was purchased by DWW since the organization only accepted monetary donations through their website or bank transfer at the time of writing. Similarly, Çare Derneği and Muslim Charity UK were also working on the ground and distributing disaster relief goods that included 13,500 and 500 units of baby food, respectively [46, 47]. Both of the

Log In

THANK YOU EDMONTON!

Cash Donations Collected

for AFAD	\$25,304
for AHBAP:	\$16,035
to purchase Medical Supplies:	\$34,821
for Syria	\$2,400
TOTAL:	\$78,560

Initial shipment sent directly to the Vancouver warehouse at the start of our campaign:

- 20 cases of Baby Diapers
- 6 cases of Baby Wipes
- 6 cases of Women's Hygiene Pads
- 10 cases of Clothing

HELP TURKIYE ALBERTA

Turkish Canadian Society ve Blue Mosque Edmonton

have jointly collected the following supplies for the earthquake victims in Turkey thanks to the generous donations of Edmontonians. All items have been delivered to the Calgary warehouse for shipment first to Vancouver, then to Turkey.

Baby Diapers:	756 cases
Baby Formula (Powder):	370 cases
Women's Hygiene Pads:	295 cases
Baby Wipes:	256 cases
Baby Formula (Liquid):	115 cases
Adult Diapers:	164 cases
Pain killers:	21 cases
Sleeping bags:	21 cases
First-aid kits:	13 cases
Flashlights:	21 cases
Toothpaste & Toothbrushes:	20 cases
Milk Powder:	10 cases
Personal supply kit:	21 cases
Mittens and masks:	2 cases
Clothing & shoes:	20 cases

Value of medical supplies purchased locally from Alberta (Half the shipment on route to Turkey as of February 14th)

\$35,000

YK Dernek ► Turkish Canadian Society Of

AA
🔒 facebook.com
↻

Fig. 2 A screenshot of donation appeal posted by the Turkish Canadian Society of Edmonton, Canada



Fig. 3 A photo of a delivery truck with donations from Turkish Canadian Society of Edmonton, CTV News website

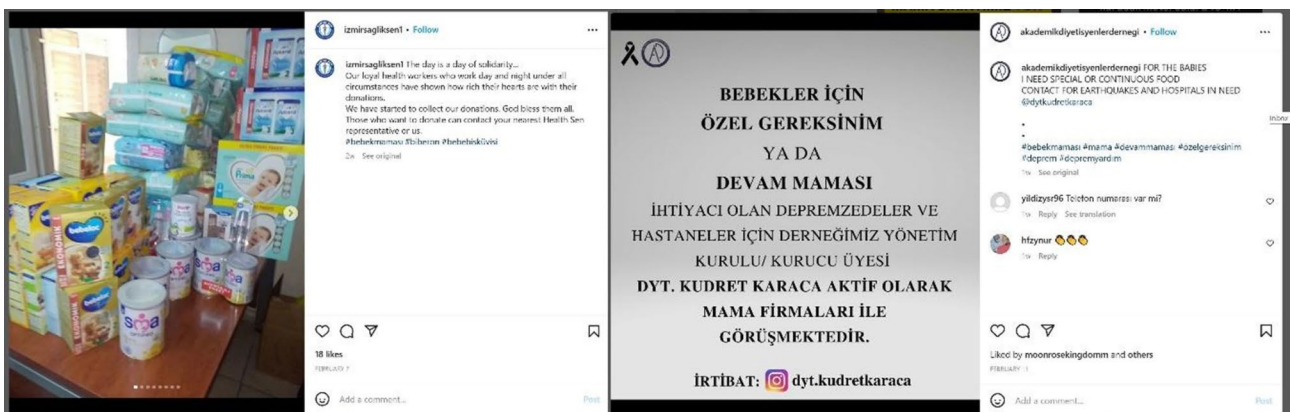


Fig. 4 Screenshots of Izmir Health Worker Union and Academic Dietetic Association's Instagram posts

organizations also only accepted monetary donations via their websites [46, 47]. The source of their infant formula was likely the local market in Türkiye. However, whether the purchases or distributions were based on assessed needs remained unclear nor and the status of sanitation facilities, establishment of electricity/fuel supply or comprehensive breastfeeding support were not mentioned on the organizations' website [46, 47].

Inappropriate promotions of CMF

Danone Türkiye and its subsidiaries (Aptamil and Bebelac), Nestlé Türkiye, Wee Baby, Hero Baby, and Philips' public announcements were accompanied by slogans

on solidarity, family, and visible display of company logos [48–54]. Aptamil offered a series of online classes targeting young parents in Türkiye, with titles such as “Baby Nutrition and Immunity in Times of Disaster”, and “Breastfeeding and Nutrition in the Process of Disaster and Mourning” [54]. These classes were available on the Aptamil website or in their application, where users were guaranteed to encounter marketing of infant formula and related products (Fig. 6) [54]. A few of these sponsored classes were led by medical doctors and food scientists, and although not prohibited by law in Türkiye, provided ground for potential conflict of interest [54].

