

Socio-Demographic Determinants of Birth Registration in Sindh, Pakistan: A Secondary Analysis of MICS-6

Syed Mustansir Hussain Zaidi¹, Abira Imran¹, Syed Aftab Rahim², Muhammad Irfan¹

Abstract

Background: Birth registration has long been associated with government planning and development in different sectors of life like education, health, socio-demographic, and socio-economic services. The objective of the study to assess the birth registration rate and its association with socio-demographic factors in Sindh, Pakistan.

Methodology: This study was based on socio-demographic characteristics for children under the age of five. Data from the Multiple Indicator Cluster Survey, Pakistan, (MICS 2018-2019) was used. Adjusted data of 17,978 children was used for analysis. To analyze association between qualitative variables, chi-square test was applied. By using binary logistic regression, odds were computed. P-value ≤ 0.05 was considered as statistically significant.

Results: Birth registration rate was 50% in urban and 17.3% rural areas of Sindh. Karachi had highest rate of birth registration while Shukur had lowest rate. Birth registration rate was highest for children whose mothers had higher education. Birth registration rate was higher for the children in the richest quintile in both urban and rural areas.

Conclusion: The study identified significant factors associated with birth registration. Children whose mothers had higher education had the highest birth registration rates. Additionally, birth registration rates were higher among children in the richest quintile, regardless of whether they lived in urban or rural areas. Age, division (location), mother's education, and wealth quintile were found to be significant factors influencing birth registration rates. These important factors make it clear that targeted actions are needed in Sindh to increase the number of birth registrations and make sure that every child's identity is officially recognized from birth.

Keywords: Birth Registration; Urban Area; Rural Area; Children; Under Five Years

How to cite this article: Zaidi SMH, Imran A, Rahim SA, Irfan M. Socio-Demographic Determinants of Birth Registration in Sindh, Pakistan: A Secondary Analysis of MICS-6. Pak J Public Health 2025 Jun. 25;15(2):52-8.

DOI: <https://doi.org/10.32413/pjph.v15i2.1645>

Copyright © 2025 The Author(s). Published by Health Services Academy. This is an Open Access article under the CC BY-NC 4.0 license.

Introduction

The official record of registering a newborn's birth by a government agency is significant in a child's life. Children are especially at risk due to their lack of awareness and self-defense abilities. The biggest issue facing the world now is the defense of children's rights and assuring their protection can aid in the majority the sustainable development of the world's population. The preservation of children's rights and the promotion of social development are profoundly impacted by birth registration. Numerous children around the world are still unregistered at birth (1).

The 1989 United Nations Convention on the Rights of the Child (CRC) mandates that a child be registered as quickly as possible after its birth (2). It is crucial to attain timely and accurate information on birth and mortality rate of population for monitoring and guiding public health policies (3). Civil registration and vital statistics systems (CRVS) can deliver significant data to governments about births, deaths, and causes of death (4). In low- and middle-income countries, notably in Asia and Sub-Saharan Africa, the systems for vital statistics and civil registration are not comprehensive and are unable to produce accurate vital data (5). The Sustainable Development Goal (SDG) objective 16.9, which seeks to establish universal birth registration by 2030, demonstrates the importance of birth registration (6).

Around 65 million of the 167 million unregistered children globally reside in Asia and the Pacific (7). Infant birth registration rates vary greatly between nations in the same sub region while differences remain. Some of the region's most underprivileged youngsters now have access to birth



¹ Liaquat National Hospital and Medical College, Karachi, Pakistan

² Health Services Academy, Islamabad, Pakistan

Correspondence:

Muhammad Irfan
irfanzafar892@gmail.com

Submitted: 06-03-2023

Revised: 10-06-2025,
16-06-2025

Accepted: 18-06-2025

Published: 25-06-2025

registration advancements (7). The birth registration coverage by following years will fluctuate significantly. The highest rates of registration are in Western Europe and North America, where all children under the age of five are completely registered. Eastern Europe and Central Asia at 99% and Latin America and the Caribbean are close behind at 95%. The lowest birth registration rates of 26% are seen in Oceania (8).

The reduction in birth registration was caused by poor leadership, systemic problems, inadequate facilities, capacity concerns, and finance (9). The 2030 Agenda should place a high priority on birth registration as a vital right to protect children. To remove obstacles and raise benefit awareness, strategies should be established (9).

