JOURNAL OF WOMEN AND CHILD HEALTH

Haq et al.; JoWaCH (2024)

Published by The House of Quantum NETWORKS

Publisher's Note
"The House of Quantum Networks" remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

ORIGINAL ARTICLE

Investigating Child Healthcare Disparities in Pakistan: Insights from 2012-13 and 2017-18 Demographic Health Surveys

Ehtasham-ul-Haq[1], **Jalal ud Din**[1], **Abdul Naeem**[2]

1 Department of Mathematics and Statistics, International Islamic University, Islamabad. **Pakistan**
2 Intensive Care Unit, Islamabad Medical Complex, Islamabad, **Pakistan**

Corresponding author
Ehtasham-ul-Haq
Department of Mathematics and Statistics, International Islamic University, Islamabad.
ehtasham.malik@iiu.edu.pk

ISSN: 3006-760X (Online)

Citation: **Haque E.U., et al (2024).** Investigating Child Healthcare Disparities in Pakistan: Insights from 2012-13 and 2017-18 Demographic Health Surveys. 31st Dec 24;1(4):24-34 **DOI:** https://doi.org/10.62807/jowach.v1i4.2024.24-34

Available at: Link

Editor: **Olusegun Adeoye**.

Peer Review History: JOWACH recognizes the benefits of transparency in the peer review process; therefore, we keep all of the content of peer review and author responses in our repository. We do not have a hyperlink to publicly accessible peer-review history, but if needed, we can send the history to you.

Data Availability Statement: All relevant data are within the manuscript. We do not have a hyperlink to publicly accessible archived datasets, but if needed, we can send the raw data to you.

Funding: No funding.

Competing interests: The authors have declared that no competing interests exist.

Abstract

Background:
This study aims to evaluate the impact of parental education and other factors on children's healthcare needs in Pakistan. In many developing countries, child health is often overlooked despite its importance to a healthy society.

Methods:
Utilizing representative secondary data from the Pakistan Demographic and Health Surveys (PDHS), this study empirically explored child health and examined factors influencing healthcare challenges. Both qualitative and quantitative analyses were conducted, including binary logistic regression analysis.

Results:
Empirical results highlight child healthcare disparities in Pakistan based on region, socioeconomic status, and maternal education. In context of PDHS 2012-13 and 2017-18, access to healthcare facilitation for diarrhea increased slightly in Punjab (23.2% to 24.6%) but dropped significantly in Sindh (23.2% to 13.8%). Children of mothers with secondary or higher education showed better access to healthcare rising from 18.8% to 22% with secondary education and higher education from 9.6% to 13.7%. Wealth inequalities were evident; 85% of wealthier families had better access to hygienic water facilities in 2017-18, while the poorest had 15% indicating persistent healthcare disparities across the country.

Conclusion:
The study's key findings suggest that educated parents are better equipped to address their children's healthcare needs. Therefore, it is essential to implement practical measures aimed at improving parental education, particularly maternal education, which is often neglected.

Key words: Child Health, Disparities, Odd Ratio, Paternal education, Well-being

Abstracts in عربی ،اردو, 中国人, française, русский and español at the end of the article

Layman Summary

This study looks at how parental education and other associated factors affect children's healthcare in Pakistan, where child health is often ignored. Using data from Pakistan Demographic and Health Surveys, the research study uses both quantitative and qualitative methods, including binary logistic regression, to investigate healthcare issues. The results reveal that diarrhea, fever along with certain social, demographic, and economic factors are related to each other. It also reveals that children with educated parents frequently use healthcare services especially mothers education', to boost their children's health.

INTRODUCTION

Ensuring children have access to adequate healthcare facilities is a fundamental right in civilized societies. Unfortunately, in underdeveloped nations, this essential right is often inaccessible, impacting the overall well-being of the population. The United Nations International Children's Emergency Fund (UNICEF) conceptual framework emphasizes the significant influence of both illness (a primary factor) and care (a secondary factor) on child growth.

Critical to healthcare is the provision of medical care for sick children, especially in underdeveloped regions where common ailments like fever and diarrhea prevail [1-3]. Socioeconomic disparities further complicate the availability of health facilities [5, 11]. Distinct variations in fundamental health services, including skilled labor and delivery, immunizations, and care for diarrhea and fever, exist between low and higher socioeconomic levels. Children in lower socio-economic brackets often face elevated mortality rates and poor nutritional status, underscoring the need for accessible, high-quality medical facilities staffed with well-trained professionals [12, 13].

Numerous studies have explored the intricate relationship between maternal education and its interaction with socioeconomic and demographic factors in influencing the health of children in low- and middle-income countries. These investigations illuminate the significant role of maternal education in shaping various aspects of children's health outcomes [6]. Moreover, they emphasize the broader context of social and economic factors that collectively contribute to the overall well-being of children in these regions. Researchers aim to extract valuable insights from these endeavors to inform targeted interventions and policies, ultimately striving to enhance the health and prospects of the youth in these countries [18, 20]. The global impact of women's political empowerment on child health outcomes also highlighting its critical role in improving child survival and well-being [7].

Health disparities happen across all demographic groups in the world, although their intensity varies between underdeveloped and developing countries [1]. Core economic and social factors, including parental education, health, hygiene, income, and access to state-funded healthcare, play a significant role in influencing healthcare indicators and are determine as principal causes of health disparities [8]. Hence, Low parental health awareness is consistently associated to poorer health outcomes in children, such as higher hospitalization rates and inadequate disease management [24]. Illustratively, several studies indicate that access to maternal health services, promote breastfeeding practices, empower women, increase household exposure to media, and improve the rate of health facility deliveries [14].

Historical, Pakistan has made substantial improvement in health sectors such as child and maternal health, reduction in child mortality, and improvement in child vaccination rates while reducing prevalence rate in malaria, tuberculosis, and hepatitis. However, the country ranks 149th out of 179 in maternal mortality; 39% of the total population of Pakistan lives in multi-dimensional poverty [19]; around 20% of Pakistan's population has limited access to clean drinking water specially in urban area. Furthermore, according to Ali et al., around 38% of Pakistani children under age 5 are stunted which quite high as compare to other developing countries [4].

Such studies will provide a complete overview of child healthcare inequalities and enrich the discussion in context of regional, socio-economic status, gender-based, and cultural factors affecting healthcare quality and access in Pakistan.

2 Materials and Methods:

2.1 Information Source:

This study uses secondary data from the Pakistan Demographic & Health Surveys (PDHS) conducted in 2012-13 and 2017-18 by the Pakistan Bureau of Statistics and National Institute of Population Studies (NIPS) [17]. The surveys covered eight regions: Punjab, Sindh, Gilgit-Baltistan, Khyber Pakhtunkhwa, Baluchistan, Azad Jammu and Kashmir, Islamabad, and FATA, split into 16 urban and rural strata. Data was collected from 561 clusters, with 28 households selected per cluster using systematic random sampling. A total of 16,240 households were interviewed, including 2,107 children with diarrhea and 4,470 with fever or cough.