The screenshot shows the Turkish Red Crescent website. At the top, there is a red navigation bar with the logo on the left and menu items: HOME PAGE, ABOUT US, WHAT WE DO, BRANCHES, F.A.Q., and CONTACT US. Below the navigation bar, the main content area has a white background. It starts with a paragraph: "We need your support to reach more earthquake victims and stand by them with our help, such as food, shelter etc. You can lend a helping hand to earthquake victims by donating any amount you want. You can donate 15₺ by sending an SMS to 2868, typing "DEPREM"."

Below this is a section titled "Basic Needs in Earthquake Zones". It lists "Food needs: biscuits/cakes, tea, soup, sugar, bread, fruit juice, energy bars, flour, ready meals, hygiene products, pasta, rice, chickpea, oil, dried beans, red lentils, milk, baby formula, diapers" and "Sheltering needs: tents, blankets, heaters, scarfs/gloves/beanies, thermoses/mugs, flashlights, thermal clothing, sleeping bags, bedchairs, foam mattresses, pillows."

There are social media icons for Facebook, Twitter, and YouTube. The Facebook icon is followed by the text: "It is sufficient to write "EARTHQUAKE" or "DEPREM" in the description for donations made by bank transfer."

The Twitter icon is followed by: "We, on behalf of all the people in need, thank you for your help and support. You, too, can support the Türk Kızılay's works by making financial donations for humanitarian aid."

The YouTube icon is followed by the heading "How Can You Donate to Türk Kızılay?". Below this heading is a list of donation methods:

- Via electronic process on the Türk Kızılay website using a credit card.
- Through the Türk Kızılay donation payments system and donation accounts (**Bank Accounts**) in the banks

Two specific bank account details are provided:

- * For donate from Türkiye, Ziraat Bank Account Numbers; IBAN: TR 4800 0100 2110 0000 2868 5254 [Copy](#) - SWIFT: TCZBTR2A [Copy](#)
- * For donate from Abroad, Ziraat Bank International AG Filiale Frankfurt Account Numbers; IBAN: DE26 5122 0700 1080 0000 01 [Copy](#)

On the right side of the page, there is a login form. It has a "Please select" dropdown menu, a text input field for "After select your e-mail", a "Turkish" language selector, a "Turkish" country selector, a "Passw" (password) input field, and a "Forgot" button.

At the bottom right, there is a "Payment F" section with the text "Our bank s".

Fig. 5 A screenshot of Turkish Red Crescent's website with a list of donation requests

Other findings

Close collaborations between local NGOs/public agencies and CMF companies

In Türkiye, 7 incidences of advertised close collaborations between local NGOs, the Turkish Red Crescent (Kızılay), government agencies and CMF companies were reported [48–54]. Evidence of CMF companies' supplying CMF, other milk products and feeding equipment to local NGOs, Turkish Red Crescent and government agencies can be found on their official websites and social media accounts. Danone, together with its subsidiaries Aptamil and Bebelac, posted that they delivered "135,000 baby formula and continuing (follow up) milk (Aptamil) & complementary foods, 250,000 UHT pudding and milk

to the Turkish government's Disaster and Emergency Management Authority (AFAD) on 8 February 2023" (Fig. 7) [50]. Nestlé Türkiye posted both on the company websites and Instagram that the company delivered "80 tons of baby food, medical nutrition and other food products" to major local humanitarian aid organizations like AHBAP (The Foundation of Anatolian People and Peace Platform) and AKUT (Search and Rescue Association), Turkish Red Crescent, and AFAD on 10 February 2023 (Fig. 7) [49]. Philips and local infant feeding equipment manufacturer Wee Baby sent baby bottles and pacifiers to AFAD and the Turkish Red Crescent, respectively (Fig. 8) [53].

ilkadimlarim Türkiye

Akademi
Aptamil4

19 Şubat - 24 Şubat
Afet Sonrası Özel

Breastfeeding and Nutrition in the Process of Disaster and Mourning
Uzman Anne Bebek Koçu
Sevim Kuruçay Çam
Afet ve Yas Sürecinde Emzirme ve Beslenme
19 Şubat Pazar 15:00

First Aid Training for Natural Disasters for Families with Babies
Uzman Anne Bebek Koçu
Sevim Kuruçay Çam
Bebekli Aileler İçin Doğal Afetlerde İlk Yardım Eğitimi
20 Şubat Pazartesi 12:00

Baby Nutrition and Immunity in Times of Disaster
Uzm. Dr.
Harika Sönmez
Afet Zamanlarında Bebek Beslenmesi ve Bağışıklık
20 Şubat Pazartesi 20:00

Things You Need to Know About the Use of Baby Food
Uzm. Dr. Kerpiççi
Bebek Mamasının Önemi ve Kullanımı Hakkında Bilmeniz Gerekenler
21 Şubat Salı 12:00

Uzm. Psikolog Sinem Olcay Kademoğlu
Afet Sonrası Bebek ve Çocuklarla İletişim
22 Şubat Çarşamba 12:00

Çocuk Gelişimi Uzmanı Tuğçe Gizem Ulun
Oyunun İyileştirici Gücünden Nasıl Yararlanılır?
23 Şubat Perşembe 20:00

Uzman Anne Bebek Koçu Sevim Kuruçay Çam
Afet Zamanlarında Bebek Bakımı Nasıl Olmalı?
24 Şubat Cuma 12:00

How Should Baby Care be in Times of Disaster?

