Papua New Guinea

Demographic and Health Survey 2016-18

Key Indicators Report

National Statistical Office
Port Moresby, Papua New Guinea

The DHS Program
ICF
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ACRONYMS AND ABBREVIATIONS

ACT	artemisinin-based combination therapy
AIDS	acquired immunodeficiency syndrome
ANC	antenatal care
ARI	acute respiratory infection
ASFR	age-specific fertility rate
BCG	bacille Calmette-Guérin
CBR	crude birth rate
CPR	contraceptive prevalence rate
CU	census unit
DFAT	Department of Foreign Affairs and Trade
DHS	Demographic and Health Survey
DPT	diphtheria, pertussis, and tetanus vaccine
FAO	Food and Agriculture Organization
GOPNG	Government of Papua New Guinea
HepB	hepatitis B
Hib	*Haemophilus influenzae* type B
HIV	human immunodeficiency virus
IPV	inactivated poliomyelitis vaccine
ITN	insecticide-treated net
IUD	intrauterine contraceptive device
IYCF	infant and young child feeding
LLIN	long-lasting insecticidal net
MUAC	mid-upper arm circumference
NDOH	National Department of Health
NN	neonatal mortality
NPHC	National Population and Housing Census
NSO	National Statistical Office
ORS	oral rehydration salts
PCV	pneumococcal conjugate vaccine
PNC	postnatal care
PNG	Papua New Guinea
PNN	postneonatal mortality
SDG	Sustainable Development Goal
SP	sulfadoxine-pyrimethamine
STI	sexually transmitted infection
TFR	total fertility rate

UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

FOREWORD

The Papua New Guinea Demographic and Health Survey (PNG DHS) is a nationally representative survey conducted as a periodic update of the demographic and health situation in PNG. The Demographic and Health Surveys (DHS) Program is a global programme coordinated by ICF, based in Rockville, Maryland, USA. The 2016-18 PNG DHS is the first DHS to be conducted in PNG in collaboration with the worldwide Demographic and Health Surveys Program. The survey was implemented by the National Statistical Office under the guidance of the DHS National Steering Committee.

The purpose of the DHS was to obtain and provide information on basic indicators of social progress including fertility, childhood mortality, reproductive and child health, nutritional status of children, and awareness of HIV/AIDS and other health-related issues. Data collection for the survey was carried out during October 2016 to December 2018.

The preliminary findings of the 2016-18 PNG DHS presented in this key indicators report provide up-to-date and reliable information on a number of key health and demographic topics of interest to planners, policymakers, programme managers, and researchers with a first glimpse of the survey results. A comprehensive, detailed report is scheduled for release in October 2019.

The successful completion of the 2016-18 PNG DHS was made possible by the contributions of a number of organisations and individuals. I deeply appreciate the financial support from the Government of PNG (GOPNG), the Australian Government Department of Foreign Affairs and Trade (DFAT), the United Nations Population Fund (UNFPA), and the United Nations Children's Fund (UNICEF). I appreciate ICF for the effort and expert advice in the implementation of the 2016-18 PNG DHS.

The survey was also facilitated and supported by other organisations at the national and provincial levels. The planning and implementation of the 2016-18 PNG DHS involved the efforts of the core DHS project team from the PNG National Statistical Office (NSO) and the provincial administrations, technical officers from the National Department of Health (NDOH), and the various stakeholders' representation at the technical advisory committees.

The field staff who undertook this vital task to successfully accomplish data collection with commitment, dedication, and hard work are very much appreciated. The survey respondents whose participation was critical to the successful completion of the survey gave generously of their time to provide the information required for the production of this report and are gratefully acknowledged with thanks.

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1 INTRODUCTION

The National Statistical Office (NSO) implemented the 2016-18 Papua New Guinea Demographic and Health Survey (2016-18 PNG DHS), which is the third in the series of DHS surveys conducted in the country, however, the first to be conducted under The DHS Program. Data collection commenced in October 2016 and was completed in December 2018. The NSO was tasked with providing all necessary technical and advisory support in the implementation of the 2016-18 PNG DHS.

ICF provided technical assistance through The DHS Program, which offers support and technical assistance for the implementation of population and health surveys in countries worldwide.

Financial support for the 2016-18 PNG DHS was received from the Government of Papua New Guinea (GOPNG), the Australian Government Department of Foreign Affairs and Trade (DFAT), the United Nations Population Fund (UNFPA), and the United Nations Children's Fund (UNICEF). UNFPA also provided financial management support as fund manager for the donor funding component, while UNICEF provided in-kind equipment for the anthropometric module for children under age 5.

This key indicators report presents selected findings from the 2016-18 PNG DHS. A comprehensive analysis of the data will be presented in a final report to be published in October 2019.

1.1 SURVEY OBJECTIVES

The primary objective of the 2016-18 PNG DHS is to provide up-to-date estimates of basic demographic and health indicators. Specifically, the 2016-18 PNG DHS collected information on fertility, awareness and use of family planning methods, breastfeeding practices, nutritional status of children, maternal and child health, adult and childhood mortality, women's empowerment, domestic violence, malaria, awareness and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs), and other health-related issues. It also collected information on household agricultural activities and household food security.

