

Abstract

Outbreak Investigation of a Foodborne Illness in Village Bachal Soomro, District Tharparkar, Sindh, Pakistan (December 2020): Retrospective Cohort Study

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Abstract

Background: On December 3, 2020, district health authorities reported 15 suspected cases of gastroenteritis, including 4 deaths, from Village Bachal Soomro after a mourning ceremony.

Objective: Field Epidemiology and Laboratory Training Program (FELTP) fellows investigated the suspected outbreak, with the objective to determine the magnitude of the outbreak and to evaluate associated risk factors.

Methods: A retrospective cohort study was conducted on December 3, 2020, at Village Bachal Soomro. The complete cohort was traced back, and a pretested structured questionnaire was adopted to obtain demographic, clinical, and risk factor information. A case was defined as “any individual who attended the mourning ceremony at Village Bachal Soomro on December 3, 2020, and presented with any of the following symptoms: diarrhea, abdominal pain/cramps, and drowsiness.” Descriptive analysis followed by multiple logistic regression was performed. Different blood, stool, oropharyngeal swab, drinking water, and milk samples were sent for microbiological and chemical investigation.

Results: Of 61 participants, 32 (52%) were males and the median age was 23 years (range 1-70 years). The overall attack rate was 72%, while the most affected age group was 10-19 years, with an attack rate of 85%. The majority of cases presented with diarrhea (47/61, 77%), followed by abdominal pain (44/61, 72%), vomiting (43/61, 70%), body ache (29/61, 48%), drowsiness (10/61, 16%), and fever (4/61, 7%). Among all food items, dessert had the highest food-specific attack rate of 90%. Among all risk factors, consumption of dessert (adjusted odds ratio [aOR] 61.3, 95% CI 6.1-613.1), water (aOR 23.9, 95% CI 2.0-276.7), and buffalo milk (aOR 7.9, 95% CI 1.22-51.8) were found to be significantly associated with the attack. Distribution of cases showed a common point source that was probably due to a single pathogen source.

Conclusions: Dessert was prepared 10-12 hours prior to meal intake, so the outbreak was probably caused by dessert prepared with contaminated milk and water, with enterotoxins of *Staphylococcus aureus*. Community awareness of personal hygiene, proper storage/preservation of food items, and provision of safe drinking water are suggested.

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KEYWORDS

foodborne illness; outbreak investigation; retrospective cohort study

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