UCRATSIZ
Aptamil
KAYDOL

81 likes

ilkadimlarim Yaşadığımız bu zorlu günlerde, siz değerli anne babalar için afet sonrası destek özel

Fig. 6 Screenshots of Aptamil's Instagram post offering online classes, with English translations in pink

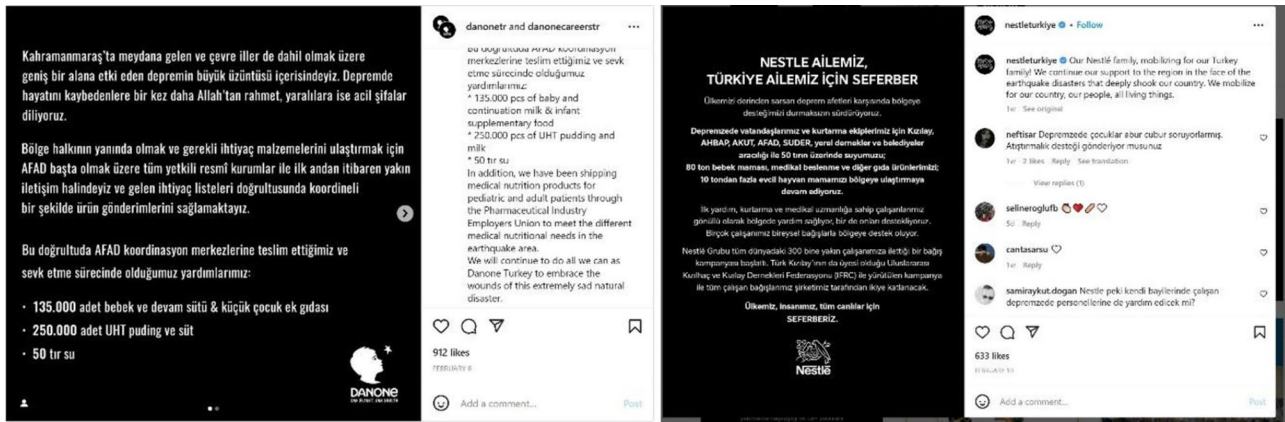


Fig. 7 Screenshots of Instagram posts by Danone Türkiye and Nestle Türkiye stating their donation efforts



Fig. 8 Screenshots of Instagram post by Philips and Weebaby describing their donation efforts

Misinformation on infant formula donations during emergency

Multiple online “educational infographics” encouraging the donation of infant formula and feeding bottles to the affected areas were found during the monitoring process. These social media posts were produced by well-meaning individuals, but often included either pictures (with brand names) or generic illustrations of canned infant formula and offered little to no explanations of the importance of minimizing risk associated with formula feeding during emergencies [55]. These posts were found in both English and Turkish [55]. In particular, one post was shared by several individuals with advanced degrees in dietetics and public health, including those who were employed by the Turkish Ministry of Health at the time of writing [55].

Discussion

To the authors’ best knowledge, this is the first peer-reviewed study that monitored Code violations specific to CMF donations during an earthquake relief effort. The authors collected and reviewed a total of 40 reports on CMF and feeding equipment donations and Code

violations collected within a month after the initial Türkiye-Syria Earthquake in February 2023.

We identified three main types of violation of the OGI and the Code:

- 1) NGOs/public agencies and civil society seeking donations of milk products and milk feeding equipment,
- 2) CMF, complementary foods, other milk products, or feeding equipment in emergencies being included in a general or blanket distribution, and,
- 3) Inappropriate promotions of CMF. These reports comprised of social media postings and news reports, with the majority of them being incidences of individuals, humanitarian organizations, and government agencies seeking or accepting donations.

Local and international NGOs/public agencies and civil society seeking donations of milk products and milk feeding equipment

