

# The Effect of a Village Health Worker Program on Adult Mortality Among a Tribal Population in India

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## Background

- Rural healthcare delivery systems face several challenges related to quality of care, availability of resources, and access to services compared to their urban counterparts.
- In 2004, the adult mortality rate in Melghat, India was >40 per 10,000 population
- Community health worker (CHW) programs have been demonstrated to expand access to basic health services and improve health outcomes in children under 5 in Melghat, however the effect of a CHW program has not been demonstrated among the economically productive age population

## Objective

- Aims:**
- Examine all-cause mortality by level of healthcare among villages
  - Examine the effect of time on mortality by level of healthcare among villages

## Methods

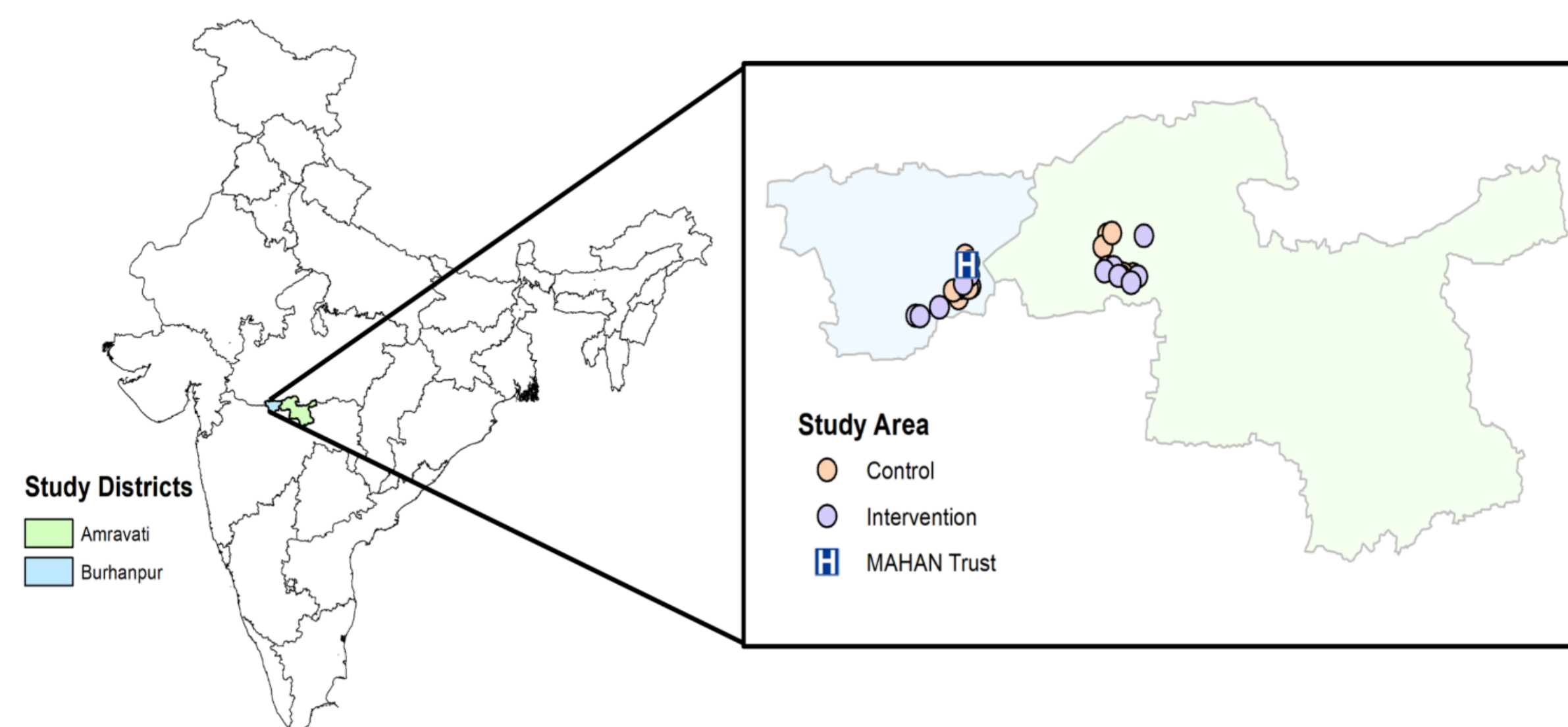


Figure 1: Map of India showing study areas

## Methods cont.

**Study Design:** A cluster randomized controlled trial conducted from 2005-2015 among adults between the ages of 16-60 in Melghat, India  
**Study Population:** 29 villages randomly assigned to CHW-based care ( $n=13$ ) or standard care ( $n=16$ )  
**Outcome:** All-Cause Mortality  
**Exposure:** Community health worker-based care  
**Statistical Analysis:** Generalized Linear Model- Poisson Regression

### Description of Exposure

Standard care	Community health worker-based care
<ul style="list-style-type: none"> <li>Seeking healthcare from local traditional healer, traveling to nearest primary health center, rural hospital or sub-district hospital</li> </ul>	<ul style="list-style-type: none"> <li>Health behavior education</li> <li>Medical treatment plans</li> <li>Monthly blood pressure screenings</li> <li>Referrals to MAHAN tribal hospital</li> </ul>

