

Impact of Housing Water and Sanitation (WATSAN) Facilities on Health:

Evidence from Pakistan

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Introduction

One of the major factors contributing to health degradation is housing environment, which includes housing material, household water source, household sanitation, household waste disposal and indoor air pollution.

The study analysed the association of various socioeconomic and housing environmental factors on health.

Methodology

Data source for analyses in this study is taken from Pakistan Panel Household Survey, 2010. A detailed analysis was done on the effects of housing Water and Sanitation (WATSAN) facilities on the health of individuals through logistic regression.

The association was measured through three indicators: total population reported ill; population reported ill with selected water-borne diseases (infectious intestinal problems and Jaundice); children reported sick with diarrhea

Results

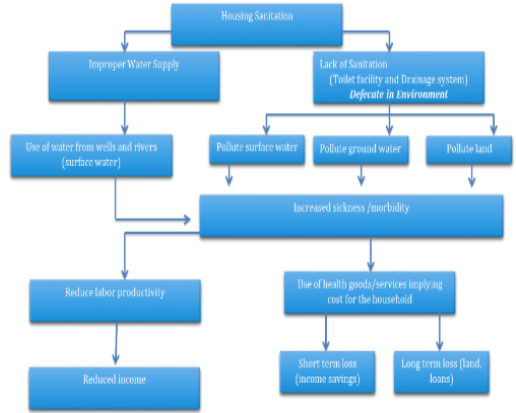
Logistic Regression Analysis of Population reported Ill with Water borne Diseases

Variable	Category	Coefficients	Odds Ratio
Source of Drinking Water			
	Piped/Motor PumpRc	-	-
	Others	-.131	.877
Toilet Facility*			
	Flush SystemRc	-	-
	Others	.087	1.091
Drainage System*			
	Covered Drain SystemRc	-	-
	Open Drain System	.263	1.769
	No System	.067	1.070
*Significant at 5%, **Significant at 10%			
RC Stands for Reference Category			
Percentage Predicting Correctly 70%			

Logistic Regression Analysis of Children reported Ill with Diarrhea

Variable	Category	Coefficients	Odds Ratio
Source of Drinking Water			
	Piped/Motor PumpRc	-	-
	Others	-.126	.881
Toilet Facility*			
	Flush SystemRc	-	-
	Others	.180	1.197
Drainage System*			
	Covered Drain SystemRc	-	-
	Open Drain System	.460*	1.584
	No System	.009	1.991
*Significant at 5%, **Significant at 10%			
RC Stands for Reference Category			
Percentage Predicting Correctly 71%			

CONCEPTUAL FRAMEWORK



Logistic Regression Analysis of Population reported Ill

Variable	Category	Coefficients	Odds Ratio
Age Groups*			
	0-6Rc	-	-
	7-14	-.073	.930
	15-29	.209	1.232
	60+	-.100	.905
Sex			
	MaleRc	-	-
	Female	.014	1.986
Type of Residence*			
	UrbanRc	-	-
	Rural	.175*	1.839
Province*			
	PunjabRc	-	-
	Sindh	.454*	1.574
	KP	.570*	1.769
	Baluchistan	.270*	1.310
Education of Head of the Household*			
	IlliterateRc	-	-
	Primary	-.197*	.821
	Secondary & Matric	-.132*	.877
	College & Higher	-.250*	.779
Working Status*			
	WorkingRc	-	-
	Nonworking	.476*	1.610
Annual Household Income*			
	<=10,000Rc	-	-
	10,001-30,000	-.0320*	.726
	30,001-50,000	-.174	.840
	50,001-100,000	-.249*	.779
	100,001+	-.158	.854
Source of Drinking			
	Water Piped/Motor PumpRc	-	-
	Others	.031	1.032
Toilet Facility*			
	Flush SystemRc	-	-
	Others	-.288*	.750
Drainage System*			
	Covered Drain SystemRc	-	-
	Open Drain System	.223*	1.250
	No System	.624*	1.866
*Significant at 5%, **Significant at 10%			
RC Stands for Reference Category			
Percentage Predicting Correctly 70.5%			

- The probability of falling ill slightly increased in individuals living in households having no piped water source and no drainage system
- The likelihood of falling ill with water borne diseases and diarrhea increases significantly in houses lacking the proper toilet facility and covered drainage system
- The unsafe source of drinking water showed no relation in increasing the likelihood of falling ill with diarrhea and other selected water-borne diseases

Conclusion:

- The analysis shows that the water borne diseases and diarrhea have more significant association with sanitation facilities rather than with source of drinking water. This can be due to personal hygiene (tap to mouth route) was not taken into account.
- Result showed that that socioeconomic and demographic factors had a very strong association on health of the individuals measured through total ill population, population reported ill with water borne diseases and diarrhea