Despite an increase in birth registration coverage among children under five from 58% to 71% worldwide, disparities in birth registration coverage by wealth, urban/rural location, maternal education, and access to a health facility continue (10,11). Rural population has higher homogeneity and less mobility than urban population. Births and deaths in rural population were more likely to be registered than in urban (12). According to data from Indonesia's mortality registration system, reporting of deaths was more comprehensive in rural areas i.e.73% than in urban areas i.e.52% (13). However, compared to metropolitan regions, the China Disease Surveillance Points system indicated that deaths in rural areas were dramatically underreported. Rural areas underreport deaths due to lack of doctors to complete death certificates (14-15).

An estimated 57.8% of children under the age of five in Pakistan do not have birth records (16). There are significant interprovincial and rural-urban disparities in birth registration, as well as across wealth quintiles (17). According to the Punjab and Baluchistan Multiple Indicator Cluster Survey (MICS-6) in 2018-19 in conjunction with UNICEF as part of the Global MICS Program those children living in rich households are more likely to have their births registered while those living in poor households are less likely (18-19). In Punjab, Gujranwala division has the greatest rate of 93.7% of birth registration while 38.2% of D.G. Khan has the lowest rate. Those children who live in urban areas of Punjab had 75% of birth registry as compared to rural areas where 76% had registration (18). In Baluchistan, birth registration was highest among children in Kalat i.e. 61% and lowest among those in Sibi i.e.32%. Those children who live in urban areas of Baluchistan had 55% of birth registry as compared to rural areas where 40% had registration (19).

Registration of birth is a fundamental human right which enables production of vital statistics to support government planning and resource allocation. Urbanization has long been associated with human development and progress but recent survey has shown that area wise settings can also lead to significant inequalities and health problems. Birth registration should be done as soon as possible to ensure service accessibility, prevent inaccurate reporting and create timely and accurate vital data. The purpose of our study was to assess the Birth Registration Rate and its association with socio-demographic factors among Urban and Rural areas of Sindh,

Pakistan.

Methodology

The Sindh Bureau of Statistics conducted the sixth iteration of the Sindh Multiple Indicator Cluster Survey (MICS-6) in 2018-19 in conjunction with UNICEF as part of the Global MICS Program. The United Nations Children's Fund (UNICEF) offered technical assistance with government funds and UNICEF's financial backing. Through the MICS-Sindh data set for children under 5 years (available at <https://mics.unicef.org/surveys>), complete data were gathered for 18,312 children. After missing and incomplete data were eliminated, 17,978 children aged less than 5 years were analyzed. In order to analyze the data, IBM SPSS Statistics v26 was used. Mean and standard deviation were computed for quantitative data, while frequency with a percentage was reported for qualitative variables. The Fisher exact test and Pearson's Chi square test were applied to investigate the association between qualitative variables. Odds were calculated using binary logistic regression. P values of 0.05 or less were regarded as significant.

Results

The mean age of the 17,975 children was 30.87±17.88 months, with 51.7% of the male children. The majority of children (22.6%) belonged to the 48-59-month age range. The highest percentages of children were from Hyderabad (28.8%), Larkana (20.4%), and Karachi (19.5%). Only 1833 (14.8%) of the 12,363 unregistered children's care takers are aware of the birth registration procedure. Detailed descriptive statistics are presented in Table-1.

Fifty percent of children from urban regions and 17.3% of children from rural areas were found with birth registration. Karachi had the highest rate of birth registration (72.3%) while Shukkur had the lowest rate (10.7%). Birth registration was significantly associated with age ($p<0.001$), districts ($p<0.001$), mother's education ($p<0.001$), and wealth quintile ($p<0.001$). Detailed results are presented in Table-2.

Adjusted odds shows that children from urban areas are more likely to birth registration in comparison of rural areas (OR=1.343, $p<0.001$). Children from Hyderabad (OR=0.285, $p<0.001$), Larkana (OR=0.441, $p<0.001$), Mirpurkhas (OR=0.715, $p<0.001$), Shaheed Benazir abad (OR=0.296, $p<0.001$) and Sukkur (OR=0.110, $p<0.001$) are less likely to birth registration in compassion of children from Karachi. Details adjusted and un-adjusted odds are reported in Table-3.