The information collected through the 2016-18 PNG DHS is intended to assist policymakers and programme managers in designing and evaluating programmes and strategies for improving the health of the country's population. The 2016-18 PNG DHS also provides indicators relevant to the Sustainable Development Goals (SDGs) for the country.

2 SURVEY IMPLEMENTATION

2.1 SAMPLE DESIGN

The sample for the 2016-18 PNG DHS is nationally representative and covers the entire population residing in private dwelling units in the country. The survey used the list of census units (CUs) from the 2011 PNG National Population and Housing Census (NPHC) as the sampling frame. Administratively, PNG is divided into 22 provinces, and each province is sub-divided into urban and rural areas. Each province is also divided into districts and each district is divided into local-level governments, which are in turn divided into wards. Each ward is divided into census units. The average CU size is 50 households, with urban CUs having 70 households on average and rural CUs having an average of 48 households. The sampling frame contains information on CU location, type of residence (urban or rural), estimated number of residential households, and population by sex.

The 2016-18 PNG DHS sample was stratified and selected in two stages. Each province was stratified into urban and rural areas, yielding 43 sampling strata with the exception of National Capital District, which has no rural areas. Samples of CUs were selected independently in each stratum in two stages. Implicit stratification and proportional allocation were achieved at each of the lower administrative levels by sorting the sampling frame within each sampling stratum before sample selection, according to administrative units at different levels, and by using a probability proportional to size selection at the first stage of sampling.

In the first stage, 800 CUs were selected with probability proportional to CU size, which is the number of residential households found in the CU during the 2011 NPHC. A household listing operation, conducted prior to data collection, was carried out in all of the selected clusters, and the resulting lists of households served as a sampling frame for the selection of households in the next stage. Some of the selected clusters were large, with more than 200 households. In order to minimise the task of the listing team, these selected clusters were segmented. Only one segment was selected for the survey with probability proportional to segment size. Household listing was conducted only in the selected segment. This means that a cluster is either a CU or a segment of a CU.

In the second stage of selection, a fixed number of 24 households per cluster were selected with an equal probability systematic selection from the newly created household listing, resulting in a total sample size of approximately 19,200 households. No replacements and no changes of the pre-selected households were allowed in the implementing stages in order to prevent bias. In cases in which a CU had fewer than 24 households, all households were included in the sample. All women age 15-49 who were usual members of the selected households or who spent the night before the survey in the selected households were eligible for the women's individual interview. In half of the selected households (every second household), all men age 15-49 who were usual members of the households or who spent the night before the survey in the households were eligible for the men's individual interview. In households selected for men's interviews, all children under age 6 were eligible for height/length, weight, and mid-upper-arm circumference (MUAC) measurements. Similarly, one woman age 15-49 was selected from each household in this subsample for the domestic violence module.

Due to the non-proportional allocation of the sample to the different provinces and to urban and rural areas, and due to the possible differences in response rates, sampling weights were calculated, added to the data file, and applied so that the results would be representative at the national level as well as the domain level. Since the 2016-18 PNG DHS sample was a two-stage stratified cluster sample selected from the sampling frame, sampling weights were calculated based on sampling probabilities separately for each sampling stage and for each cluster.

2.2 QUESTIONNAIRES

Three questionnaires were used for the 2016-18 PNG DHS: the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. These questionnaires, based on The DHS Program's standard Demographic and Health Survey (DHS-7) questionnaires, were adapted to reflect the population and health issues relevant to Papua New Guinea. Input was solicited from members of the Users Advisory Committee, representing government departments and agencies, nongovernment organisations, and international donors.

The Household Questionnaire was used to list all of the usual members and visitors who slept in the household the night before the survey. Basic demographic information was collected on the characteristics of each person listed, including his or her age, sex, marital status, education, and relationship to the head of the household; data on parents' survival status were also collected. The data on age and sex of household members obtained in the Household Questionnaire were used to identify women and men who were eligible for individual interviews. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as source of water, type of toilet facilities, materials used for the floor, wall, and roof of the dwelling unit, ownership of various durable goods, ownership and use of mosquito nets, and availability of hand washing facilities. An additional module developed by the Food and Agriculture Organization (FAO) to measure food insecurity and household activities in agriculture was included in the Household Questionnaire as well. In terms of country-specific needs, data on fortified rice, flour, and iodised salt were also collected.

The Woman's Questionnaire was used to collect information from all eligible women age 15-49. These women were asked questions on the following topics:

- Background characteristics (including age, education, and media exposure)
- Birth history and child mortality
- Knowledge, use, and source of family planning methods
- Antenatal, delivery, and postnatal care
- Vaccinations and childhood illnesses
- Breastfeeding and infant feeding practices
- Marriage and sexual activity
- Fertility preferences (including desire for more children and ideal number of children)
- Women's work and husbands' background characteristics
- Knowledge, awareness, and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs)
- Knowledge, attitudes, and behaviour related to other health issues (e.g., smoking)
- Adult and maternal mortality
- Domestic violence

The Man's Questionnaire was administered to all men age 15-49 in the subsample of households selected for the men's survey. The Man's Questionnaire collected much of the same information as the Woman's Questionnaire but was shorter because it did not contain a detailed reproductive history, questions on maternal and child health, or questions on maternal mortality and domestic violence.