Although the Code prohibits the use of free and subsidized infant formula in healthcare systems and recognizes their

adverse consequences to breastfeeding (WHA39.28, 43.3, 45.35), specific recommendations for infant feeding in emergencies were only issued in 1994 (WHA47.5) and calling for extreme caution when planning for the protection and support of breastfeeding, and clarify that the use of donated supplies of CMF should only be done following a strict criteria. In 2000, WHO issued the Guiding principles for feeding infants and young children and clarified that *“Offers of well-meant but ill-advised large-scale donations of “baby foods” and feeding bottles should be refused”* and also emphasized that *“Planners and managers of emergency relief operations should resist superficially attractive quick-fix “solutions” that can result in widespread, unnecessary and potentially harmful distribution of infant formula and other prepared foods that are used as breastmilk substitutes”* [71]. In 2010 the WHA63.23 endorsed the OG-IFE, which prohibits the donation or acceptance of BMS, other milkproducts or feeding equipment (including bottles, teats and breast pumps) in emergencies. The same resolution also urges Member States to ensure their emergency preparedness plan follow the OG-IFE on IYCF-E practices. Donation appeals made by local and international NGOs and civil societies were in non-compliance to the OG-IFE article 5.28 and 6.1. Many of the organizations and agencies documented in this paper were based in higher income countries like the United Kingdom, the United States or Canada, countries where national emergency preparedness policies do not include any or all the basic components of the OG-IFE [26, 56, 57]. For example, the U.S. and U.K. both scored zero on World Breastfeeding Trends Initiative (WBTi) indicator 9: Infant and Young Child Feeding during Emergencies, reflecting the absence of appropriate policies and programs in place to ensure that mothers, infants, and young children receive adequate protection and support for appropriate feeding during emergencies [26, 56, 57]. The absence of national IYCF-E preparedness and response plans in donor countries leave the responsibility of implementing recommendations listed in OG-IFE on NGOs, public agencies and civil societies, that typically have no obligations to integrate IYCF-E strategies in their internal policies. Under current Turkish legislation, donations of equipment or services by CMF companies are neither prohibited nor is there a clear policy regarding the actions required to minimize the risk of artificial feeding in emergency settings. As Türkiye’s national emergency response plan is led by a third-party agency, the Red Crescent, instead of appointing specific personnel or a government department as the main coordinator, the implementation of OG-IFE is subject to the Red Crescent’s interpretation of the document and their internal standards.

The Code and its subsequent WHA resolutions serve as a comprehensive international policy framework and

aim to protect public health by preventing the harmful and exploitative marketing of CMF safeguarding the well-being of women, parents, children, and the health system [9]. However, for it to have a significant impact, it must be translated into national policies and laws and rigorously enforced. Recent research highlights the need to address industry interference in policymaking and regulation at national and international levels [24, 54].

CMF, complementary foods, other milk products, or feeding equipment in emergencies being included in a general or blanket distribution

The three Turkish humanitarian organizations involved in possibly distributing CMF and feeding equipment indiscriminately in earthquake-affected areas did not appear to have IYCF-E experts on their local team, nor did they follow any protocols for the needs assessment as prescribed by OG-IFE and UNICEF. These actions are in non-compliance with OG-IFE article 6.25 and in violation of WHA47.5 and 63.23. Although Türkiye has legislations that cover some provisions of the Code with defined sanctions for violations, measures that ensure Code compliance are not included [25]. Incidences like this reflect a lack of a national robust mechanism for the coordination and monitoring of disaster response agencies’ activities and a responsible body to enforce compliance with the OG-IFE and the Code. On 21 February 2023, in an official document from OCHA, IFRC reported baby formula shortages in all affected provinces in Türkiye [17]. The same document projected 24,000 expected births in the affected area in March, 2023 [17]. CMF products and feeding bottles had remained in high demand in the months after the initial emergency relief effort, protracting the need for a comprehensive package of IYCF support in full compliance with the OG-IFE to safeguard the health and well-being of the mothers and their breastfed and non-breastfed infants.

Save the Children’s response to an EN-NET forum post reporting their blanket distribution of baby food, milk, and bottles, in Malatya and Antep was a positive case of rapid response to take corrective action [44, 58]. The organization “immediately ceased distribution and informed response team of appropriate ways to support infant and young child feeding” and posted a response on the forum reiterating the organization’s position on prioritizing support for exclusive breastfeeding during emergencies [59].

Inappropriate promotions of CMF

Article 5 of the Code and subsequent WHA Resolutions (WHA58.32 [2005] and WHA63.23 [2010]) prohibit advertising or promotion of CMF or any foods or feeding equipment under its scope to the public. Our study found that Danone, together with its subsidiaries Aptamil and

Bebelac violated the aforementioned articles by offering free online classes with a focus on infant feeding in disasters, using the heightened public attention towards the earthquake to maximize reach on social media. The promotional material of these classes was posted on popular social media websites in an easily shareable format [54]. Company-sponsored medical professionals and scientists were highlighted in these posts to foster a sense of impartiality and authority [54].

In past humanitarian emergencies and in the context of the 2023 earthquake in Türkiye, Danone, Nestlé, Weebaby and Philips utilized digital platforms to advertise their partnerships with NGOs or government agencies to help legitimize their promotional tactics as charitable giving, rather than marketing schemes [27, 64, 65]. CMF companies took full advantage of the rapid evolution of social media and the lag in digital marketing regulations by turning social media users who shared these posts into their unwitting promoters.