For children with registered birth, we found significant association of residence area with division ($p<0.001$), mother's education ($p<0.001$) and wealth index quintile ($p<0.001$) as shown in Table-4.

Birth registration was significantly associated with age ($p<0.001$), division ($p<0.001$), mother education ($p<0.001$), and wealth quintile ($p<0.001$) for children living in urban areas. For children living in rural areas, we also found significant association of birth registration with age ($p=0.009$), division ($p<0.001$), mother education ($p<0.001$), and wealth quintile ($p<0.001$). Detailed results are presented in Table-5.

Table 1: Demographic details of study participants (n=17,975)

	n (%)
Gender	
Male	9296(51.7)
Female	8679(48.3)
Age (months); mean± std. dev	30.87±17.88
Age	
0-5 months	1968(10.9)
6-11 months	1522(8.5)
12-23 months	3030(16.9)
24-35 months	3554(19.8)
36-47 months	3839(21.4)
48-59 months	4062(22.6)
Area	
Urban	7643(42.5)
Rural	10332(57.5)
Division	
Hyderabad	5175(28.8)
Larkana	3662(20.4)
Mirpurkhas	1900(10.6)
Shaheed Benazir abad	1624(9)
Sukkur	2107(11.7)
Karachi	3507(19.5)
Mother's Education	
Pre-Primary or None	12144(67.6)
Primary	2068(11.5)
Middle	851(4.7)
Secondary	1297(7.2)
Higher	1615(9)
Wealth Index Quintile	
Poorest	4813(26.8)
Second	4460(24.8)
Middle	3730(20.8)
Fourth	2834(15.8)
Richest	2138(11.9)
Birth Registration	
Registered Birth	5612(31.2)
Un-registered Birth	12363(68.8)

Table 2: Association of birth registration with socio-demographic factors (n=17,975)

	Birth Registration n (%)			P-Value
	Registered Birth	Un-registered Birth	Total	
Gender				
Male	2927(31.5)	6369(68.5)	9296	0.427
Female	2685(30.9)	5994(69.1)	8679	
Age				
0-5 months	565(28.7)	1403(71.3)	1968	<0.001*
6-11 months	416(27.3)	1106(72.7)	1522	
12-23 months	954(31.5)	2076(68.5)	3030	
24-35 months	1182(33.3)	2372(66.7)	3554	
36-47 months	1254(32.7)	2585(67.3)	3839	
48-59 months	1241(30.6)	2821(69.4)	4062	
Area				
Urban	3822(50)	3821(50)	7643	<0.001*
Rural	1790(17.3)	8542(82.7)	10332	
Division				
Hyderabad	1037(20)	4138(80.0)	5175	<0.001*
Larkana	896(24.5)	2766(75.5)	3662	
Mirpurkhas	581(30.6)	1319(69.4)	1900	
Shaheed Benazir abad	337(20.8)	1287(79.2)	162	
Sukkur	226(10.7)	1881(89.3)	2107	
Karachi	2535(72.3)	972(27.7)	3507	
Mother's Education				
Pre-Primary or None	2486(20.5)	9658(79.5)	12144	<0.001*
Primary	757(36.6)	1311(63.4)	2068	
Middle	503(59.1)	348(40.9)	851	
Secondary	793(61.1)	504(38.9)	1297	
Higher	1073(66.4)	542(33.6)	1615	
Wealth Index Quintile				
Poorest	605(12.6)	4208(87.4)	4813	<0.001*
Second	694(15.6)	3766(84.4)	4460	
Middle	1091(29.2)	2639(70.8)	3730	
Fourth	1635(57.7)	1199(42.3)	2834	
Richest	1587(74.2)	551(25.8)	2138	

Chi Square test was applied.

*Significant at 0.05 level.