Outcome variables:

In this study, child healthcare is the outcome variable. Based on Adeyanju et al.'s findings, the study used access to treatment for fever, cough, and diarrhea as indicators of basic care [2]. Diarrhea treatment was coded as "1" if a child received care from a trained professional (doctor or nurse) within two weeks prior to the survey, and "0" if not. Similarly, treatment for fever or cough was classified as "treated" if provided by a qualified medical practitioner, otherwise, it was considered untreated.

Explanatory variables:

Within the framework of various UNICEF conceptual models, a comprehensive array of factors and variables underwent meticulous examination. Consequently, the collected data underwent categorization as necessary [23]. As an illustration, the household wealth status, serving as a proxy for the wealth index, underwent reclassification. The "poorest" and "poor" categories were amalgamated into a singular "poor" group, while the "richest" and "rich" categories were consolidated into a unified "rich" group. In alignment with guidelines from the World Health Organization (WHO), diverse sanitation and water facility types were dichotomized into "improved" and "unimproved" categories [22].

In the current study, maternal empowerment was gauged through four questions pertaining to decision-making within the family, encompassing healthcare choices, major purchases, visits to family and relatives, and the utilization of the husband's income. Response options included (i) the respondent alone; (ii) the respondent and her husband or partner; (iii) the husband or partner by himself; (iv) family elders; and (v) others. A binary coding system was applied, assigning a value of "1" for the first two responses and "0" for any other. Subsequently, the recoded values were tallied, resulting in scores ranging from 0 to 4. These scores were then categorized into three groups: 0 indicated a non-empowered state or moderate empowerment (scores 1, 2, or 3), while a score of 4 denoted full empowerment, signifying complete autonomy in household decisions.

Maternal and paternal education were categorized into three groups: non-education, primary, and secondary or above. Residence type, child gender, maternal employment status, and nursing status were assigned binary values, with "1" indicating rural areas, female gender, employment, and nursing, respectively, while "0" denoted otherwise. This systematic approach ensures a nuanced understanding of the socio-demographic variables under consideration in the study.

Data analysis:

The use of descriptive statistics was employed through an inclusive data analysis approach by using SPSS version 21. To examine the relationship between basic healthcare differences among children in Pakistan with the self-determining factors separately and performed a straightforward binary logistic regression analysis. Odds ratios (OR) are calculated to predict the response variables using the independent variables while accounting for factors such as location, income, and employment rate.

Results:

Sample characteristics:

The results from both PDHS 2012-13 and 2017-18 datasets align, showing a modest rise in fever and diarrhea cases in Balochistan compared to other regions, highlighting the region's healthcare

scarcity [17]. This reflects Pakistan's broader healthcare struggles, especially in urban areas, to serve its growing population.

Data also suggests that highly educated women, due to demanding work routines, rely on external caregivers, possibly contributing to the increase in child illnesses like fever, cough, and diarrhea [21]. Additionally, tables indicate that children with uneducated fathers face higher rates of these illnesses, making paternal education a key factor in healthcare disparities among children in Pakistan.

Simple binary logistic regression:
In the analysis of both datasets, we employed simple binary logistic regression to ascertain the predictive relationship between each independent variable and the corresponding response variable. As the human population burgeons, there is a discernible uptick in the likelihood of fever and diarrhea in Pakistan; however, the prevalence rate does not exhibit a substantial elevation parallel to an increase in the wealth index. Notably, our findings suggest that improved access to quality water and sanitation facilities holds promise in mitigating the occurrence of illnesses, particularly coughs associated with diarrhea. Significantly, nearly all the predictor variables demonstrated a statistically significant association with the incidence of fever, cough, and diarrhea. These insights shed light on the multifaceted factors contributing to the health dynamics in the studied population.

Table 1: Sample characteristics percentage distribution of Diarrhea treatment (PDHS 2012-13 & PDHS 2017-18)

	PDHS 2012-13		PDHS 2017-18	
	N	Percentage (%)	n	Percentage (%)
Region				
Punjab	659	23.20	519	24.60
Sindh	532	23.20	290	13.80
KPK	570	24.80	405	19.20
Balochistan	209	9.10	248	11.80
GB	183	8.00	118	5.60
ICT	145	6.30	148	7.00
AJK	-	-	182	8.60
FATA	-	-	197	9.30
Type of residence				
Urban	934	40.60	934	44.30
Rural	1364	59.40	1173	55.70
Maternal Education				
None	1291	56.20	1032	49.00
Primary	354	15.40	323	15.30
Secondary	432	18.80	463	22.00
Higher	221	9.60	289	13.70
Wealth index				
Poorest	528	23.00	461	21.90
Poorer	513	22.30	488	23.20
Middle	458	19.90	441	20.90
Rich	450	19.60	371	17.60
Richest	349	15.20	346	16.40
Water facility				
Unimproved	352	15.30	316	15.00
Improved	1946	84.70	1791	85.00
Toilet facility				
Unimproved	725	31.50	471	22.40
Improved	1573	68.50	1636	77.60
Husband Education				
None	740	32.30	584	28.00
Primary	349	15.20	310	14.90
Secondary	785	34.20	757	36.30
Higher	419	18.30	432	20.70
Decision on Respondents' Health care				
Respondent alone	223	9.80	160	7.70
Respondent and husband/partner	735	32.30	642	30.80
Husband/partner alone	833	36.60	978	46.90
Someone else	478	21.00	239	11.50
Other	9	0.40	66	3.20
Gender of the child				
Male	1229	53.50	1117	53.00
Female	1069	46.50	990	47.00
Breastfeeding				
Ever breastfed, not currently breastfed	1195	52.10	1113	52.90
Never breastfed	77	3.40	73	3.50
Still breastfeeding	1020	44.50	918	43.60
Maternal work status				
Not working	1677	75.70	1851	87.90
Working	538	24.30	256	12.15

Table 2: Sample characteristics percentage distribution of Fever treatment (PDHS 2012-13 & PDHS 2017-18)