Similar exploitative marketing practices observed during emergencies, including the COVID-19 pandemic, were highlighted in the 2023 Lancet Series on Breastfeeding, underscoring the need for countries to allocate resources for effective implementation and enforcement of the Code [60, 61, 63]. Coherent legal measures must be established to protect breastfeeding and promote infants' health in emergency situations. CMF companies employ highly effective marketing tactics that undermine caretakers' confidence in breastfeeding, pathologize normal infant development behaviors, and commodify infant feeding practices. Major CMF companies like Danone and Nestlé are still the main offenders of the rules and regulations as identified by WHO [27, 28].

Other findings

The Code article 6.6 and WHA resolutions 39.28, 43.3, 45.34, 47.5 prohibit not only the supplies of donated but also discounted infant formula to the healthcare system. Although CMF companies identified in this study provided large quantities of CMF and feeding equipment to local or international disaster relief agencies, they did not report whether these supplies were donated or sold at discounted rates. Their social media posts detailing their close collaboration with the Turkish Red Crescent (Kızılay), government agencies, and disaster relief IYCF coordination authorities and the quantity of CMF product is distributed require further scrutiny. International CMF companies with better logistical organization and substantially more financial resources than aid agencies pose further challenges in preventing the influx of unregulated CMF products during a time of acute needs [70].

Online content created by individuals not in collaboration with CMF companies that inadvertently displays CMF products remains a grey area in terms of various

marketing approaches prohibited by the Code. These contents reflect a lack of awareness of appropriate infant feeding practices and support in emergency contexts among the general public and public health professionals. At the same time, the spread of misinformation online may further encourage the inappropriate donation of CMF from well-meaning individuals.

There is a pressing need to strengthen the policy and regulatory framework to support the implementation of OG-IFE. Past research concerns have been raised about the lack of monitoring and penalizing non-compliance [13, 66–68]. A systematic literature review by Mudiyan-selage et al. further identified the regulation of infant formula/CMF provisions as a facilitator of appropriate IYCF in natural disaster context [69]. OG-IFE builds on the Code as a basis for some of its recommendations. Without proper integration into the local policy framework, the OG-IFE may be treated as an afterthought, lacking adequate monitoring and penalties for non-compliance. The critical nature of emergencies starkly contrasts with the nebulous state of OG-IFE implementation, underscoring the need for a comprehensive and coherent document that can provide clear mandates, enforceable regulations, and robust monitoring mechanisms for infant feeding in emergency situations. National governments and international NGOs should lead the way in pushing and advocating for the adoption of the OG-IFE, the Code and other relevant instruments in appropriate national policies, plans and guidance that can subsequently be constructed as legal and regulatory measures in line with the country priorities.

As of 2022, 144 out of 194 Member States of WHO have incorporated certain provisions of the Code into their national regulations [60]. However, only 32 countries adopted all the Code's provisions [60]. Limited progress has been made in areas such as prohibiting gifts and incentives from CMF companies to healthcare workers, restricting sponsorship of health-professionals association meetings, and implementing digital promotion restrictions [60–62]. Inadequate funding and a lack of meaningful penalties for non-compliance further undermine national monitoring and enforcement mechanisms [60–62]. To ensure compliance, it is necessary to move beyond voluntary measures and introduce legislative actions and regulations based on the full set of provisions of the Code.

IYCF-E settings require a multidisciplinary approach, involving nutrition, pediatric medicine, logistics, and emergency preparedness and other sectors [67, 69]. Similar to infant formula management in healthcare facilities, clear standards, guidelines, and best practices should be harmonized and adopted by regulatory bodies overseeing infant formula procurement and management. Specialized staff trained in pediatric nutrition and lactation

consulting should be involved at every stage to minimize the risk of artificial feeding [69]. In earthquake settings, where destruction of infrastructure is likely to occur, specialists can identify context-specific clean water and sanitation risks such as CMF donation or the use of powdered infant formula instead of ready-to-use infant formula.

Efforts should be made to professionalize IYCF-E, aligning it with UNICEF's procurement guidance and treatment protocols for malnutrition [22]. Specialized expertise is necessary for streamlined standard practices in procurement, storage, and distribution. Emergency responders and health professionals must adhere to the principles of doing no harm and minimize the potential harm caused by improper handling of CMF on infants and their caretakers. Additionally, each earthquake-prone country should develop a preparedness plan for infant and young child feeding, particularly for children dependent on CMF, as they are most vulnerable during emergencies that disrupt their feeding routine.

Limitations

Because of the rapidly unfolding and ongoing nature of the relief efforts and our data collection methods (major social media platforms and Google search), the instances reported here are not exhaustive, and it is difficult to ascertain the true extent of Code violations. Furthermore, social media posts or reports from north-western Syria were insufficiently captured due to language barriers, which limited the search terms inputs and possibly contributed to accessing the right platforms. Nonetheless, the main types of violations we report here are likely representative of the occurrences of Code violations in earthquake affected areas of Türkiye at the time of writing.

