



Preliminary analysis of postpartum care center use and newborn infection risk in Korea

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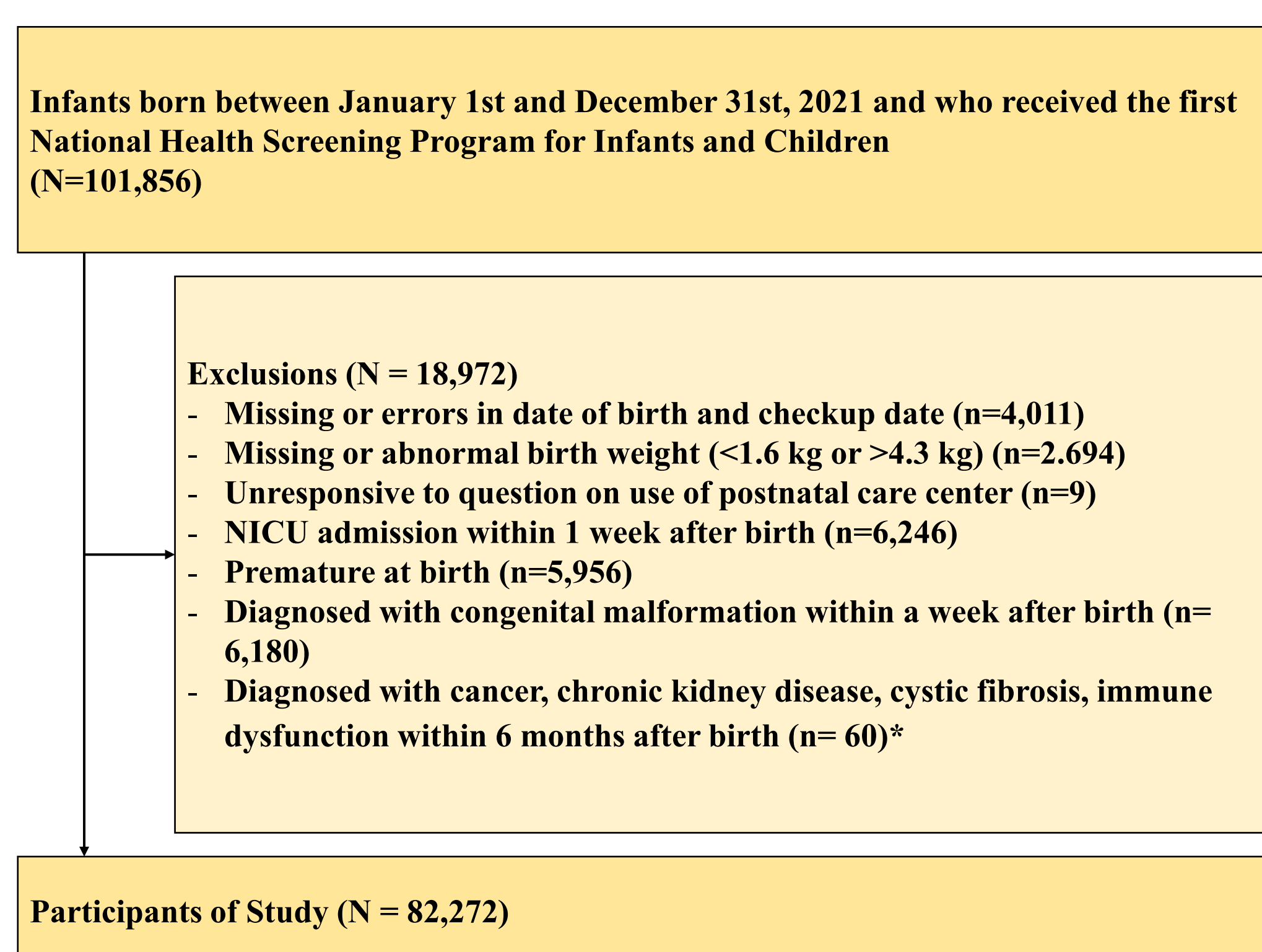
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Introduction

A postpartum care center (PCC), or Sanhujoriwon in Korea, is a private center offering customized services for mothers and their infants during the postpartum period. During this period, newborns are cared for by multiple caregivers in nurseries, separated from their mothers, making them vulnerable to infections. This study examines the relationship between the use of PCCs and infection-related admissions (IRAs) among newborns within the first month after birth

Methods



IRAs were defined as admissions where the primary diagnosis International Classification of Diseases(ICD) code was related to an infection. Among the population born in 2021, we included 101,866 (36%) neonates who underwent the first National Health Screening for Infants and Children. A cohort of 82,272 was analyzed: 86.7% used postpartum care centers, while 13.2% did not. Cox regression was used to calculate hazard ratios (HRs) for IRAs within 30 days of birth between the groups