	PDHS 2012-13		PDHS 2017-18	
	N	Percentage (%)	n	Percentage (%)
Region				
Punjab	1180	30.00	1048	23.40
Sindh	845	21.50	685	15.30
KPK	895	22.80	761	17.00
Balochistan	382	9.70	478	10.70
GB	348	8.90	338	7.60
ICT	280	7.10	298	6.70
AJK	-	-	569	12.70
FATA	-	-	293	6.60
Type of residence				
Urban	1626	41.40	2024	45.30
Rural	2304	58.60	2446	54.70
Maternal Education				
None	2099	53.40	2083	46.60
Primary	621	15.80	677	15.10
Secondary	743	18.90	1077	24.10
Higher	467	11.90	633	14.20
Wealth index				
Poorest	865	22.00	946	21.20
Poorer	790	20.10	1025	22.90
Middle	763	19.40	925	20.70
Rich	758	19.30	814	18.20
Richest	754	19.20	760	17.00
Water facility				
Unimproved	592	15.10	707	15.81
Improved	3338	84.90	3763	84.19
Toilet facility				
Unimproved	1150	29.30	949	21.23
Improved	2780	70.70	3521	78.77
Husband Education				
None	1193	30.40	1128	25.50
Primary	579	14.80	635	14.40
Secondary	1357	34.60	1699	38.50
Higher	793	20.20	950	21.50
Decision on Respondents' Health care				
Respondent alone	397	10.20	357	8.10
Respondent and husband/partner	1271	32.60	1522	34.50
Husband/partner alone	1461	37.50	1962	44.40
Someone else	749	19.20	452	2.80
Other	16	0.40	124	10.20
Gender of the child				
Male	2093	53.30	2312	51.70
Female	1837	46.70	2158	48.30
Breastfeeding				
Ever breastfed, not currently breastfed	2301	58.70	2726	61.00
Never breastfed	112	2.90	137	3.10
Still breastfeeding	1506	38.40	1606	35.90
Maternal work status				
Not working	3069	78.10	3813	85.30
Working	861	21.69	656	14.70

Table 3: Binary logistics regression of factors associated with Diarrhea treatment (PDHS 2012-13 and PDHS 2017-18)

Variables	PDHS 2012-13				PDHS 2017-18			
	OR	95% CI			OR	95% CI		
		Lower	Upper	P-value		Lower	Upper	P-value
Region								
Punjab (reference)								
Sindh	1.059	0.930	1.206	0.386	0.614	0.525	0.718	0.000
KPK	1.133	1.062	1.208	0.000	1.005	0.934	1.080	0.903
Balochistan	0.788	0.745	0.834	0.000	0.952	0.900	1.007	0.084
GB	0.941	0.899	0.985	0.009	0.887	0.840	0.936	0.000
ICT	0.995	0.956	1.036	0.815	0.986	0.947	1.027	0.501
AJK					0.936	0.907	0.965	0.000
FATA					0.995	0.970	1.022	0.725
Type of residence								
Urban (reference)								
Rural	1.116	1.016	1.225	0.021	1.008	0.917	1.108	0.877
Maternal Education								
None (reference)								
Primary	1.107	0.969	1.265	0.135	1.234	1.074	1.418	0.003
Secondary	1.028	0.967	1.094	0.373	1.054	0.992	1.120	0.087
Higher	0.938	0.890	0.989	0.017	0.986	0.940	1.034	0.557
Wealth index								
Poorest (reference)								
Poorer	1.153	1.005	1.324	0.043	1.070	0.930	1.231	0.344
Middle	1.015	9.460	1.089	0.689	1.056	0.982	1.135	0.140
Rich	1.011	0.964	1.060	0.653	1.014	0.964	1.066	0.593
Richest	0.930	0.896	0.965	0.000	0.994	0.956	1.032	0.740
Water facility								
Unimproved (reference)								
Improved	0.964	0.848	1.096	0.579	0.918	0.804	1.048	0.206
Toilet facility								
Unimproved (reference)								
Improved	0.887	0.803	0.979	0.018	0.948	0.847	1.062	0.356
Husband Education								
None (reference)								
Primary	1.085	0.939	1.253	0.271	0.858	0.871	1.181	0.032
Secondary	1.016	0.960	1.076	0.577	0.990	0.933	1.051	0.754
Higher	0.922	0.882	0.964	0.000	0.945	0.903	0.989	0.015
Decision on Respondents' Health care								
Respondent alone	0.755	0.636	0.897	0.001	0.790	0.653	0.957	0.016
Respondent and husband/partner (reference)								
Husband/partner alone	0.906	0.856	0.958	0.001	1.024	0.960	1.091	0.471
Someone else					1.004	0.949	1.068	0.895
Other					1.036	0.980	1.095	0.216
Gender of the child								
Male (reference)								
Female	0.880	0.802	0.965	0.006	0.907	0.826	0.997	0.043
Breastfeeding								
Ever breastfed, not currently (reference)								
Never breastfed	1.841	1.406	2.410	0.000	1.341	1.032	1.743	0.028
Still breastfeeding	1.394	1.329	1.462	0.000	1.340	1.276	1.407	0.000
Maternal work status								
Not working (reference)								
Working	1.308	1.173	1.459	0.000	0.908	0.787	1.047	0.185

Table 4: Binary logistics regression of factors associated with Fever treatment (PDHS 2012-13 and PDHS 2017-18)

	PDHS 2012-13				PDHS 2017-18			
Variables	OR	95% CI			OR	95% CI		
		Lower	Upper	P-value		Lower	Upper	P-value
Region								
Punjab (reference)								
Sindh	0.886	0.792	0.991	0.034	0.677	0.600	0.763	0.000
KPK	1.050	0.992	1.111	0.090	0.948	0.893	1.006	0.080
Balochistan	0.760	0.727	0.795	0.000	0.950	0.874	0.957	0.000
GB	0.948	0.913	0.984	0.005	0.979	0.942	1.019	0.301
ICT	1.019	0.985	1.054	0.274	0.981	0.490	1.013	0.245
AJK					1.032	1.009	1.056	0.007
FATA					0.930	0.909	0.951	0.000
Type of residence								
Urban (reference)								
Rural	1.092	1.009	1.182	0.029	0.951	0.882	1.024	0.183
Maternal Education								
None (reference)								
Primary	1.280	1.142	1.435	0.000	1.399	1.251	1.566	0.000
Secondary	1.080	1.020	1.140	0.004	1.204	1.148	1.263	0.000
Higher	1.058	1.014	1.103	0.009	1.024	0.987	1.062	0.215
Wealth index								
Poorest (reference)								
Poorer	1.079	0.957	1.217	0.216	1.132	1.014	1.265	0.028
Middle	1.031	0.971	1.096	0.316	1.093	1.032	1.157	0.002
Rich	1.028	0.987	1.071	0.181	1.055	1.014	1.097	0.008
Richest	1.016	0.986	1.048	0.302	1.018	0.988	1.049	0.234
Water facility								
Unimproved								
Improved	0.986	0.884	1.100	0.804	0.901	0.772	1.052	0.189
Toilet facility								
Unimproved								
Improved	1.021	0.937	1.113	0.628	1.114	0.983	1.262	0.091
Husband Education								
None (reference)								
Primary	1.157	1.021	1.311	0.022	1.116	0.988	1.262	0.078
Secondary	1.078	1.027	1.132	0.002	1.113	1.062	1.168	0.000
Higher	0.983	0.948	1.020	0.364	0.994	0.959	1.030	0.747
Decision on Respondents' Health care								
Respondent alone	0.666	0.574	0.772	0.000	0.803	0.692	0.932	0.004
Respondent and husband/partner (reference)								
Husband/partner alone	0.874	0.832	0.917	0.000	0.949	0.904	0.996	0.034
Someone else					0.979	0.936	1.024	0.359
Other					0.975	0.925	1.027	0.339
Gender of the child								
Male (reference)								
Female	0.866	0.801	0.936	0.000	0.980	0.777	1.235	0.862
Breastfeeding								
Ever breastfed, not currently (reference)								
Never breastfed	1.360	1.065	1.735	0.014	0.968	0.782	1.197	0.762
Still breastfeeding	1.220	1.171	1.272	0.000	1.119	1.076	1.164	0.000
Maternal work status								
Not working (reference)								
Working	1.130	1.027	1.244	0.012	1.273	1.140	1.421	0.000