Table 3: Odds ratios for registered births (n=17,975)

	Un-Adjusted		Adjusted	
	Odds ratio (95% CI)	P-Value	Odds ratio (95% CI)	P-Value
Gender				
Male	1.026(0.963-1.093)	0.427		
Female®	1			
Age				
0-5 months	0.915(0.813-1.030)	0.143		
6-11 months	0.855(0.750-0.975)	0.019*		
12-23 months	1.045(0.944-1.156)	0.400		
24-35 months	1.133(1.028-1.248)	0.011*		
36-47 months	1.103(1.003-1.213)	0.043*		
48-59 months®	1			
Area				
Urban	4.773(4.460-5.109)	<0.001*	1.343(1.223-1.475)	<0.001*
Rural®	1			
Division				
Hyderabad	0.096(0.087-0.106)	<0.001*	0.285(0.253-0.320)	<0.001*
Larkana	0.124(0.112-0.138)	<0.001*	0.441(0.388-0.501)	<0.001*
Mirpurkhas	0.169(0.149-0.191)	<0.001*	0.715(0.615-0.831)	<0.001*
Shaheed Benazir abad	0.100(0.087-0.116)	<0.001*	0.296(0.252-0.347)	<0.001*
Sukkur	0.046(0.039-0.054)	<0.001*	0.110(0.093-0.131)	<0.001*
Karachi®	1		1	
Mother's Education				
Pre Primary or None	0.130(0.116-0.145)	<0.001*	0.509(0.441-0.587)	<0.001*
Primary	0.292(0.254-0.334)	<0.001*	0.751(0.639-0.882)	<0.001*
Middle	0.730(0.615-0.867)	<0.001*	1.048(0.860-1.278)	0.640
Secondary	0.795(0.683-0.925)	<0.001*	0.868(0.730-1.031)	0.107
Higher®	1		1	
Wealth Index Quintile				
Poorest	0.050(0.044-0.057)	<0.001*	0.141(0.118-0.168)	<0.001*
Second	0.064(0.056-0.073)	<0.001*	0.191(0.162-0.226)	<0.001*
Middle	0.144(0.127-0.162)	<0.001*	0.320(0.276-0.370)	<0.001*
Fourth	0.473(0.419-0.535)	<0.001*	0.574(0.501-0.657)	<0.001*
Richest®	1		1	

Binary logistic regression was applied.

®Reference group

*Significant at 0.05 level.

Table 4: Association of Area according to demographic factors for children with registered birth (n=5612)

	Area n(%)			P-Value
	Urban	Rural	Total	
Gender				
Male	1991(52.1)	936(52.3)	2927(52.2)	0.890
Female	1831(47.9)	854(47.7)	2685(47.8)	
Age				
0-5 months	324(8.5)	241(13.5)	565(10.1)	<0.001*
6-11 months	269(7)	147(8.2)	416(7.4)	
12-23 months	649(17)	305(17)	954(17)	
24-35 months	814(21.3)	368(20.6)	1182(21.1)	
36-47 months	901(23.6)	353(19.7)	1254(22.3)	
48-59 months	865(22.6)	376(21)	1241(22.1)	
Division				
Hyderabad	623(16.3)	414(23.1)	1037(18.5)	<0.001*
Larkana	372(9.7)	524(29.3)	896(16)	
Mirpurkhas	215(5.6)	366(20.4)	581(10.4)	
Shaheed Benazir abad	136(3.6)	201(11.2)	337(6)	
Sukkur	151(4)	75(4.2)	226(4)	
Karachi	2325(60.8)	210(11.7)	2535(45.2)	

Mother's Education			
Pre-Primary or None	1249(32.7)	1237(69.1)	2486(44.3)
Primary	503(13.2)	254(14.2)	757(13.5)
Middle	406(10.6)	97(5.4)	503(9)
Secondary	696(18.2)	97(5.4)	793(14.1)
Higher	968(25.3)	105(5.9)	1073(19.1)
<0.001*			
Wealth Index Quintile			
Poorest	93(2.4)	512(28.6)	605(10.8)
Second	137(3.6)	557(31.1)	694(12.4)
Middle	649(17)	442(24.7)	1091(19.4)
Fourth	1460(38.2)	175(9.8)	1635(29.1)
Richest	1483(38.8)	104(5.8)	1587(28.3)
<0.001*			

Chi Square test was applied.

*Significant at 0.05 level.

