Environmental and public health effects of polluting industries in Tulkarm, West Bank, occupied Palestinian territory: an ethnographic study

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Background Since the 1980s, several factories that cause pollution have been relocated from Israel to areas in the Published Online occupied Palestinian territory (oPt). Most prominent of these is Geshuri, a privately owned Israeli agrochemicals company operating in Tulkarm, West Bank, oPt. Results of several empirical studies suggest that as a result of proximity to industrial zones that house Geshuri and other factories that cause pollution, residents of Tulkarm have among the highest rates of cancer, asthma, and eye and respiratory health anomalies compared with residents in other districts. Because of the paucity of qualitative data to show the effect of polluting industries, our aim was to build a framework to understand the perceived adverse role of industrial pollution on the environment, economy, and public health of Tulkarm's residents.

Methods In this ethnographic study, participants were selected using a snowball sampling method generated from initial contacts within Tulkarm. We analysed qualitative data from in-depth, semistructured interviews of former employees of Geshuri factory (n=3), their families (n=6), and other adult residents (n=24). Participants were interviewed from June to August, 2011. Interviews were done in Arabic, audio recorded with verbal consent of the participants, and transcribed for review and analysis. Using a grounded-theory ethnographic approach and an opencoding method of data review, we reviewed both interview transcripts and the original recordings to identify key themes in perceptions of the environmental, economic, and health effects of the factories. The institutional review board of Brown University, Providence, RI, USA, approved this study.

Findings Key themes that emerged from the qualitative data analysis were that the most prominent acute health effects of industrial pollution were respiratory and psychosocial; there was a consensus that rates of cancer and asthma in Tulkarm were disproportionately higher than were those in other districts directly as a result of pollution from factories; pollution and waste produced by the industries had devastated agriculture, business, and land, and thus local economy and livelihoods of Tulkarm's residents who were reliant on the land for income; frustration at the researchers and journalists who had investigated the illegal practices by Geshuri but had yet to hold the responsible parties accountable for their actions; conflicting beliefs about whether some employees would have economic insecurity if Geshuri and similar factories should cease operation; concern about unsafe factory working conditions and violent management practices; and a long-held belief that working towards closing these factories would be a tangible affirmation of a commitment to environmental justice in the oPt.

Interpretation Most of the participants believed that the pollution caused by Geshuri has adversely affected the public health and livelihood of the community in Tulkarm. In the absence of resources required for advanced environmental epidemiological modelling, we suggest the incorporation of community voices in any effort to challenge such industries. Furthermore, gathering of rigorous environmental exposure data is warranted and should be encouraged. The main limitations of this study were the inability to ascertain the representativeness of our sample to the experience of all Tulkarm's residents; and because of the qualitative design, our inability to identify precise sources of pollution apart from that caused by agrochemical manufacturers.

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Contributors

DMQ and RN participated in the conceptualisation and design of this study. DMQ was responsible for writing the first draft of the Abstract, and the interpretation and analysis of the data. RN was responsible for acquisition and interpretation of the data. Both authors have read and approved the final version of the Abstract.

Conflicts of interest

We declare that we have no conflicts of interest.

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