Discussions:

The empirical results of Table 1 reveal that fewer children were affected by diarrhea in Sindh and KPK regions in the year 2017-18 as compared to the year 2012-13, which suggests that sanitary conditions and other socioeconomic factors have been improved in particular regions. Moreover, the collected information indicates that the geographical location, mother's education, access to water and toilets, decisions regarding respondent health care, child gender, breastfeeding, and maternal job status all these factors have a substantial impact on child healthcare disparities in Pakistan. According to the results of Table 1 reveal that percentage of children receiving diarrhea treatment decreased in Sindh from 23.2% (2012-13) to 13.8% (2017-18). In KPK, it also decreased from 24.8% to 19.2%, and in GB, from 8.0% to 5.6%. Meanwhile, in Punjab diarrhea cases saw a slight increase, from 23.2% to 24.6% as visualized in Figure 1. Urban access to diarrhea treatment increased from 40.6% in 2012-13 to 44.3% in 2017-18, while rural access saw a smaller change, decreasing from 59.4% to 55.7%. The reason for the considerable number of diarrhea cases in urban areas is due to the dense population in large cities and the lack of healthcare services according to the need of the population. This study demonstrates that an increase in diarrhea cases among the offspring due to unemployed women is a significant determinant; since the majority of unemployed women are uneducated, the incidence of diarrhea in their children is rising because they did not have much knowledge about the health precautions of their children.

This is also a fact that highly educated mothers have less time for their children. Moreover, empirical results of Table 1 also reveal that the treatment rates for children's with diarrhea showed improvement with higher maternal education levels. Illustratively mothers with secondary education show an improvement in diarrhea treatment access from 18.8% to 22.0% between study years, while those with higher education saw an increase from 9.6% to 13.7% as represented in Figure 2.Those children related to rich families have access to better health care than those from less income. Hence, access to diarrhea treatment slightly decreased in the poorest households from 23.0% (2012-13) to 21.9% (2017-18), and in the richest, from 15.2% to 16.4%.

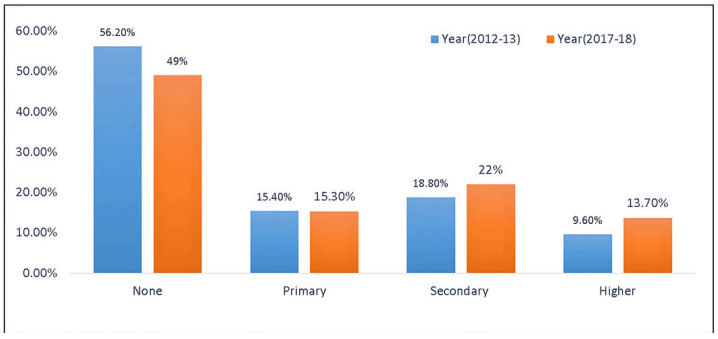

Figure 1: Percentage distribution of diarrhea cases by region

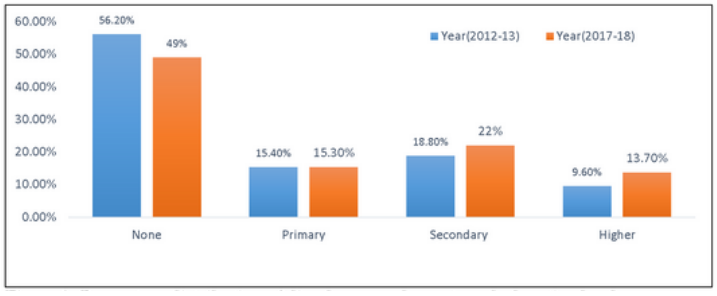

Figure 2: Percentage distribution of diarrhea cases by maternal education level

According to the results of Table 2, there was a lesser number of cases related to fever/cough reported in Punjab, Sindh, KPK, GB, and ICT regions in the year 2017-18 than there had been in the year 2012-13, which suggests the considerable improvement in healthcare facilities as compared to last five years. The fever cases increased from 41.4% to 45.3% in urban area, while in rural access changed only slightly from 58.6% to 54.7%. The increase in the percentage of fever related cases in urban areas in from last five years is due to the continuous migration towards highly populated cities. The child's gender is another aspect that contributes to the disparities in child healthcare in Pakistan, therefore masculine children received the finest care from their parents. According to wealth index data, the income level of the target population become poor in the last five years resulting increase in fever/cough-related cases. Furthermore, poorer households increased from 20.1% to 22.9%, indicating small gains for the economically disadvantaged. Education for both parents is also a decisive factor for the improvement of child healthcare and if they jointly decide to take care of children's health then there will be less disparity in child health care in Pakistan. For fever treatment, the percentage of children treated when mothers had secondary education increased from 18.9% in 2012-13 to 24.1% in 2017-18, and for higher education from 11.9% to 14.2%. Access to improved water sources remained high, with slight increases for both diarrhea (from 84.7% to 85.0%) and fever (from 84.9% to 84.2%) treatments as depicted in Figure 3. Improved toilet facilities for diarrhea treatment increased significantly, from 68.5% in 2012-13 to 77.6% in 2017-18, indicating infrastructure development.