The objective of the study is to capture non-adherence to OG-IFE and violations of the Code articles most pertinent to donations in emergency settings. Language barriers, time constraints, and the absence of a system in place to collect and monitor Code violations rendered monitoring the full breadth of Code violations difficult. Code violations pertaining to conflict of interest and nutrition and health claims were not fully captured and analyzed with limited access to native Turkish speakers to provide accurate translations. Therefore, only the most relevant Code articles adopted by Türkiye and subsequent WHA resolutions related to OG-IFE were included as a part of the framework analysis.

Conclusions

Our preliminary analysis of reports collected on infant formula donations and Code violations related to the Türkiye-Syria Earthquake relief effort found: (1) an influx of donations of CMF and related products and supplies to the affected area and local organizations from

international companies. (2) Large international and major Turkish NGOs, Turkish Red Crescent (Kızılay), and Turkish government agencies went against recommendations made in OG-IFE by accepting and seeking CMF and related donations. (3) Social media continued to be a major platform for the marketing of these products, exacerbated by the spread of misinformation on formula feeding and well-meaning individuals' and organizations' lack of awareness of appropriate infant feeding practices in emergencies.

These incidences reflected a systematic violation of the Code, and a lack of compliance with IYCF joint statements released by national governments. Standards and recommendations that ensure safe infant feeding practices were not consistently followed due to fragmented early responses, in part due to and later on aggravated by the volatile and urgent nature of the event. CMF companies seized the emergency as an opportunity to build their public image by broadcasting their disaster relief effort with visible brand names attached to each post. Where there were gaps in public health communications regarding IYCF practice in emergencies, they exploited young parents by using targeted social media marketing. Misinformation that influenced individuals' decision to donate CMF was also widespread online. There is a critical need to step up efforts to ensure appropriate and safe infant and young child feeding practices to protect and support breastfed and the non-breastfed infants in emergencies.

Abbreviations

AFAD	Afet Ve Acil Durum Yönetimi Başkanlığı/The Disaster and Emergency Management Authority
AHBAP	Anadolu Halk Ve Barış Platformu/ The Foundation of Anatolian People and Peace Platform
AKUT	Arama Kurtarma Derneği/ Akut Search and Rescue Association
CMF	Commercial Milk Formula
EBF	Exclusive Breastfeeding
EN-NET	Emergency Nutrition Network
IFRC	International Federation of Red Cross and Red Crescent Societies
IYCF	Infant and Young Child Feeding
NGO	Non-Government Organization
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OG-IFE	The Operational Guidance on Infant and Young Child Feeding in Emergencies
The Code	The International Code of Marketing of BreastMilk Substitutes
UNICEF	United Nations Children's Fund
WHA	World Health Assembly
WHO	World Health Organization

Supplementary Information

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Supplementary Material 1

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Author contributions

J.G. participated in the conception, design, data collection, their analysis and interpretation, and in drafting the text. M.J. and J.C. participated in the design, data collection, and in drafting the text. M.J., J.C. and A.I. participated in the interpretation of the data and in drafting the text. All authors read and approved the final manuscript.

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Data availability

The dataset used and analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

The authors consent to publication.

Competing interests

The authors declare no competing interests.

