

Population-based Estimates of the Prevalence and Risk Factors of Chronic Pancreatitis (CP) in India: A Prospective Multi-Centre Study

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Background & Rationale

CP is a progressive irreversible disease of the pancreas.
Global prevalence : ~10-45 per 100,000
Estimates for India from heterogeneous data sources were imprecise.

Objective

- Estimate the prevalence of chronic pancreatitis in India through a nationwide population survey
- Identify risk factors for CP in India

Validation of Screening Criteria

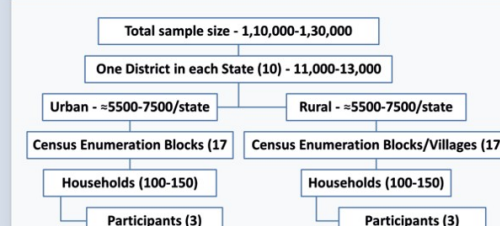
We used an indicative 3-question-based criterion for screening:

- "Were you admitted to the hospital due to acute abdominal pain in the last 12 months?"
- "Did you have more than one attack of severe abdominal pain in the last 12 months?"
- "Were you ever diagnosed with pancreatitis?"
- The sensitivity analysis showed, the sensitivity of this test was 98% and specificity of 77%

Methods

- Cross-sectional survey
- Covered 134,467 population from 340 blocks, across 10 states in India.

Sample size



Survey Details

Survey variables	Total	Urban	Rural
Total CEBs	340	170	170
Total HHs surveyed	37,568	18,897 (50.3%)	18,671 (49.7%)
HHs refused/locked	2661 (7.1%)	1552	1109
Total surveyed (≥12 yrs)	134,467	67,393 (50.1%)	67,074 (49.9%)
Male	67,870 (50.5%)	33,893 (50.3%)	33,977 (50.1%)
Female	66,597 (49.5%)	33,500 (49.7%)	33,097 (49.9%)
Eligible population/HH	≈3	≈3	≈3

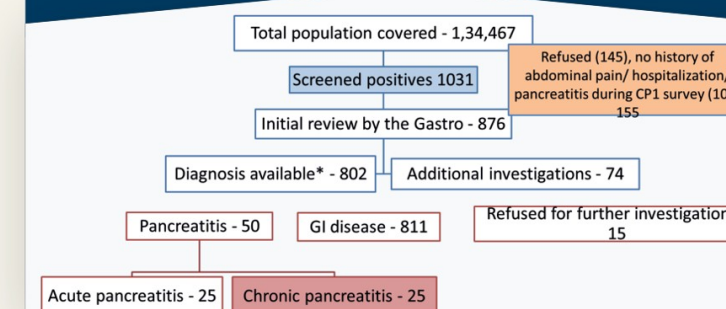
Prevalence of CP in 100,000

Category	Prevalence / 100,000	95% CI
Urban	17.81	(9.2-31.1)
Rural	19.38	(10.32-33.1)
Male	29.47	(18.0-45.5)
Female	7.51	(2.44-17.5)

Overall Prevalence of CP in India

Total surveyed	Confirmed CP cases	Prevalence / 100,000 95% CI
134,467	25	18.59 (12.03 - 27.44)

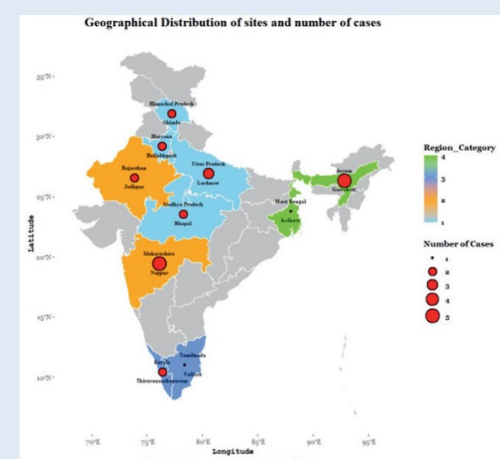
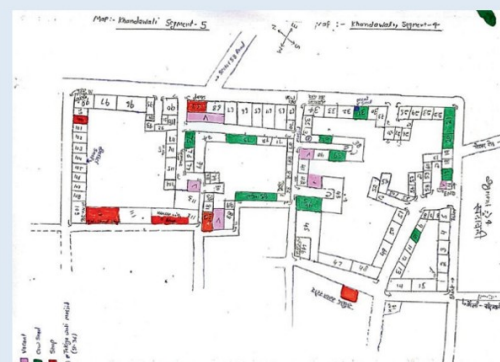
Screen Positives & Gastro Review Status



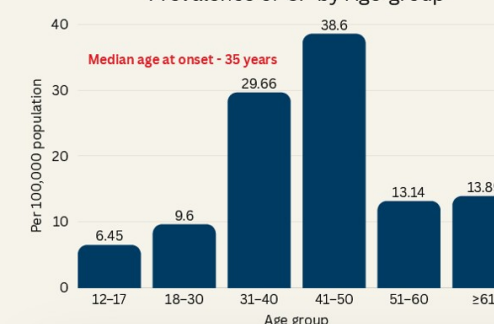
Characteristics	Cases (20)	Controls (80)
Mean age	40.4	39.32
Male	15 (75)	61 (76.3)
Urban	12 (60)	52 (65)
Rural	8 (40)	28 (35)
Ever smoking	5 (25)	20 (25)
Smokeless tobacco	8 (40)	25 (31.3)
Alcohol abuse	13 (65)	26 (32.5)
Family history of pancreatitis	2	0

Multi-stage Sampling Strategy

- Step 1: Each participating site selected a district
- Step 2: alist of CEBs was collected from the district census office
- Step 3: 34 CEBs from urban and rural areas
- Step 4: At each CEB, boundaries demarcated & houses numbered



Prevalence of CP by Age-group



Findings

- Overall Prevalence in India 18.59 (12.03 - 27.44)
- Peak age: 31-50 yrs CP prevalence was markedly higher in males (62.1 per 100,000; 95% CI: 34.7-102.4)
- Male predominance (~4x) 29.47 Vs 7.51
- Alcohol OR of 3.86 (1.38 -10.82)

Strengths

- Largest-ever community-based, nationally representative CP survey in India.
- Rigorous screening + confirmation of the diagnosis based on modern imaging by a qualified Gastroenterologist.
- Population estimates, matched case-control analysis.

Limitations

- Asymptomatic CP: could not pick up
- *160/1031 (15%) screen positives didn't undergo further investigation
- Genetic/metabolic risk factors not assessed due to small number of patients with CP
- 145 refusals and 15 didn't undergo additional investigations