Table 5: Association of birth registration with socio demographic factors according to area (n=17,975)

	Urban (n=7643)			P-Value	Rural (n=10332)			p-Value
	Registered Birth	Un-registered Birth	Total		Registered Birth	Un-registered Birth	Total	
Gender								
Male	1991(50)	1991(50)	3982	0.990	936(17.6)	4378(82.4)	5314	0.424
Female	1831(50)	1830(50)	3661		854(17)	4164(83)	5018	
Age								
0-5 months	324(41)	466(59)	790	<0.001*	241(20.5)	937(79.5)	1178	0.009*
6-11 months	269(41.5)	379(58.5)	648		147(16.8)	727(83.2)	874	
12-23 months	649(48.5)	690(51.5)	1339		305(18)	1386(82)	1691	
24-35 months	814(53.5)	708(46.5)	1522		368(18.1)	1664(81.9)	2032	
36-47 months	901(55.1)	733(44.9)	1634		353(16)	1852(84)	2205	
48-59 months	865(50.6)	845(49.4)	1710		376(16)	1976(84)	2352	
Division								
Hyderabad	623(36.4)	1088(63.6)	1711	<0.001*	414(12)	3050(88)	3464	<0.001*
Larkana	372(32.4)	775(67.6)	1147		524(20.8)	1991(79.2)	2515	
Mirpurkhas	215(46.4)	248(53.6)	463		366(25.5)	1071(74.5)	1437	
Shaheed Benazirabad	136(29.3)	328(70.7)	464		201(17.3)	959(82.7)	1160	
Sukkur	151(21.4)	554(78.6)	705		75(5.3)	1327(94.7)	1402	
Karachi	2325(73.7)	828(26.3)	3153		210(59.3)	144(40.7)	354	
Mother's Education								
Pre-Primary or None	1249(34)	2428(66)	3677	<0.001*	1237(14.6)	7230(85.4)	8467	<0.001*
Primary	503(50.2)	499(49.8)	1002		254(23.8)	812(76.2)	1066	
Middle	406(66.8)	202(33.2)	608		97(39.9)	146(60.1)	243	
Secondary	696(68.8)	316(31.2)	1012		97(34)	188(66)	285	
Higher	968(72)	376(28)	1344		105(38.7)	166(61.3)	271	
Wealth Index Quintile								
Poorest	93(15.7)	500(84.3)	593	<0.001*	512(12.1)	3708(87.9)	4220	<0.001*
Second	137(15.4)	750(84.6)	887		557(15.6)	3016(84.4)	3573	
Middle	649(34.9)	1208(65.1)	1857		442(23.6)	1431(76.4)	1873	
Fourth	1460(61.4)	918(38.6)	2378		175(38.4)	281(61.6)	456	
Richest	1483(76.9)	445(23.1)	1928		104(49.5)	106(50.5)	210	

Discussion

Identification is crucial for legal recognition, social inclusion, and access to services like social protection, healthcare, and education in Pakistan. Our current study focuses on Sindh, where there are notable issues with only 31.2% of children registered. The average age of children in Sindh was 30 months, ranging from 13 to 47 months. Previous research highlights regional differences in registration facilities and public engagement, showing that birth registration rates were greater in Punjab (75%) and Baluchistan (44%) compared to Sindh. Birth registration rates continue to vary by region in

Pakistan. (18-19) Although Pakistan's birth registration system is now more extensive, there are still large disparities between rural and urban areas. According to MICS 2017-2020, this is in line with Pakistan's pattern of higher birth registration rates in urban areas compared to rural ones (Sindh: 64.2% urban vs. 50% rural; Punjab: 75% urban vs. 76% rural; Baluchistan: 55% urban vs. 40% rural).

In 2023, Aboagye, et al. found that 48.32% of children in Sub-Saharan Africa were registered, with Sierra Leone having the highest rate, i.e., 92.9% and Ethiopia having the lowest i.e., 2.7% (20). In 2020, Abay ST, et al. reported as 30% of parents

had registered and received certificates for their children's births (21). Birth registration rates in Southeast Asia also differ according to socioeconomic factors. Due to its hospital-based digital system, Thailand has attained a 99.4% birth registration rate, whereas Indonesia only manages 66.6%, with differences dependent on factors including rural residency, socioeconomic position, and bureaucratic obstacles (11).