The Household Questionnaire also included a section that recorded anthropometric measurements for children in the subsample of households selected for the male survey. This included measurement of mid-upper-arm circumference (MUAC) and height and weight measurements for children age 0-59 months. Weight measurements were made using lightweight SECA scales with digital displays (model no. SECA 878U), which were designed and manufactured under the authority of the United Nations Children's Fund (UNICEF). Height/length measurements were taken using a standard measuring board (Shorr Board®). Recumbent length (lying down) was measured for children younger than age 24 months; standing height was measured for older children.

2.3 PRETEST

A pretest was conducted in National Capital District and Central Province in July 2016. Pretest preparations consisted of in-class training, demonstration of interviews in front of the class, role playing, tests, quizzes, a visit to a children's ward in Port Moresby General Hospital to practice collecting weight and height data for children, a visit to a medical laboratory at the University of Papua New Guinea School of Medical and Health Science to practice salt and rice testing, and field practice days.

The field practice was conducted over a period of 5 days in two urban and two rural clusters that were not included in the 2016-18 PNG DHS sample. A total of 24 trainees (8 males and 16 females) participated in the pretest. All trainees had some experience with household surveys, either involvement in previous PNG DHS surveys or involvement in other similar surveys. Following field practice, a debriefing session was held with the pretest field staff, and modifications to the questionnaires were made based on lessons drawn from the exercise.

2.4 TRAINING OF FIELD STAFF

Training for the field staff was conducted in two stages. In the first stage, 44 persons (28 females and 16 males) were trained as master trainers. Master trainers comprised 22 staff from the NSO and the National Department of Health (NDOH), while 22 assistant trainers were recruited from the provinces. This training took place outside of Port Moresby (Central Province) at the Kokoda Trail Motel in August 2016. Four core project staff participated in the master trainers training as facilitators. ICF staff provided technical support during the training sessions. To provide a better understanding of the importance of the 2016-18 PNG DHS in the context of PNG's health and population policies and programmes, the training also included presentations given by NDOH staff covering specific programmes such as those addressing malaria, HIV/AIDS, child immunisations, child nutrition, childhood diseases, and gender-based violence. A one-day field practice session for the master trainers in the nearby census units was conducted to allow the trainers to have a feel of the three questionnaires that were to be used in the survey.

In the second stage, the master trainers were sent to the 22 training centres in the provinces. Trainers were paired; one was from the NSO/NDOH and one from the respective province. In total, the NSO recruited and trained 427 persons for the main fieldwork to serve as team leaders, field editors, interviewers, and reserve interviewers. The training took place simultaneously from September 12 to 26, 2016, in all 22 provinces of the country.

The training course consisted of instruction regarding interviewing techniques and field procedures, a detailed review of questionnaire content, instruction on how to administer the paper questionnaires, and mock interviews between participants in the classroom. Practice interviews with real respondents were arranged in census units that were close to the training venues but were not included in the survey sample. A two- to three-day field practice was organised, according to provincial requirements, to provide trainees with additional hands-on practice before the actual fieldwork. Since the households in these practice census units had not been listed, the teams carried out manual listing to select the 24 households for the three questionnaires to be administered. During the training, arrangements were made with mothers from nearby census units to bring their children to the training venues to be measured and weighed for class practice. The trainees were divided into teams to go through this exercise. Ultimately, 106 males and 212 females (318 in total) were selected to serve as interviewers, with an additional 53 selected as field editors/team leaders. The selection of team leaders/field editors was based on their experience in leading survey teams and their performance during the training. Team leaders/field editors received additional instructions and practice to perform supervisory activities, including assigning households and receiving and reviewing completed questionnaires from interviewers.

2.5 FIELDWORK

Data collection took place over 27 months from October 2016 to December 2018. Field operations were carried out by 53 teams, each consisting of one field editor/team leader, four female interviewers, and two male interviewers. A total of 371 personnel were initially involved in the data collection for the 2016-18 PNG DHS.

Data collection occurred in four phases over the 27-month period. Phase 1 was from October 1 to December 9, 2016; phase 2 was from March to June 2017; phase 3 was from October 22 to December 22, 2017; and the last phase was from April 20 to December 14, 2018. The number of teams decreased from 53 in October 2016 to 11 in December 2018, with team composition maintained throughout the survey period.

Fieldwork required more time than expected due to various challenges: inaccessibility due to the geography of the country and severe weather patterns, refusal by respondents to participate in the survey, need for security due to law and order situations and outstanding payments owed to service providers, absence of reliable communication services, and late disbursement of funds to support teams in the field. As a result, fieldwork could be completed only for 767 clusters of the 800 initially selected.

Despite these challenges, the survey teams managed to travel throughout the country and collect data even under difficult circumstances without compromising the quality of the data. Senior staff from the NSO coordinated and supervised fieldwork activities in the provinces.

2.6 DATA PROCESSING

All completed questionnaires were delivered to the NSO central office in Port Moresby, where they were registered and stored. The data processing operation included registration of the questionnaires, office editing and coding, data capture and verification, and secondary data editing, which required resolution of computer-identified inconsistencies and coding of open-ended questions. Data processing commenced on January 10, 2017, and was completed on January 31, 2019.