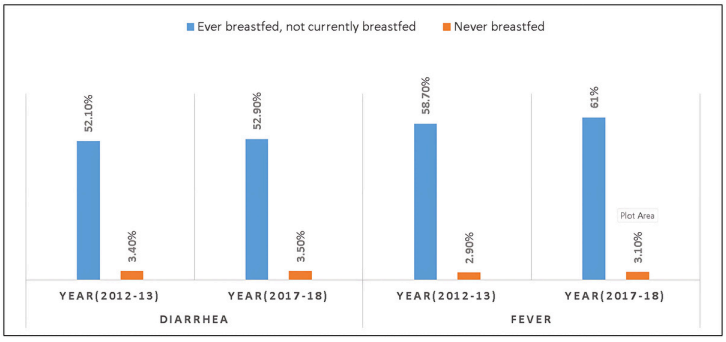

Figure 3: Percentage distribution of diarrhea and fever cases by drinking water facilities

According to the results of Table 1 and Table 2 show that male children were consistently slightly more likely to receive treatment for both diarrhea and fever. For diarrhea, male access was 53.5% (2012-13) and 53.0% (2017-18), while female access remained slightly lower at 46.5% and 47.0%. This pattern held for fever as well, with male treatment rates slightly higher in both years. In the context of breastfeeding and its treatment male children were consistently more likely to receive treatment for both diarrhea and fever as showed in Figure 4. For diarrhea, male access was 53.5% (2012-13) and 53.0% (2017-18), while female access remained slightly lower at 46.5% and 47.0%. This pattern held for fever as well, with male treatment rates slightly higher in both years. The percentage of households where healthcare related decisions were made by the respondent and partner decreased for diarrhea from 32.3% to 30.8% and for fever from 32.6% to 34.5%. However, in cases where decisions were made solely by the husband, access to treatment rose sharply for diarrhea (from 36.6% to 46.9%) and fever (from 37.5% to 44.4%), suggesting an increase in male-dominated decision-making.

The logistic regression results including odds ratios in Table 3 and Table 4 indicate many reasons for healthcare disparities in Pakistan. Rural areas need to give close attention to healthcare disparities because there are many possible causes including low family income, lack of basic facilities, and low parental education. Moreover, treatment disparities by region show a significant decrease in odds ratios (OR) for Sindh and GB in 2017-18 compared to 2012-13, indicating reduced likelihood of treatment compared to Punjab. In year 2017-18, children in Sindh had an OR of 0.614 (95% CI: 0.525–0.718) for receiving diarrhea treatment ($p < 0.001$).Similarly, the odds of receiving fever treatment in Sindh dropped in 2017-18 (OR = 0.677, $p < 0.001$). A strong government-level commitment is needed to improve water sanitation systems and water filtering facilities including hygienic awareness in the rural like habit of washing hands before eating. The education of parents influences the decisions

related to their children's healthcare. Moreover, paternal education is one of the key factors to reduce healthcare disparities in Pakistan in the year 2017-18. It is also essential that we emphasize maternal education to combat healthcare disparities. In 2017-18, mothers with primary education had a 23.4% higher likelihood of seeking diarrhea treatment for their children (OR = 1.234, p = 0.003). Higher maternal education levels were also positively correlated with fever treatment; primary education showed an OR of 1.399 (p < 0.001) in 2017-18.

In Pakistan, parental education, geographical location, socioeconomic position, easy access to water and toilet facilities, gender biasedness, and mother's feed are all substantial indicators for the improvement of the quality of healthcare facilitation. Overall survey results reveal that a total of 62% of children with diarrhea and 71% of children with fever/cough received medical care. Moreover, several variables including wealth status, maternal education, place of residence, access to purified water, and better sanitation facilities were major contributors to healthcare disparities. Hence, wealth status is one of the primary factors influencing health-related disparities based on several studies that have been shown by earlier investigations conducted in both developed and underdeveloped nations [16]. Various healthcare-related factors significantly contribute to disparities in wealth. [6, 10]. The wealth index significantly influenced fever treatment, particularly in 2017-18, where children from wealthier households were more likely to receive treatment. The OR for the "Middle" wealth category was 1.093 (p = 0.002). Furthermore, the positive impact to words maternal education can be evident in better feeding practices, increased access to and usage of healthcare facilities, and an improvement in household wealth status [15]. Hence, in year 2017-18, children who were still being breastfed had 1.340 times higher odds of receiving diarrhea treatment (p < 0.001). Breastfed children also had higher odds of fever treatment, with ORs of 1.119 in 2017-18 (p < 0.001). Maternal employment status positively impacted fever treatment, with working mothers being more likely to seek treatment for their children in 2017-18 (OR = 1.273, p < 0.001).

Hence the major empirical findings show that rural areas, particularly Sindh and GB, face significant healthcare challenges, with reduced odds of receiving treatment for diarrhea and fever compared to urban regions like Punjab. Maternal and paternal education play significant roles in healthcare facilitation, with higher maternal education associated with enhanced likelihood of accessing basic treatment. In 2017-18, children of mothers having primary education had a greater chance of receiving diarrhea treatment and better access to fever treatment. Additionally, children from wealthier households were more likely to receive treatment, with the middle wealth group showing a higher likelihood of fever treatment. Breastfeeding was another important aspect; where children who were breastfed had higher odds of receiving both diarrhea and fever treatment. Maternal employment also positively influenced treatment seeking behavior, with working mothers being more likely to seek healthcare for their children. In the context of noticeable variations in healthcare spending, maternal education levels, access to primary care, resource allocation, and home sanitary conditions could be responsible for the disparities in health between rural and urban areas [9].

These numerical results signifies disparities in healthcare access influenced by aspects such as regionalization, maternal education, healthcare facilities and economic status. Generally, limited improvements are observed in some areas but inequalities, particularly related to socio-economic status and region, persist.

Conclusions and Recommendations:

Diarrhea cases are higher in Punjab because of rapid population growth, straining healthcare facilities, especially in rural areas where access to hygiene awareness and healthcare facilities are limited. Diarrhea is more common in rural areas with poor sanitation facilities, while children from wealthier families, benefiting from improved hygiene and clean water, are less affected. Insufficient toilet facilities further contribute to the spread of diarrhea in rural areas.

Occurrence of fever cases more frequently in colder areas, while urban regions report higher rates due to pollution. Children of uneducated mother are more likely to suffer from fever, but maternal education significantly reduces illness rates by improving healthcare services. Wealth also plays a vital role; children from wealthy families receive better healthcare facilities. Fathers' education is another significant factor, as children with educated fathers are less likely to experience illnesses like diarrhea and fever. Highly educated parents can provide better healthcare for their children. Based on the findings of the present study, the subsequent recommendations are suggested to improve child healthcare in Pakistan:

1. Prioritize the expansion of healthcare facilities in overburdened areas like Punjab, with a focus on rural regions. Develop new clinics, improve staffing, and increase medical supply chains to meet the growing healthcare demand caused by population growth.
2. Launch targeted campaigns in rural areas to promote safe water usage and hygiene practices and also allocate funding to improve sanitation infrastructure.
3. Invest in expanding women's access to education and tailor educational programs to include health literacy, hygiene, and disease prevention, which can significantly improve child healthcare outcomes.
4. Implementation of stricter air pollution controls in urban areas to address respiratory illnesses in children.
5. Develop comprehensive strategies to provide clean drinking water in both rural and urban areas. Regularly inspect and upgrade water supply systems, ensuring the prevention of contamination and the availability of safe water.
6. Design educational initiatives for parents focusing on the importance of early disease detection, proper hygiene, and effective child healthcare practices. Include programs for fathers to enhance their role in supporting child health outcomes.
7. Increase funding for low-cost or free healthcare services to ensure equitable access for economically disadvantaged families.