Results

Table1. Characteristics of Study Participants

Characteristics	Use of postpartum care center			p-value
	Overall	Yes	No	
No. participants	82,272	71,369	10,903	
SEX				0.203
MALE	41593 (50.6)	36019 (50.5)	5574 (51.1)	
FEMALE	40679 (49.4)	35350 (49.5)	5329 (48.9)	
Season of birth				<0.001
Spring (3-5)	23924 (29.1)	20432 (28.6)	3492 (32.0)	
Summer (6-8)	24693 (30.0)	21582 (30.2)	3111 (28.5)	
Autumn (9 - 11)	20828 (25.3)	18325 (25.7)	2503 (23.0)	
Winter (12-2)	12827 (15.6)	11030 (15.5)	1797 (16.5)	
Weight at birth, kg	3.23 ± 0.36	3.23 ± 0.36	3.24 ± 0.37	0.004
MEDIAN (Q1 - Q3)	3.22 (2.99 - 3.48)	3.22 (2.99 - 3.47)	3.23 (3.00 - 3.49)	0.021
Low weight at birth (<2.5kg)	1416 (1.7)	1239 (1.7)	177 (1.6)	<0.400
Multiple, Yes	2562 (3.1)	2054 (2.9)	508 (4.7)	<0.001
Breastfeeding				<0.001
Complete	14064 (17.1)	11947 (16.7)	2117 (19.4)	
Other	68206 (82.9)	59420 (83.3)	8786 (80.6)	
Mother and child rooming time				<0.001
Within 4 hours	44568 (54.2)	43720 (61.3)		
During the day(half day)	11263 (13.7)	10695 (15.0)		
All day	7669 (9.3)	3745 (5.2)		
None	18762 (22.8)	13203 (18.5)		
Residential Area				<0.001
Urban	55784 (67.8)	49220 (69.0)	6564 (60.2)	
Rural	26488 (32.2)	22149 (31.0)	4339 (39.8)	
Household Income				<0.001
Medicaid	99 (0.1)	32 (0)	67 (0.6)	
1-30%	9773 (11.9)	7775 (10.9)	1998 (18.3)	
31-70%	35367 (43.0)	30242 (42.4)	5125 (47.0)	
71-100%	33358 (40.5)	30161 (42.3)	3197 (29.3)	
Unknown	3675 (4.5)	3159 (4.4)	516 (4.7)	

The overall incidence of IRA was 0.4%, with no statistically significant difference between PCC users and non-users (0.4% vs. 0.5%, p=0.10). The adjusted HR for pneumonia and bronchiolitis in PCC users, accounting for factors such as sex, season, area, income, multiple births, breastfeeding, and low birth weight, was 2.66 (0.352-20.126, p=0.343)

Table2.

The number of infants hospitalized for one month after birth

OUTCOME	Use of postpartum care center			p-value
	Overall	Yes	No	
No.Participants	82,272	71,369	10,903	
Infection related admission (IRA)	311 (0.4)	260 (0.4)	51 (0.5)	0.101
Sepsis	73 (0.1)	61 (0.1)	12 (0.1)	0.422
Meningitis	12 (0)	11 (0)	1 (0)	>0.999
Virus infection	26 (0)	21 (0)	5 (0)	0.38
GI infection	75 (0.1)	63 (0.1)	12 (0.1)	0.483
GU infection	61 (0.1)	49 (0.1)	12 (0.1)	0.139
Respiratory (total)	44 (0.1)	39 (0.1)	5 (0)	0.712
Pneumonia and bronchiolitis	18 (0)	17 (0)	1 (0)	0.499
Skin and Soft tissue	15 (0)	12 (0)	3 (0)	0.438

Table3. HRs (95% confidence intervals) for admission with infection associated with the use of postpartum care centers

OUTCOME	Crude	p-value	Adjusted HR	p-value
Total admission	0.796 (0.693 - 0.914)	0.001	0.803 (0.699 - 0.924)	0.002
Infection related admission	0.776 (0.574 - 1.047)	0.097	0.776 (0.573 - 1.051)	0.101
Sepsis	0.773 (0.417 - 1.436)	0.416	0.770 (0.412 - 1.438)	0.412
Meningitis	1.675 (0.216 - 12.970)	0.622	1.577 (0.202 - 12.301)	0.664
Virus infection	0.639 (0.241 - 1.695)	0.368	0.686 (0.255 - 1.843)	0.454
GI infection	0.799 (0.431 - 1.481)	0.476	0.785 (0.421 - 1.464)	0.446
GU infection	0.621 (0.330 - 1.168)	0.139	0.640 (0.338 - 1.212)	0.171
Respiratory	1.186 (0.468 - 3.010)	0.729	1.181 (0.463 - 3.014)	0.728
Pneumonia and bronchiolitis	2.585 (0.344 - 19.414)	0.356	2.660 (0.352 - 20.126)	0.343
Skin and Soft tissue	0.609 (0.172 - 2.158)	0.442	0.603 (0.167 - 2.171)	0.439

Discussion

A significant number of newborns in Korea utilized postpartum care center (PCC). This study assessed the impact of PCC use on infection-related admissions in newborns and found no statistically significant difference between PCC users and non-users. The overall infection-related admission rate was 0.4%, with no meaningful difference in the risk of respiratory infections. However, further research is needed to better understand the long-term effects of PCCs on neonatal health.