During the course of the data processing operation (2017-2019), a total of 63 personnel were engaged. The composition of engaged personnel changed in order to meet the urgency and needs of the project during different time periods. However, the standard composition of personnel in different sections of data processing was always as follows: (a) registration, 1; (b) office editing, 6; (c) data entry and verification, 20; (d) secondary editing, 4; (e) and final editing, 3. There were occasions when multiple shifts were introduced to fast track the operation (January through April 2017). In these scenarios, the number of personnel, particularly in data entry and verification, more than doubled to 40-45.

The initial plan was to introduce the computer-assisted field editing (CAFE) procedure to ensure that data digitisation and quality verifications were done in the field before the questionnaires (and digitised data) were returned to NSO headquarters for further processing. However, this did not happen, and centralised data processing was done at NSO headquarters when all completed questionnaires from the clusters were brought back from the field. Final cleaning of data by the ICF data processing specialist was completed on March 16, 2019.

Throughout this report, numbers in the tables reflect weighted numbers. Percentages based on 25 to 49 unweighted cases are shown in parentheses, and percentages based on fewer than 25 unweighted cases are suppressed and replaced with an asterisk, to caution readers when interpreting data that a percentage based on fewer than 50 cases may not be statistically reliable.

3 KEY FINDINGS

3.1 RESPONSE RATES

T able 1 shows response rates for the 2016-18 PNG DHS. A total of 17,505 households were selected for the sample, of which 16,754 were occupied. Of the occupied households, 16,021 were successfully interviewed, yielding a response rate of 96%. In the interviewed households, 18,175 women age 15-49 were identified for individual interviews; interviews were completed with 15,198 women, yielding a response rate of 84%. In the subsample of households selected for the male survey, 9,141 men age 15-49 were identified and 7,333 were successfully interviewed, yielding a response rate of 80%.

Table 1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), PNG DHS 2016-18

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	3,652	13,853	17,505
Households occupied	3,486	13,268	16,754
Households interviewed	3,295	12,726	16,021
Household response rate[1]	94.5	95.9	95.6
Interviews with women age 15-49			
Number of eligible women	4,981	13,194	18,175
Number of eligible women interviewed	4,045	11,153	15,198
Eligible women response rate[2]	81.2	84.5	83.6
Household interviews in subsample			
Households selected	1,820	6,864	8,684
Households occupied	1,733	6,575	8,308
Households interviewed	1,638	6,344	7,982
Household response rate in subsample[1]	94.5	96.5	96.1
Interviews with men age 15-49			
Number of eligible men	2,442	6,699	9,141
Number of eligible men interviewed	1,826	5,507	7,333
Eligible men response rate[2]	74.8	82.2	80.2

[1] Households interviewed/households occupied
[2] Respondents interviewed/eligible respondents

3.2 CHARACTERISTICS OF RESPONDENTS

Table 2 shows, by background characteristics, the weighted and unweighted numbers and the weighted percent distributions of women and men age 15-49 interviewed in the 2016-18 PNG DHS. More than half of the women (54%) and men (53%) in the sample are under age 30.

A majority of respondents are Christians. About a quarter of women (25%) and men (24%) are Roman Catholic, 14% of women and 15% of men are Seventh Day Adventist, and 13% of women and 14% of men are Evangelical Lutheran.

The majority of respondents are currently married or living together with a partner (66% of women and 54% of men). Men are more likely than women to have never been married (43% versus 26%). Two percent of women are widowed, and 6% are divorced or separated. The proportion of men who are widowed, divorced, or separated is lower than the proportion among women.

Eighty-seven percent of women and men live in rural areas, and two in five live in the Highlands region of the country.

Twenty-three percent of women and 13% of men have no education. Twenty-seven percent of women and 35% of men have at least some secondary education or higher.

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, PNG DHS 2016-18

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	19.4	2,945	2,980	20.0	1,469	1,502
20-24	18.2	2,759	2,699	17.0	1,246	1,266
25-29	16.7	2,543	2,487	16.0	1,171	1,100
30-34	14.3	2,180	2,214	14.4	1,058	1,079
35-39	13.5	2,059	2,039	13.2	966	953
40-44	9.8	1,484	1,550	10.7	783	772
45-49	8.1	1,228	1,229	8.7	640	661
Religion						
Anglican	2.7	410	598	3.1	230	344
Evangelical Alliance	3.8	573	432	3.1	230	191
Pentecostal	9.0	1,368	1,313	8.2	604	564
Evangelical Lutheran	12.5	1,907	1,478	14.4	1,060	840
Roman Catholic	24.9	3,785	4,079	23.5	1,725	1,927
Salvation Army	0.3	43	47	0.2	17	14
Seventh Day Adventist	13.7	2,077	2,093	15.3	1,122	1,024
United Church	10.4	1,582	1,958	11.3	825	960
Other Christian Church	21.3	3,232	3,025	19.1	1,397	1,334
Non-Christian	0.6	90	88	0.6	43	45
No religion	0.6	88	68	0.9	66	75
Missing	0.3	43	19	0.2	15	15
Marital status						
Never married	26.1	3,968	4,155	42.5	3,114	3,144
Married	54.6	8,299	8,260	46.4	3,403	3,327
Living together	11.5	1,752	1,683	7.4	544	604
Divorced/separated	6.2	943	869	3.0	220	207
Widowed	1.6	236	231	0.7	52	51
Residence						
Urban	13.3	2,018	4,045	13.3	976	1,826
Rural	86.7	13,180	11,153	86.7	6,357	5,507
Region						
Southern	19.1	2,899	4,380	20.3	1,490	2,173
Highlands	40.9	6,213	4,123	39.2	2,871	2,056
Momase	25.8	3,919	3,060	27.3	1,999	1,498
Islands	14.3	2,167	3,635	13.3	973	1,606
Education						
No education	23.0	3,488	2,841	12.8	941	789
Elementary[1]	4.4	676	556	3.5	253	253
Primary[2]	45.9	6,969	7,344	49.0	3,593	3,633
Secondary[3]	22.8	3,460	3,875	29.4	2,156	2,259
Higher[4]	4.0	605	582	5.3	389	399
Wealth quintile						
Lowest	18.3	2,783	2,132	18.6	1,366	1,053
Second	18.6	2,831	2,304	18.9	1,384	1,193
Middle	19.1	2,897	2,666	20.8	1,528	1,432
Fourth	20.5	3,118	3,709	19.1	1,399	1,619
Highest	23.5	3,569	4,387	22.6	1,656	2,036
Total 15-49	100.0	15,198	15,198	100.0	7,333	7,333