By implementing these recommendations, stakeholders can effectively address healthcare disparities, improve child health outcomes, and foster equity across regions.

Future research implications:

Future research should implement the longitudinal study designs to develop causal relationships among socioeconomic factors and disparities related to child health, helping to categories the temporal patterns are being involved. Hence, comprehensive studies are essential required to explore rural barriers such as access to healthcare, clean water, and sanitation, with detailed analyses identifying customized interventions. It is also significant to further examine the influence of paternal and maternal education on child health outcomes, particularly among low-income families. Moreover, research should identify how wealth impacts healthcare access and child health, contributing to efforts to reduce poverty.

Core areas for further investigation include gender discrimination in rural child healthcare, the impact of migration on access to healthcare facilities in urban areas, and the efficacy of the existing on ground healthcare facilities. Effective health education programs aimed at increasing awareness of preventive care and hygiene, specifically in underserved areas, would also be impactful. Addressing these study areas can provide significant insights into enhancing child health outcomes and reducing healthcare disparities in Pakistan.

Ethical Approval

This study did not require ethical approval as it involved a secondary analysis of data from the Pakistan Demographic and Health Surveys (PDHS) for 2012-13 & 2017-18. The data were obtained from Measure "hs.com" with proper authorization. The PDHS data collection adhered to ethical guidelines.

Funding
This study did not receive any funding.

Conflict of Interests
The authors declare no conflict of interests.

Authors' Contributions:
Conceptualization: EUH
Formal Analysis: EUH, AN
Software Investigation: EUH
Methodology: JUD
Writing Original Draft: JUD
Writing and Editing: JUD
Investigation: AN
Resources: AN
Validation: AN

EUH: Ehtasham-ul-Haq**; AN:** Abdul Naeem; **JUD:** Jalal-ud-Din

Multi-Lingual Abstracts

Abstract in اردو (Urdu) — خلاصہ

پس منظر:
اس مطالعے کا مقصد پاکستان میں بچوں کی صحت کی دیکھ بھال کی ضروریات پر والدین کی تعلیم اور دیگر عوامل کے اثرات کا جائزہ لینا ہے۔ بہت سے ترقی پذیر ممالک میں، صحت مند معاشرے کے لیے اس کی اہمیت کے باوجود بچوں کی صحت کو اکثر نظر انداز کیا جاتا ہے۔

طریقے:
پاکستان ڈیموگرافک اینڈ ہیلتھ سروے (PDHS) کے نمائندہ ثانوی اعداد و شمار کو استعمال کرتے ہوئے، اس مطالعہ نے بچوں کی صحت کو تجرباتی طور پر دریافت کیا اور صحت کی دیکھ بھال کے چیلنجوں کو متاثر کرنے والے عوامل کا جائزہ لیا۔ معیار اور مقداری دونوں تجزیے کیے گئے، بشمول بائنری لاجسٹک ریگریشن تجزیہ۔

نتائج:
تجرباتی نتائج خطے، سماجی اقتصادی حیثیت اور زچگی کی تعلیم کی بنیاد پر پاکستان میں بچوں کی صحت کی دیکھ بھال کے تفاوت کو نمایاں کرتے ہیں۔ PDHS 2012-13 اور 2017-18 کے تناظر میں، پنجاب میں اسہال کے لیے صحت کی دیکھ بھال کی سہولت تک رسائی میں قدرے اضافہ ہوا (23.2% سے 24.6%) لیکن سندھ میں نمایاں کمی ہوئی (23.2% سے 13.8%)۔ ثانوی یا اعلیٰ تعلیم کے حامل ماؤں کے بچوں نے صحت کی دیکھ بھال تک بہتر رسائی ظاہر کی جو ثانوی تعلیم کے ساتھ 18.8% سے بڑھ کر 22% ہو گئی اور اعلیٰ تعلیم 9.6% سے بڑھ کر 13.7% ہو گئی۔ دولت کی عدم مساوات واضح تھی۔ 85% امیر خاندانوں کو 18-2017 میں صاف پانی کی سہولیات تک بہتر رسائی حاصل تھی، جب کہ غریب ترین خاندانوں کے پاس 15% تھے جو پورے ملک میں صحت کی دیکھ بھال میں مسلسل تفاوت کو ظاہر کرتے ہیں۔

نتیجہ:
مطالعہ کے اہم نتائج بتاتے ہیں کہ تعلیم یافتہ والدین اپنے بچوں کی صحت کی دیکھ بھال کی ضروریات کو پورا کرنے کے لیے بہتر طریقے سے لیس ہیں۔ لہذا، والدین کی تعلیم، خاص طور پر زچگی کی تعلیم، جسے اکثر نظر انداز کیا جاتا ہے، کو بہتر بنانے کے لیے عملی اقدامات کو نافذ کرنا ضروری ہے۔

کلیدی الفاظ: بچوں کی صحت، تفاوت، طاق تناسب، والدین کی تعلیم، بہبود

Abstract in عربى (Arabic) — خلاصة

خلفية:
تهدف هذه الدراسة إلى تقييم تأثير تعليم الوالدين وعوامل أخرى على احتياجات الرعاية الصحية للأطفال في باكستان. في كثير من البلدان النامية، غالبا ما يتم تجاهل صحة الطفل على الرغم من أهميتها لمجتمع صحي.

طُرق:
باستخدام البيانات الثانوية التمثيلية من المسوحات الديموغرافية والصحية في باكستان (PDHS)، استكشفت هذه الدراسة بشكل تجريبي صحة الطفل وفحصت العوامل التي تؤثر على تحديات الرعاية الصحية. وأجريت التحليلات النوعية والكمية، بما في ذلك تحليل الانحدار اللوجستي الثنائي.

نتائج:
تسلط النتائج التجريبية الضوء على الفوارق في الرعاية الصحية للأطفال في باكستان بناءً على المنطقة والحالة الاجتماعية والاقتصادية وتعليم الأم. في سياق PDHS 2012-13 و2017-18، زاد الوصول إلى تيسير الرعاية الصحية للإسهال بشكل طفيف في البنجاب (23.2% إلى 24.6%) لكنه انخفض بشكل ملحوظ في السند (23.2% إلى 13.8%). وأظهر أطفال الأمهات الحاصلات على تعليم ثانوي أو عالي إمكانية حصولهم على الرعاية الصحية بشكل أفضل من 18.8% إلى 22% مع التعليم الثانوي والتعليم العالي من 9.6% إلى 13.7%. وكانت التفاوتات في الثروة واضحة؛ كان لدى 85% من الأسر الأكثر ثراء إمكانية الوصول بشكل أفضل إلى مرافق المياه الصحية في الفترة 2018-2017، في حين كان لدى الأسر الأكثر فقرا 15%، مما يشير إلى استمرار التفاوت في الرعاية الصحية في جميع أنحاء البلاد.