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References

- Victoria CG, Bahl R, Barros AJD, França GVA, Horton S, Krasevec J, et al. Breast-feeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016;387(10017):475–90.
- UNICEF, WHO, UNICEF, UNAIDS. *Global strategy for infant and young child feeding*: Geneva, Switzerland: WHO; 2003.
- Anonymous. *Infant and young child feeding in emergencies (IYCF-E) Position Paper 2.0*. 2015.
- Hwang CH, Iellamo A, Ververs M. Barriers and challenges of infant feeding in disasters in middle- and high-income countries. *Int Breastfeed J*. 2021;16:62.
- Rabbani A, Padhani ZA, Siddiqui A, Das F, Bhutta JK. Systematic review of infant and young child feeding practices in conflict areas: what the evidence advocates. *BMJ Open*. 2020;10(9):e036757.
- Summers A, Bilukha OO. Suboptimal infant and young child feeding practices among internally displaced persons during conflict in eastern Ukraine. *Public Health Nutr*. 2018;21(5):917–26.
- Svoboda A. Retrospective qualitative analysis of an infant and young child feeding intervention among refugees in Europe. *Field Exch*. 2017;55:85.
- IFE Core Group [WHO, UNICEF, UNHCR, WFP, IBFAN-GIFA, International Medical Corps, World Vision, Concern Worldwide, International Orthodox Christian Charities, International Rescue Committee, Save the Children, ACF International, GOAL, Global Nutrition Cluster, Foundation Terre des hommes and the Emergency Nutrition Network (ENN)]: *Infant and Young Child Feeding in Emergencies (Version 3.0)*. 2017.
- World Health Organization. *International Code of Marketing of Breast-Milk Substitutes*; 1981.
- Chantry CJ, Dewey KG, Pearson JM, Wagner EA, Nommsen-Rivers LA. In-hospital formula use increases early breastfeeding cessation among first-time mothers intending to exclusively breastfeed. *J Pediatr*. 2014;164(6):1339–e13455.
- Ayoya MA, Golden K, Ngnie-Teta I, Moreaux MD, Mamadoultaibou A, Koo L, et al. Protecting and improving breastfeeding practices during a major emergency: lessons learnt from the baby tents in Haiti. *Bull World Health Organ*. 2013;91(8):612–7.
- Hipgrave DB, Assefa F, Winoto A, Sukotjo S. Donated breast milk substitutes and incidence of diarrhoea among infants and young children after the May 2006 earthquake in Yogyakarta and Central Java. *Public Health Nutr*. 2012;15(2):307–15.
- Gribble KD. Media messages and the needs of infants and young children after Cyclone Nargis and the WenChuan earthquake. *Disasters*. 2013;37(1):80–100.
- Giusti A, Marchetti F, Zambri F, Pro E, Brillo E, Colaceci S. Breastfeeding and humanitarian emergencies: the experiences of pregnant and lactating women during the earthquake in Abruzzo, Italy. *Int Breastfeed J*. 2022;17:45.
- World Food Programme. [<https://www.wfp.org/news/only-1-4-internally-displaced-infants-exclusively-breastfed-ukraine-unicef-and-wfp>]
- Omer S. *2023 Turkey and Syria earthquake: Facts, FAQs, and how to help*. 2023.
- Relief, Web. [<https://reliefweb.int/report/turkiye/turkiye-earthquake-february-2023-bi-weekly-highlights-24022023>]
- Relief Web. [<https://reliefweb.int/report/turkiye/turkiye-humanitarian-needs-and-response-overview-interim-update-published-11-april-2023-entk>]
- UNICEF USA. [<https://www.unicefusa.org/stories/children-crisis-after-earthquakes-turkey-and-syria-need-help-now>]
- Hacettepe University Institute of Population Studies: 2018 Turkey Demographic and Health Survey. 2019, 133–140.
- Relief Web. [<https://reliefweb.int/report/syrian-arab-republic/whole-syria-joint-statement-protecting-maternal-infant-and-young-child-nutrition-during-earthquake-response-syria-12th-february-2023>]
- UNICEF: Procurement and use of breastmilk substitutes in humanitarian settings. 2021, 9–10.
- Whole of Syria Nutrition Cluster, United Nations Children's Fund. *Standard Operating Procedure (SOP) on Donations, Targeted Distribution and Procurement of Breastmilk Substitutes in Southern Syria*. 2017.
- World Breastfeeding Trends Initiative. [<https://www.worldbreastfeeding-trends.org/>]
- World Health Organization, United Nations Children's Fund, International Baby Foods Action Network: Marketing of breast-milk substitutes: national implementation of the international code, status report 2022. 2022, .
- Zakarija-Grković I, Cattaneo A, Bettinelli ME, Pilato C, Vassallo C, Borg Buontempo M, et al. Are our babies off to a healthy start? The state of implementation of the global strategy for infant and young child feeding in Europe. *Int Breastfeed J*. 2020;15:51.
- Ching C, Zambrano P, Nguyen TT, Tharany M, Zafimanjaka MG, Mathisen R. Old tricks, new opportunities: how companies violate the international code of marketing of breast-milk substitutes and undermine maternal and child health during the covid-19 pandemic. *Int J Environ Res Public Health*. 2021;18(5):2381.
- Becker GE, Zambrano P, Ching C, Cashion J, Burns A, Policarpo E, Datu-Sanguyo J, Mathisen R. Global evidence of persistent violations of the international code of marketing of breast-milk substitutes: a systematic scoping review. *Maternal Child Nutr*. 2022;18(S3):e13335–n/a.
- Theurich MA, Grote V. Are commercial complementary food distributions to refugees and migrants in Europe conforming to international policies and guidelines on infant and young child feeding in emergencies? *J Hum Lactation*. 2017;33(3):573–7.
- Global News. [<https://globalnews.ca/news/9474159/kitchener-donations-earthquake-turkey-syria/>]
- Okanaganhelps. [<https://www.okanaganhelps.ca/>]
- Facebook. [<https://www.facebook.com/donate/1425548341519260/>]
- MATW, Project. [<https://matwproject.org/product/food-aid/>]
- Isle of Wight Radio. [<https://www.iwradio.co.uk/news/isle-of-wight-news/turkey-earthquake-appeal-drop-off-points-and-suggested-items/>]
- Edmonton. [<https://edmonton.ctvnews.ca/rebuilding-those-cities-will-take-years-edmontonians-collect-donations-for-quake-victims-in-turkiye-and-syria-1.6270314>]
- The National. [<https://www.thenationalnews.com/uae/2023/02/07/turkey-syria-earthquake-how-to-donate-to-international-aid-groups/>]
- Türk Kızılay Kurumsal Sitesi. [<https://www.kizilay.org.tr/Bagis/BagisYap/405/donations-for-earthquake-in-pazarcik>]
- U.S. Department of State [https://www.state.gov/dipnote-u-s-department-of-state-official-blog/americans_assisting_syria_turkiye]
- Instagram. [<https://www.instagram.com/p/CoWf6AKeUP?igshid=YmMyMTA2M2Y%3D>]