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
[1] Elementary refers to grades 1-2.
[2] Primary refers to grades 3-8.
[3] Secondary refers to grades 9-12.
[4] Higher refers to above grade 12.

3.3   FERTILITY

To generate data on fertility, all women who were interviewed were asked to report the total number of sons and daughters to whom they had ever given birth. To ensure that all information was reported, women were asked separately about children still living at home, those living elsewhere, and those who had died. A complete birth history was then obtained, including information on the sex, date of birth, and survival status of each child; age at death for children who had died was also recorded.

Table 3 shows age-specific fertility rates (ASFRs) among women by 5-year age groups for the 3-year period preceding the survey. Age-specific and total fertility rates were calculated directly from the birth history data, taking into account live births.[1] The sum of age-specific fertility rates (known as the total fertility rate, or TFR) is a summary measure of the level of fertility. It can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the currently observed age-specific rates. If fertility were to remain constant at current levels, a woman in Papua New Guinea would bear an average of 4.2 children in her lifetime. The 2006 PNG DHS indicated that the TFR was 4.4 births per woman (National Statistical Office 2009). Fertility is low among adolescents age 15-19 (68 births per 1,000 women), peaks at 203 births per 1,000 among women age 25-59, and decreases thereafter.

Table 3 Current fertility

Age-specific and total fertility rates, general fertility rate, and the crude birth rate for the 3 years preceding the survey, according to residence, PNG DHS 2016-18

	Residence		
Age group	Urban	Rural	Total
10-14	[0]	[1]	[1]
15-19	59	69	68
20-24	159	205	199
25-29	188	205	203
30-34	139	166	163
35-39	112	126	124
40-44	47	61	59
45-49	[5]	[26]	[23]
TFR (15-49)	3.5	4.3	4.2
GFR	119	146	142
CBR	28	29	29

Notes: Age-specific fertility rates are per 1,000 women. Estimates in brackets are truncated. Rates are for the period 1-36 months preceding the interview. Rates for the 10-14 age group are based on retrospective data from women age 15-17.
TFR: Total fertility rate, expressed per woman
GFR: General fertility rate, expressed per 1,000 women age 15-44
CBR: Crude birth rate, expressed per 1,000 population

Fertility is higher among rural women than among urban women; on average, rural women will give birth to about 0.8 children more than urban women during their reproductive years (4.3 and 3.5, respectively). This pattern is consistent across the different age groups (Figure 1).

Figure 1 Age-specific fertility rates by residence

Births per 1,000 women

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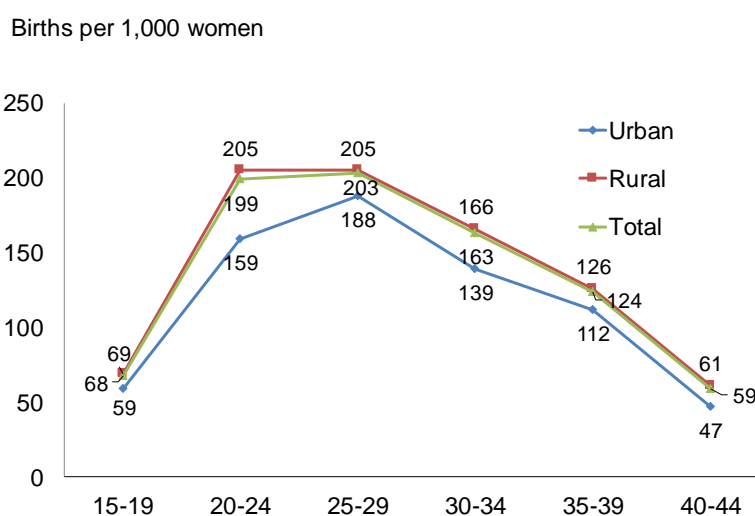
[1] Numerators for the age-specific rates are calculated by summing the births that occurred during the 1-36 months preceding the survey, classified by the 5-year age group of the mother at the time of the birth. The denominators are the numbers of woman-years lived in each 5-year age group during the 1-36 months preceding the survey.