We observed that the birth registration is directly related with the higher maternal education in our study. About 66% children were registered whose mother has higher education status. In urban areas, the birth registration was found as 25.3% whose mother had higher education, 18.2% mothers had secondary education, 10.6% had middle, 13.2% had primary and 32.7% had pre-primary or no education. In rural areas, the birth registration was found as 5.9% whose mother had higher education, 5.4% mothers had secondary education, 5.4% had middle, 14.2% had primary and 69.1% had pre-primary or no education. Registered birth of children whose mother had higher education are much more likely to have 91% in Punjab and 57% in Baluchistan as compared to those 61% in Punjab and 42% in Baluchistan whose mother has no education 22% (18-19).

The birth facility rate in a study was 65% overall, but it was 1.5 times higher in large cities (84%) than in rural areas (53%). This is consistent with previous findings showing that the proportion of women giving birth at health facilities was 1.5 to 4 times higher in urban than rural areas of Pakistan (22). Similar to the findings in Pakistan, the study of Aboagye et al. highlighted the significance of factors such as maternal education, wealth index, and place of delivery for birth registration. Children born at health facilities had a higher birth registration rate than those born at home, which varies from 65.5% to 35.5%, respectively (20). Higher maternal education, living in an urban area, and women having their own birth certificates were all factors that had a positive impact on birth registration. Major challenges to birth registration were found to include things like limited governmental commitment, inaccessible registrar offices, and a lack of skilled staff. These results demonstrate the necessity of focused measures/interventions to raise birth registration rates (21).

In our study, the statistics of wealth index quintile in children who had birth registry was distributed as 74.2% richest, 57.7% fourth, 29.2% middle, 15.6% second and 12.6% poorest. 92% of the richest people get their births registered, compared to 49% of the poorest live in Punjab while 56% of the richest people get their births registered (18-19).

Limitations

The study relied on secondary data, limiting its ability to analyze cultural norms and expectations as predictors of childbirth registration. As the data originates from a single province; hence the conclusion may not be applicable to all Pakistan.

Conclusion

The study identified significant factors associated with birth

registration. Children whose mothers had higher education had the highest birth registration rates. Additionally, birth registration rates were higher among children in the richest quintile, regardless of whether they lived in urban or rural areas. Age, division (location), mother's education, and wealth quintile were found to be significant factors influencing birth registration rates. These important factors make it clear that targeted actions are needed in Sindh to increase the number of birth registrations and make sure that every child's identity is officially recognized from birth.

Recommendations

Raising parental awareness and giving education programs in rural areas like Sindh priority are the two main ways to increase birth registration rates. Reaching rural populations requires improving accessibility through outreach initiatives and mobile registration units. The registration procedure can be made easier by providing training to community workers and healthcare professionals to increase their capacity. In order to address issues including inadequate maternal education, regional differences, and financial limitations, targeted interventions are required. Finally, for birth registration programs to be implemented in a coordinated and efficient manner, cooperation between government agencies, healthcare providers, non-governmental organizations, and community organizations is crucial.

Acknowledgements

This study was made possible by the great field work of Bureau of Statistics, Planning & Development Department, and Government of Sindh with technical support by UNICEF Pakistan.

Ethical Approval:

IRB/ERB approval was not required, as this study involves secondary data analysis of the MICS project conducted by UNICEF and the Government of Sindh. The data is publicly available for researchers on the UNICEF website for free.

Data Availability: Data supporting the findings are available upon reasonable request.

Financial support and sponsorship: None

Conflict of interest: None declared.

Authors' Contribution:

SMHZ, AI and SAR: Conception of study, manuscript writing, review, and final approval of manuscript.

SMZH and MI: Data acquisition and statistical analysis.

References

1. Li S, Zhang Y, Feldman MW. Birth registration in China: practices, problems and policies. *Pop Res Policy Rev.* 2010;297-317.