خاتمة:
وتشير النتائج الرئيسية للدراسة إلى أن الآباء المتعلمين مجهزون بشكل أفضل لتلبية احتياجات الرعاية الصحية لأطفالهم. ولذلك، فمن الضروري تنفيذ تدابير عملية تهدف إلى تحسين تعليم الوالدين، وخاصة تعليم الأمهات، الذي غالبا ما يتم إهماله.

الكلمات المفتاحية: صحة الطفل، الفوارق، النسبة الفردية، تعليم الأب، الرفاهية

Abstract in 中国人 (Chinese) — 抽象的

背景：
本研究旨在評估巴基斯坦父母教育和其他因素對兒童醫療保健需求的影響。在許多發展中國家，兒童健康儘管對健康社會很重要，但經常被忽視。

方法：
本研究利用巴基斯坦人口和健康調查 (PDHS) 的代表性二手數據，實證探討了兒童健康並研究了影響醫療保健挑戰的因素。進行了定性和定量分析，包括二元邏輯回歸分析。

結果：
實證結果凸顯了巴基斯坦因地區、社會經濟地位和孕產婦教育而存在的兒童醫療保健差異。在 2012-13 年和 2017-18 年 PDHS 背景下，旁遮普省獲得腹瀉醫療便利的機會略有增加（23.2% 至 24.6%），但信德省則大幅下降（23.2% 至 13.8%）。接受中等或高等教育的母親的孩子獲得醫療保健的機會從 18.8% 上升到 22%，接受中等教育和高等教育的孩子從 9.6% 上升到 13.7%。財富不平等很明顯；2017-18 年，85% 的富裕家庭能夠更好地使用衛生供水設施，而最貧困家庭的比例為 15%，這表明全國範圍內持續存在醫療保健差距。

結論：
該研究的主要發現表明，受過教育的父母更有能力滿足孩子的醫療保健需求。因此，必須採取實際措施改善父母教育，特別是經常被忽視的母親教育。

關鍵字: 兒童健康, 差異, 比值比, 父親教育, 幸福感

Абстрактный — **Abstract in русский (Russian)**

Фон:
Целью данного исследования является оценка влияния образования родителей и других факторов на потребности детей в здравоохранении в Пакистане. Во многих развивающихся странах здоровье детей часто игнорируется, несмотря на его важность для здорового общества.

Методы:
Используя репрезентативные вторичные данные Пакистанского демографического и медицинского обследования (PDHS), это исследование эмпирически изучило здоровье детей и изучило факторы, влияющие на проблемы здравоохранения. Был проведен как качественный, так и количественный анализ, включая бинарный логистический регрессионный анализ.

Результаты:
Эмпирические результаты подчеркивают различия в здравоохранении детей в Пакистане в зависимости от региона, социально-экономического статуса и образования матерей. В контексте PDHS 2012–2013 и 2017–2018 годов доступ к медицинской помощи при диарее немного увеличился в Пенджабе (с 23,2% до 24,6%), но значительно снизился в Синде (с 23,2% до 13,8%). Дети матерей со средним или высшим образованием продемонстрировали лучший доступ к медицинской помощи, увеличившись с 18,8% до 22%, со средним и высшим образованием с 9,6% до 13,7%. Неравенство в богатстве было очевидным; В 2017–2018 годах 85% более богатых семей имели лучший доступ к гигиеническим объектам водоснабжения, а у самых бедных — 15%, что указывает на сохраняющееся неравенство в сфере здравоохранения по всей стране.

Заключение:
Основные результаты исследования показывают, что образованные родители лучше подготовлены к удовлетворению медицинских потребностей своих детей. Поэтому крайне важно реализовать практические меры, направленные на улучшение образования родителей, особенно образования матерей, которым часто пренебрегают.

Ключевые слова: здоровье детей, неравенство, нечетное соотношение, отцовское образование, благополучие.

Abstracto — **Abstract in español (Spanish)**

Fondo:
Este estudio tiene como objetivo evaluar el impacto de la educación de los padres y otros factores sobre las necesidades de atención médica de los niños en Pakistán. En muchos países en desarrollo, la salud infantil a menudo se pasa por alto a pesar de su importancia para una sociedad sana.

Métodos:
Utilizando datos secundarios representativos de las Encuestas Demográficas y de Salud de Pakistán (PDHS), este estudio exploró empíricamente la salud infantil y examinó los factores que influyen en los desafíos de la atención médica. Se realizaron análisis tanto cualitativos como cuantitativos, incluido un análisis de regresión logística binaria.

Resultados:
Los resultados empíricos resaltan las disparidades en la atención médica infantil en Pakistán según la región, el nivel socioeconómico y la educación materna. En el contexto del PDHS 2012-13 y 2017-18, el acceso a la facilitación de atención médica para la diarrea aumentó ligeramente en Punjab (23,2 % a 24,6 %), pero disminuyó significativamente en Sindh (23,2 % a 13,8 %). Los hijos de madres con educación secundaria o superior mostraron un mejor acceso a la atención médica, aumentando del 18,8% al 22%, con educación secundaria y superior del 9,6% al 13,7%. Las desigualdades de riqueza eran evidentes; El 85% de las familias más ricas tuvieron un mejor acceso a instalaciones de agua higiénica en 2017-18, mientras que las más pobres tuvieron un 15%, lo que indica disparidades persistentes en la atención médica en todo el país.
Conclusión:
Los hallazgos clave del estudio sugieren que los padres educados están mejor equipados para abordar las necesidades de atención médica de sus hijos. Por lo tanto, es esencial implementar medidas prácticas destinadas a mejorar la educación de los padres, en particular la educación materna, que a menudo se descuida.

Palabras clave: Salud infantil, Disparidades, Odd Ratio, Educación paterna, Bienestar

Abstrait

Abstract in française (French)

Arrière-plan:
Cette étude vise à évaluer l'impact de l'éducation des parents et d'autres facteurs sur les besoins de santé des enfants au Pakistan. Dans de nombreux pays en développement, la santé des enfants est souvent négligée malgré son importance pour une société saine.
Méthodes :
Utilisant des données secondaires représentatives des enquêtes démographiques et sanitaires du Pakistan (PDHS), cette étude a exploré empiriquement la santé des enfants et examiné les facteurs influençant les défis en matière de soins de santé. Des analyses qualitatives et quantitatives ont été réalisées, notamment une analyse de régression logistique binaire.
Résultats:
Les résultats empiriques mettent en évidence les disparités en matière de soins de santé infantiles au Pakistan en fonction de la région, du statut socio-économique et de l'éducation de la mère. Dans le contexte du PDHS 2012-13 et 2017-18, l'accès aux soins de santé pour la diarrhée a légèrement augmenté au Pendjab (23,2 % à 24,6 %) mais a chuté de manière significative dans le Sind (23,2 % à 13,8 %). Les enfants de mères ayant fait des études secondaires ou supérieures ont montré un meilleur accès aux soins de santé, passant de 18,8% à 22%, avec un enseignement secondaire et supérieur de 9,6% à 13,7%. Les inégalités de richesse étaient évidentes ; 85 % des familles les plus riches avaient un meilleur accès à des installations d'eau hygiénique en 2017-2018, tandis que les plus pauvres en avaient 15 %, ce qui indique des disparités persistantes en matière de soins de santé à travers le pays.
Conclusion:
Les principales conclusions de l'étude suggèrent que les parents instruits sont mieux équipés pour répondre aux besoins de santé de leurs enfants. Il est donc essentiel de mettre en œuvre des mesures pratiques visant à améliorer l'éducation des parents, en particulier l'éducation maternelle, qui est souvent négligée.