3.4   TEENAGE PREGNANCY AND MOTHERHOOD

The issue of adolescent fertility is important for both health and social reasons. Children born to very young mothers are at increased risk of sickness and death. Teenage mothers are more likely to experience adverse pregnancy outcomes and to be constrained in their ability to pursue educational opportunities than young women who delay childbearing.

Table 4 shows the percentage of women age 15-19 who had given birth or were pregnant with their first child at the time of the survey, according to background characteristics. Overall, 12% of women age 15-19 had begun childbearing: 10% had had a live birth and 3% were pregnant at the time of the interview. The proportion of teenagers who had begun childbearing rises rapidly with age, from 3% at age 15 to 27% at age 19. Rural teenagers tend to start childbearing earlier than urban teenagers (13% versus 10%).

Table 4 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child, and percentage who have begun childbearing, according to background characteristics, PNG DHS 2016-18

Background characteristic	Percentage of women age 15-19 who:		Percentage who have begun childbearing	Number of women
	Have had a live birth	Are pregnant with first child		
Age				
15	1.7	1.1	2.8	494
16	2.1	1.3	3.4	617
17	7.7	2.7	10.4	604
18	12.1	3.0	15.2	624
19	23.1	4.0	27.1	607
Residence				
Urban	8.0	1.8	9.8	416
Rural	9.9	2.6	12.5	2,529
Region				
Southern	10.3	2.0	12.3	590
Highlands	10.5	2.6	13.1	1,255
Momase	9.7	2.8	12.5	661
Islands	6.1	2.4	8.5	439
Education				
No education	21.3	1.5	22.8	291
Elementary	21.9	1.2	23.2	125
Primary	9.1	3.1	12.2	1,823
Secondary	4.1	1.4	5.5	703
Higher	*	*	*	2
Wealth quintile				
Lowest	13.4	2.2	15.6	520
Second	8.4	2.7	11.2	517
Middle	13.5	2.3	15.8	559
Fourth	9.6	3.6	13.2	628
Highest	4.8	1.6	6.4	721
Total	9.6	2.5	12.1	2,945

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Teenagers with a secondary education and those in the highest wealth quintile tend to start childbearing later than those with no education or an elementary education (23% each) and those in the lowest and middle quintiles (16% each).

3.5   FERTILITY PREFERENCES

Information on fertility preferences is used to assess the potential demand for family planning services for the purposes of spacing or limiting future childbearing. To elicit information on fertility preferences, several questions were asked of currently married women (pregnant or not) regarding whether they wanted to have another child and, if so, how soon.

Table 5 shows that 10% of women want to have another child soon (within the next 2 years), and 16% want to have another child later (in 2 or more years). Forty-six percent of women want no more children or have already been sterilised. Thirteen percent have not decided if they want another child.

Table 5 Fertility preferences according to number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, PNG DHS 2016-18

Desire for children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Have another soon[2]	41.0	16.5	8.2	7.3	2.7	1.3	0.5	10.0
Have another later[3]	7.7	37.2	27.7	14.6	5.5	3.0	1.6	16.3
Have another, undecided when	2.8	4.2	2.7	1.8	0.6	0.7	0.1	2.0
Undecided	13.6	14.8	17.0	14.7	13.8	9.7	5.9	13.3
Want no more	4.1	14.4	27.8	41.5	53.3	57.7	66.4	37.4
Sterilised[4]	0.4	0.5	4.4	10.3	14.6	17.2	17.1	8.8
Declared infecund	24.1	6.8	4.0	2.8	4.1	4.0	2.8	5.9
Missing	6.2	5.7	8.1	7.0	5.5	6.4	5.4	6.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	885	1,861	1,724	1,814	1,454	1,052	1,262	10,052

[1] The number of living children includes the current pregnancy.
[2] Wants next birth within 2 years
[3] Wants to delay next birth for 2 or more years
[4] Includes both female and male sterilisation

Fertility preferences are closely related to number of living children. Forty-one percent of women with no living children want a child soon, as compared with 8% of women with two children. In general, the more children a woman has, the higher the likelihood that she does not want another child.

3.6   FAMILY PLANNING

Family planning refers to a conscious effort by a couple to limit or space the number of children they have through the use of contraceptive methods. Contraceptive methods are classified as modern or traditional. Modern methods include female sterilisation, male sterilisation, the intrauterine contraceptive device (IUD) or loop, implants, injectables, the pill, and condoms. Methods such as rhythm (ovulation/periodic abstinence), withdrawal, and folk methods are grouped as traditional.

Table 6 shows the percent distributions of currently married women and sexually active unmarried women by the contraceptive method they currently use. Overall, 37% of currently married women use a method of family planning, with 31% using a modern method and 6% using a traditional method. Among currently married women, the most popular methods are injectables and implants (each used by 9%), followed by female sterilisation (used by 8%). The contraceptive prevalence rate (CPR) among married women varies with age, rising from 18% among women age 15-19 to a peak of 42% among women age 30-39 before declining to 33% among women age 45-49.