## Results

Table 1: Baseline Characteristics by Study Area\*

	Total Cohort N = 29	Intervention N = 13	Control N = 16	P-value
Population, N	14,537	5,880	8,657	
Households, Mean (SD)	146 (63.0)	131 (62.2)	157 (63.2)	0.43
Sex Male, Mean % (SD)	51.1 (1.6)	51.3 (2.0)	50.11 (1.3)	0.22
Age ≥40, Mean % (SD)	26.4 (3.6)	25.9 (4.3)	26.8 (3.1)	0.65
Literate, Mean % (SD)	58.6 (10.6)	61.7 (9.8)	56.1 (10.6)	0.23
Age at Death, Mean (SD)	36.1 (7.8)	33.7 (8.8)	37.7 (6.8)	0.24
Mortality Rate per 10,000, Mean (SD)	43.9 (34.7)	44.5 (38.9)	43.5 (32.1)	0.94

\*Baseline characteristics are summarized from 2009 census

## Results

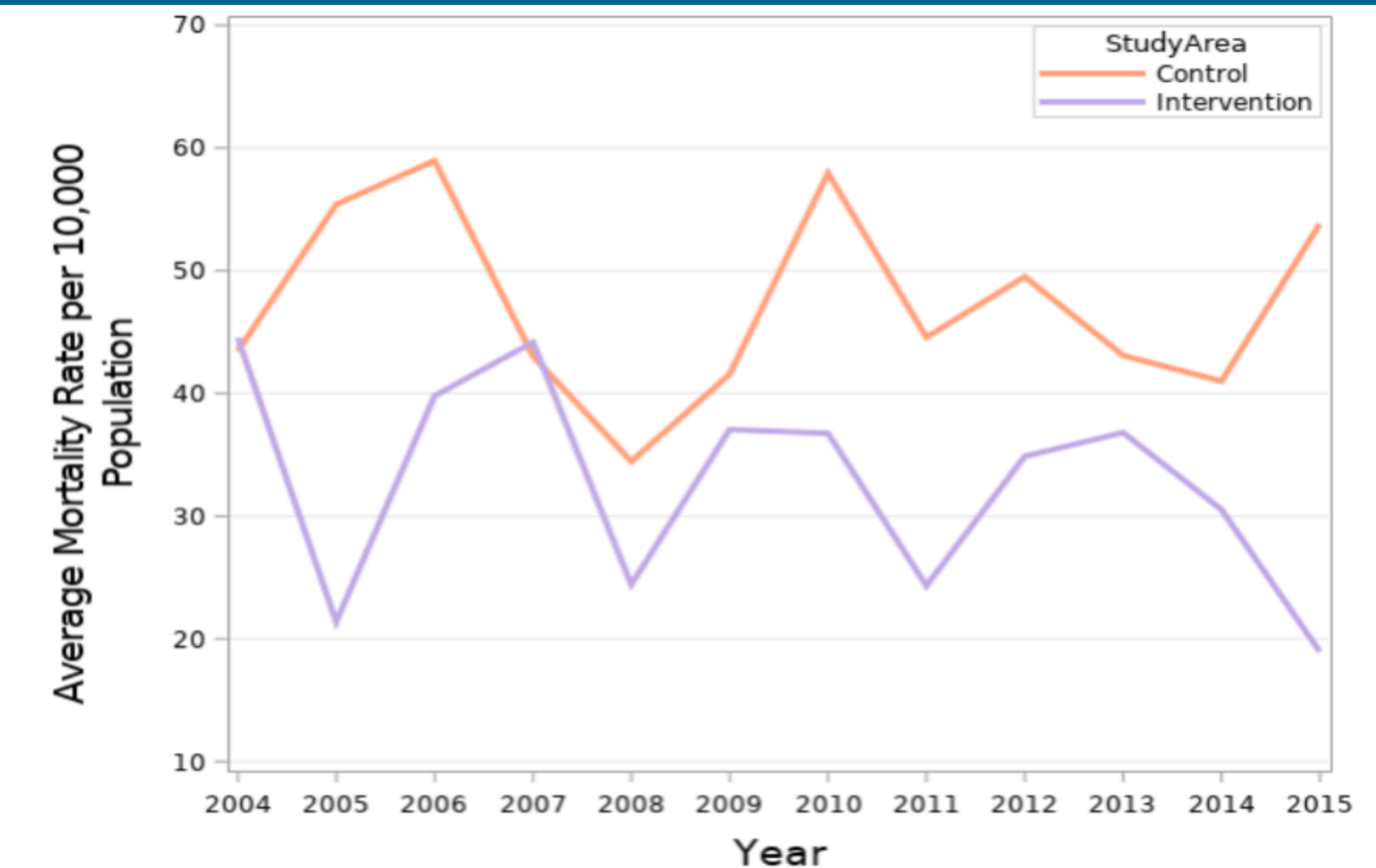


Figure 2: 2004-2015 Average Annual All-Cause Adult Mortality by Study Area

- Villages staffed with a CHW had a 33% reduction in yearly all-cause mortality rate compared to villages receiving standard care (RR = 0.67 95% CI 0.57, 0.78,  $P<0.0001$ )
- Time does not significantly modify the relationship between CHW-based care and mortality rate (RR = 0.96, 95% CI 0.92, 1.02,  $P=0.17$ )

## Conclusions

Villages receiving additional healthcare from a CHW have a significantly lower risk of annual mortality relative to villages receiving standard care, however this association is not modified by the length of time a village receives CHW-based care

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