40. Instagram. [https://www.instagram.com/p/CoX_jEzMh7X/].
41. Instagram. [<https://www.instagram.com/p/CoZb9hTMAOB/?igshid=YmMyMTA2M2Y%3D>]
42. Instagram. [<https://www.instagram.com/p/Cog8Hp2l-gx/>]
43. Instagram. [https://www.instagram.com/p/Coexhd_UQS/?utm_source=ig_web_copy_link]
44. Save the Children. [<https://www.savethechildren.org/us/about-us/media-and-news/2023-press-releases/children-without-food-shelter-following-earthquakes>]
45. Twitter. [<https://twitter.com/dwwuk/status/1625568217648484352?s=20>]
46. Instagram. [<https://www.instagram.com/p/CpPVxFpOByJ/>]
47. X. [<https://twitter.com/MuslimCharityUK/status/162953871693381632?s=20>]
48. Instagram. [<https://www.instagram.com/p/CobykYaKe6E/>]
49. Instagram. [<https://www.instagram.com/p/CofFoyqvnd/>]
50. Instagram. [<https://www.instagram.com/p/CoaCQ1kKnd-/>].
51. Instagram. [<https://www.instagram.com/p/Co6Ed2KXYU/?igshid=YmMyMTA2M2Y%3D>].
52. Instagram. [https://www.instagram.com/p/CoaMY0BKW_o/]
53. Instagram. [<https://www.instagram.com/p/CoelaLps0sf/?igshid=YmMyMTA2M2Y%3D>]
54. Instagram. [<https://www.instagram.com/p/CpJ2diPIVio/>]
55. LinkedIn. [https://www.linkedin.com/posts/sumeyyekaravas_turkeysyriaearthquake-turkeyearthquake-deprem-activity-7031288107266191360-MbiD?utm_source=share&utm_medium=member_desktop]
56. World Breastfeeding Trends Initiative. [https://www.worldbreastfeeding-trends.org/wbti-country-report.php?country_code=GB]
57. World Breastfeeding Trends Initiative. [https://www.worldbreastfeeding-trends.org/wbti-country-report.php?country_code=US]
58. Guan J. *Monitoring infant formula donations to 2023 Türkiye and Syria Earthquake relief efforts*. [<https://www.en-net.org/forum/question/4791>]
59. Holland D. *Monitoring infant formula donations to 2023 Türkiye and Syria Earthquake relief efforts*. [<https://www.en-net.org/forum/question/4791>]
60. Rollins N, Piwoz E, Baker P, Kingston G, Mabaso KM, McCoy D, et al. Marketing of commercial milk formula: a system to capture parents, communities, science, and policy. *Lancet*. 2023;401(10375):486–502.
61. Baker P, Smith JP, Garde A, Grummer-Strawn LM, Wood B, Sen G, et al. The political economy of infant and young child feeding: confronting corporate power, overcoming structural barriers, and accelerating progress. *Lancet*. 2023;401(10375):503–24.
62. The Lancet. Unveiling the predatory tactics of the formula milk industry. *Lancet*. 2023;401(10375):409.
63. Pérez-Escamilla R, Tomori C, Hernández-Cordero S, Baker P, Barros AJD, Bégin F, et al. Breastfeeding: crucially important, but increasingly challenged in a market-driven world. *Lancet*. 2023;401(10375):472–85.
64. Hidayana I, Prawindarti L, Umar N, Ambarwati K, Rosatriani F. Marketing of commercial milk formula during COVID-19 in Indonesia. *Maternal Child Nutr*. 2023;19(3):e13491.
65. ICDC (International Code Documentation Centre). Influx of baby food supplies swamped Central Sulawesi emergency camps in Indonesia | *Baby Milk Action*. 2018. [<https://www.babymilkaction.org/archives/19617>]
66. Michaud-Létourneau I, Gayard M, Pelletier DL. Strengthening advocacy and policy change for infant and young child feeding. *Maternal Child Nutr*. 2019;15(Suppl 2):e12749.
67. Seal A, Taylor A, Gostelow L, McGrath M. Review of policies and guidelines on infant feeding in emergencies: common ground and gaps. *Disasters*. 2001;25(2):136–48.
68. Darjani P, Berbari LS. Infant and young child feeding support in Lebanon: strengthening the national system. *Field Exch*. 2015;(48):20.
69. Ratnayake Mudiyanse S, Davis D, Kurz E, Atchan M. Infant and young child feeding during natural disasters: a systematic integrative literature review. *Women Birth*. 2022;35(6):524–31.
70. Binns CW, Lee MK, Tang L, Yu C, Hokama T, Lee A. Ethical issues in infant feeding after disasters. *Asia Pac J Public Health*. 2012;24(4):672–80.
71. World Health Organization: *Guiding principles for feeding infants and young children during emergencies*. 2004.

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