Women in urban areas are more likely to use a contraceptive method than women in rural areas (50% and 35%, respectively). Use of contraception is highest among currently married women in the Southern (49%) and Islands (47%) regions; 41% of women in the Southern region opt for modern methods, as opposed to 31% in the Islands region.

Table 6 Current use of contraception according to background characteristics

Percent distribution of currently married women and sexually active unmarried women age 15-49 by contraceptive method currently used, according to background characteristics, PNG DHS 2016-18

Background characteristic	Any method	Any modern method	Modern method										Traditional method				Not currently using	Total	Number of women
			Female sterili-sation	Male sterili-sation	Pill	IUD/loop	Inject-ables	Implants	Male condom	Female condom	Other	Any tradi-tional method	Ovulation/ periodic abstin-ence	With-drawal	Other			
								CURRENTLY MARRIED WOMEN											
Number of living children																		
0	6.9	4.6	0.4	0.0	0.7	0.0	0.7	1.9	0.8	0.1	0.0	2.3	1.1	0.7	0.5	93.1	100.0	1,086
1-2	33.3	26.9	2.2	0.3	3.4	0.7	10.3	9.3	0.7	0.0	0.0	6.4	3.5	1.7	1.2	66.7	100.0	3,508
3-4	45.1	38.3	11.5	0.9	2.8	0.9	10.5	11.2	0.3	0.0	0.1	6.8	3.8	1.5	1.5	54.9	100.0	3,221
5+	44.5	37.4	15.7	2.0	1.5	0.6	9.0	7.9	0.5	0.0	0.1	7.1	2.8	1.6	2.6	55.5	100.0	2,238
Age																		
15-19	18.4	16.5	0.1	0.0	1.3	0.0	6.2	8.7	0.3	0.0	0.0	1.9	1.1	0.6	0.2	81.6	100.0	403
20-24	29.7	24.9	0.5	0.0	4.0	0.7	8.8	10.1	0.8	0.0	0.0	4.8	1.9	2.1	0.8	70.3	100.0	1,594
25-29	36.9	31.5	3.0	0.3	3.4	1.1	11.9	11.3	0.5	0.0	0.0	5.4	3.0	1.2	1.2	63.1	100.0	2,110
30-34	42.2	34.3	7.2	1.0	3.0	0.6	11.3	10.6	0.6	0.0	0.0	7.9	4.6	1.6	1.6	57.8	100.0	1,878
35-39	42.3	35.6	13.4	1.1	1.8	0.7	9.1	8.7	0.8	0.0	0.0	6.7	3.4	1.7	1.6	57.7	100.0	1,764
40-44	38.5	31.5	15.2	1.4	1.1	0.3	7.4	5.5	0.3	0.1	0.1	6.9	3.5	1.2	2.2	61.5	100.0	1,273
45-49	32.7	25.6	16.0	1.9	0.9	0.7	2.6	2.9	0.4	0.0	0.1	7.2	3.1	1.2	2.9	67.3	100.0	1,029
Residence																		
Urban	50.2	41.5	14.4	1.2	3.5	0.4	11.1	9.6	1.2	0.1	0.0	8.7	5.1	3.2	0.5	49.8	100.0	1,200
Rural	34.9	29.0	7.1	0.8	2.4	0.7	8.8	8.7	0.5	0.0	0.0	5.9	2.9	1.3	1.7	65.1	100.0	8,852
Region																		
Southern	48.9	41.1	12.0	0.7	2.5	0.5	12.3	12.1	0.8	0.0	0.1	7.8	3.4	1.8	2.6	51.1	100.0	1,867
Highlands	27.5	25.0	5.8	1.1	2.3	1.0	8.6	5.6	0.5	0.0	0.0	2.5	1.3	0.8	0.4	72.5	100.0	4,189
Momase	37.3	31.6	5.6	0.7	3.6	0.5	9.4	11.4	0.3	0.0	0.0	5.7	1.9	1.5	2.2	62.7	100.0	2,630
Islands	47.2	30.7	13.7	0.3	1.2	0.2	5.4	9.1	0.7	0.0	0.0	16.5	11.1	3.0	2.4	52.8	100.0	1,366
Education																		
No education	24.2	19.5	4.4	1.5	1.4	0.6	5.7	5.7	0.1	0.0	0.0	4.7	1.6	0.9	2.2	75.8	100.0	2,808
Elementary	35.5	31.1	8.0	0.6	1.0	0.5	12.5	7.4	1.1	0.0	0.0	4.4	1.5	1.7	1.2	64.5	100.0	465
Primary	40.2	34.2	9.8	0.6	3.1	0.7	9.7	9.5	0.6	0.0	0.1	6.0	3.0	1.5	1.6	59.8	100.0	4,381
Secondary	45.9	37.5	9.2	0.6	2.4	0.8	11.1	12.5	0.9	0.0	0.0	8.4	5.0	2.4	1.0	54.1	100.0	2,021
Higher	41.6	30.6	6.3	0.4	6.0	0.3	11.1	5.7	0.9	0.0	0.0	11.0	9.8	1.1	0.0	58.4	100.0	377
Wealth quintile																		
Lowest	23.2	18.5	3.5	0.9	1.8	0.4	5.8	6.0	0.1	0.0	0.0	4.7	1.6	1.1	2.0	76.8	100.0	1,933
Second	31.2	26.4	4.0	1.2	2.6	0.6	9.0	8.6	0.4	0.0	0.0	4.8	1.8	0.8	2.1	68.8	100.0	1,946
Middle	36.4	30.0	8.0	0.7	1.7	0.5	9.7	9.1	0.3	0.0	0.1	6.4	3.1	1.5	1.7	63.6	100.0	2,021
Fourth	45.2	38.0	11.3	0.7	3.4	0.9	10.9	9.8	0.9	0.0	0.1	7.2	4.1	1.8	1.2	54.8	100.0	2,042
Highest	46.3	38.4	12.5	0.8	3.0	1.0	9.7	10.3	1.0	0.0	0.0	7.9	5.0	2.1	0.7	53.7	100.0	2,110
Total	36.7	30.5	8.0	0.8	2.5	0.7	9.1	8.8	0.6	0.0	0.0	6.2	3.2	1.5	1.6	63.3	100.0	10,052