Mots clés : Santé des enfants, Disparités, Odd Ratio, Éducation paternelle, Bien-être

References

1. Aburto JM, Villavicencio F, Basellini U, Kjærgaard S, Vaupel JW. Dynamics of life expectancy and life span equality. Proc Natl Acad Sci U S A. 2020;117(10):5250-9.
2. Adeyanju O, Tubeuf S, Ensor T. Socio-economic inequalities in access to maternal and child healthcare in Nigeria: changes over time and decomposition analysis. Health Policy Plan. 2017;32(8):1111-8.
3. Alene M, Yismaw L, Berelie Y, Kassie B. Health care utilization for common childhood illnesses in rural parts of Ethiopia: evidence from the 2016 Ethiopian demographic and health survey. BMC Public Health. 2019;19(1):57.
4. Ali HA, Hartner AM, Echeverria-Londono S, et al. Vaccine equity in low- and middle-income countries: a systematic review and meta-analysis. Int J Equity Health. 2022;21:82.
5. Amroussia N, Gustafsson PE, Mosquera PA. Explaining mental health inequalities in Northern Sweden: a decomposition analysis. Glob Health Action. 2017;10(1):1305814.
6. Aslam M, Kingdon G. Parental education and child health understanding the pathways of impact in Pakistan. Centre for the Study of African Economies (CSAE), Working Paper Series. 2010;(16).
7. Besnier E. Women's political empowerment and child health in the sustainable development era: A global empirical analysis (1990–2016). Global Public Health. 2023 Jan 2;18(1):1849348.
8. Braveman P, Gottlieb L. The social determinants of health: It's time to consider the causes of the causes. Public Health Rep. 2014;129(1):19-31.
9. Chen H, Liu Y, Zhu Z, Li Z. Does where you live matter to your health? Investigating factors that influence the self-rated health of urban and rural Chinese residents: evidence drawn from Chinese general social survey data. Health Qual Life Outcomes. 2017;15(1):78.
10. Dong X, Simon MA. Health and ageing in a Chinese population: urban and rural disparities. Geriatr Gerontol Int. 2010;10(1):85-93.
11. Gu H, Kou Y, You H, Xu X, Yang N, Liu J, et al. Measurement and decomposition of income-related inequality in self-rated health among the elderly in China. Int J Equity Health. 2019;18(1):4.
12. Hotchkiss DR, Mock NB, Seiber EE. The effect of the health care supply environment on children's nutritional status in rural Nepal. J Biosoc Sci. 2002;34(2):173-92.
13. Lavy V, Strauss J, Thomas D, De Vreyer P. Quality of health care, survival and health outcomes in Ghana. J Health Econ. 1996;15(3):333-57.
14. Mekonen EG, Zegeye AF, Workneh BS. Complementary feeding practices and associated factors among mothers of children aged 6 to 23 months in Sub-saharan African countries: a multilevel analysis of the recent demographic and health survey. BMC Public Health. 2024 Jan 8;24(1):115.
15. Miller JE, Rodgers YV. Mother's education and children's nutritional status: new evidence from Cambodia. 2009.
16. Novignon J, Aboagye E, Agyemang OS, Aryeetey G. Socioeconomic-related inequalities in child malnutrition: evidence from the Ghana multiple indicator cluster survey. Health Econ Rev. 2015;5(1):34.
17. Pakistan Demographic and Health Survey (PDHS). Final report of Pakistan demographic and health survey, 2017-2018. Available from: https://www.nips.org.pk/abstract_files/PDHS%20-%202017%2018%20Key%20indicator%20Report%20Aug%202018.pdf.
18. Poda GG, Hsu CY, Chao JC. Factors associated with malnutrition among children <5 years old in Burkina Faso: evidence from the Demographic and Health Surveys IV 2010. Int J Equity Health. 2017;29(7):901-8.
19. Saleem H, Shabbir MS, Khan B. Re-examining multidimensional poverty in Pakistan: a new assessment of regional variations. Glob Bus Rev. 2021;22(6):1441-58.
20. Sarma H, Khan JR, Asaduzzaman M, Uddin F, Tarannum S, Hasan MM, et al. Factors influencing the prevalence of stunting among children aged below five years in Bangladesh. Food Nutr Bull. 2017;38(3):291-301.
21. The International Bank for Reconstruction and Development/The World Bank. Environmental health and child survival: epidemiology, economics, experiences. Washington, DC: The World Bank; 2008.
22. United Nations Children's Fund. Strategy for improved nutrition of children and women in developing countries. A UNICEF policy review. New York: ERIC Clearinghouse; 1990.
23. World Health Organization, UNICEF. Core questions on drinking water and sanitation for household surveys. 2006. Available from: www.who.int/water_sanitation.../oms_brochure_core_questionsfinal24608.pdf.
24. Zaidman EA, Scott KM, Hahn D, Bennett P, Caldwell PH. Impact of parental health literacy on the health outcomes of children with chronic disease globally: A systematic review. Journal of Paediatrics and Child Health. 2023 Jan;59(1):12-31.

What is already known in study's context

- Enhancements in socioeconomic factors and sanitation have led to decrease in diarrhea cases in KPK and Sindh between 2012-13 and 2017-18.
- Parental education, geographical location, access to clean water and well managed sanitation facilities, and maternal employment status significantly affect child healthcare disparities in Pakistan.
- Urban vicinities particularly with dense population, report more diarrhea cases due to lack of healthcare facilities, while children from well-off families experience lesser health issues.
- Fever and cough related cases have decreased in mostly regions, but migration to cities, income inequality, and gender discrimination continue to impact healthcare disparities for children.

What this study adds to the existing literature

- Signified the impact of rapid growth of population in Punjab on healthcare strain.
- Highlights the role of wealth in reduction of diarrhea cases through better access to healthcare and hygiene.
- Demonstrates how maternal education play a significant role in the reduction of illness rates in children.
- Identifies fathers' education as a vital factor to improving the overall healthcare facilities for children.

Publication history: Received: 21st October 2024 Accepted: 22nd November 2024 First published: 31st December 2024