2. UNICEF. Convention on the rights of the child: For every child, every right [Internet]. Geneva: UNICEF; 2019 [cited 2025 Jun 16]. Available from: <https://www.unicef.org/child-rights-convention>
3. Abou Zahr C, Savigny D, Mikkelsen L, Setel PW, Lozano R, et al. Civil registration and vital statistics: progress in the data revolution for counting and accountability. *Lancet* 2015; 386:1373-85.
4. Mikkelsen L, Phillips DE, AbouZahr C, Setel PW, de Savigny D et al. A global assessment of civil registration and vital statistics systems: monitoring data quality and progress. *Lancet*. 2015; 386:1395-1406.
5. Savigny D, Riley I, Chandramohan D, Odhiambo F, Nichols E et al. Integrating community-based verbal autopsy into civil registration and vital statistics (CRVS): system-level considerations. *Glob Health Action*. 2017; 10(1):1-14.
6. Muller, Franziska. Sustainable development goals (SDGs). In *Peripherie*. 2015; 140:507-10.
7. UNICEF-for every child. A Statistical Profile of Birth Registration in Asia and the Pacific. 2021; 1-26.
8. UNICEF. Birth registration – UNICEF DATA [Internet]. New York: UNICEF; 2023 [cited 2025 Jun 16]. Available from: <https://data.unicef.org/topic/child-protection/birth-registration/>
9. Musizvingoza R, Wekwete NN, Mangombe K, Zinumwe G. Trends and Determinants of Birth Registration Completeness in Zimbabwe, 2005-2015. *Comp Popul Stud*. 2023; 48:1-18.
10. Bhatia A, Krieger N, Beckfield J, Barros AJ, Victora C. Are inequities decreasing? Birth registration for children under five in low-income and middle-income countries, 1999–2016. *BMJ Glob Health*. 2019;4(6):1-13
11. Butt L, Ball J. Birth registration in Southeast Asia: a child's foundation right. *Asian Popul Stud*. 2017; 13(3):223-5.
12. Kante AM, Mulungo A, Ibraimo M, Akum A, Titus N, Adriano A, et al. Completeness and Factors Affecting Community Workers' Reporting of Births and Deaths in the Countrywide Mortality Surveillance for Action in Mozambique. *Am J Tropi Medi Hygiene*. 2023;108(5):29-39.
13. Rao C, Soemantri S, Djaja S, Adair T, Wiryawan Y, Pangaribuan L, et al. Mortality in central Java: results from the Indonesian mortality registration system strengthening project. *BMC Res Notes*. 2010; 3(1):1-8.
14. Guo K, Yin P, Wang L, Ji Y, Li Q, Bishai D, et al. Propensity score weighting for addressing under-reporting in mortality surveillance: a proof-of-concept study using the nationally representative mortality data in China. *Popul Health Metric*. 2015; 13(1):1-1.
15. Wang L, Wang LJ, Cai Y, Ma LM, Zhou MG. Analysis of under-reporting of mortality surveillance from 2006 to 2008 in China. *Chinese J Prevent Med*. 2011;45(12):1061-4.
16. National Institute of Population Studies (NIPS) [Pakistan] and ICF (2019), Pakistan Demographic and Health Survey 2017-18.
17. Idris, I. Increasing birth registration for children from marginalized groups in Pakistan. K4D Help desk Report. Brighton, UK: Institute of Development Studies, 2021.
18. Bureau of Statistics Punjab, UNICEF. Punjab Multiple Indicator Cluster Survey 2017–18: Birth registration [Internet]. Lahore: Bureau of Statistics Punjab and UNICEF; 2019 [cited 2025 Jun 16]. Available from: <https://mics.unicef.org/surveys>
19. Bureau of Statistics Sindh, UNICEF. Sindh Multiple Indicator Cluster Survey 2018–19: Birth registration levels [Internet]. Karachi: Bureau of Statistics Sindh and UNICEF; 2020 [cited 2025 Jun 16]. Available from: <https://mics.unicef.org/surveys>
20. Aboagye RG, Okyere J, Seidu AA, Ahinkorah BO, Budu E, Yaya S. Determinants of birth registration in sub-Saharan Africa: evidence from demographic and health surveys. *Front Public Health*. 2023 20; 11:1193816.
21. Abay ST, Gebre-Egziabher AG. Status and associated factors of birth registration in selected districts of Tigray region, Ethiopia. *BMC Int Health Hum Rights*. 2020; 20:1.
22. Noh JW, Kim YM, Akram N, Yoo KB, Cheon J, Lee LJ, Kwon YD, Stekelenburg J. Impact of socio-economic factors and health information sources on place of birth in Sindh Province, Pakistan: a secondary analysis of cross-sectional survey data. *Int J Environ Res Public Health*. 2019; 16(6):932.