Continued…

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Table 6—Continued

SEXUALLY ACTIVE UNMARRIED WOMEN[1]

Background characteristic	Any method	Modern method										Traditional method				Not currently using	Total	Number of women
		Any modern method	Female sterili-sation	Male sterili-sation	Pill	IUD/loop	Inject-ables	Implants	Male condom	Female condom	Other	Any tradi-tional method	Ovulation/ periodic abstin-ence	With-drawal	Other			
Residence																		
Urban	38.1	27.0	5.6	0.0	0.0	0.0	1.1	5.7	10.9	3.7	0.0	11.1	5.8	4.7	0.6	61.9	100.0	43
Rural	14.2	13.4	1.6	0.0	0.4	0.0	2.1	5.7	2.8	0.9	0.0	0.8	0.3	0.6	0.0	85.8	100.0	216
Total	18.2	15.7	2.2	0.0	0.3	0.0	1.9	5.7	4.1	1.4	0.0	2.5	1.2	1.3	0.1	81.8	100.0	259

Note: If more than one method is used, only the most effective method is considered in this tabulation.
[1] Women who have had sexual intercourse within 30 days preceding the survey

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Use of contraception increases from 24% among women with no education to 36% among those with an elementary education, peaks at 46% among those with a secondary education, and then drops to 42% among those with a higher education. Women in the highest wealth quintile are twice as likely as those in the lowest quintile to use a method of contraception (46% versus 23%).

Table 6 also indicates that sexually active unmarried women are half as likely to use a method of contraception as currently married women. Eighteen percent of sexually active unmarried women use a method of contraception, with 16% using a modern method. The most popular methods among these women are implants (6%) and male condoms (4%). Eleven percent of sexually active unmarried women in urban areas use condoms, as compared with only 3% of their rural counterparts.

3.7   NEED AND DEMAND FOR FAMILY PLANNING

The proportion of women who want to stop childbearing or who want to space their next birth is a crude measure of the extent of the need for family planning, given that not all of these women are exposed to the risk of pregnancy and some may already be using contraception. This section discusses a more refined extent of need and the potential demand for family planning services. Women who want to postpone their next birth for 2 or more years, or who want to stop childbearing altogether but are not using a contraceptive method, are said to have an unmet need for family planning. Pregnant women are considered to have an unmet need for spacing or limiting if their pregnancy was mistimed or unwanted, respectively. Similarly, amenorrhoeic women are categorised as having an unmet need if their last birth was mistimed or unwanted. Women who are currently using a family planning method are said to have a met need for family planning. Total demand for family planning services comprises those who fall in the met need and unmet need categories.

Table 7 presents data on unmet need, met need, and total demand for family planning among currently married women. These indicators help evaluate the extent to which family planning programmes in Papua New Guinea meet the demand for services. Twenty-six percent of currently married women have an unmet need for family planning services. Thirty-seven percent of married women are currently using a contraceptive method. Therefore, 63% of currently married women have a demand for family planning. At present, 59% of the potential demand for family planning is being met. Thus, if all married women who said they want to space or limit their children were to use family planning methods, the CPR would increase from 37% to 63%.

Table 7 Need and demand for family planning among currently married women and sexually active unmarried women

Percentage of currently married women and sexually active unmarried women age 15-49 with unmet need for family planning, percentage with met need for family planning, percentage with met need for family planning who are using modern methods, percentage with demand for family planning, percentage of the demand for family planning that is satisfied, and percentage of the demand for family planning that is satisfied with modern methods, according to background characteristics, PNG DHS 2016-18

| Background characteristic | Unmet need for family planning | Met need for family planning (currently using) | | Total demand for family planning[2] | Number of women | Percentage of demand satisfied[3] | |
		All methods	Modern methods[1]			All methods	Modern methods[1]
CURRENTLY MARRIED WOMEN							
Age							
15-19	32.2	18.4	16.5	50.6	403	36.4	32.6
20-24	33.6	29.7	24.9	63.2	1,594	46.9	39.3
25-29	26.4	36.9	31.5	63.3	2,110	58.3	49.8
30-34	25.1	42.2	34.3	67.3	1,878	62.7	51.0
35-39	25.2	42.3	35.6	67.4	1,764	62.7	52.7
40-44	24.0	38.5	31.5	62.5	1,273	61.6	50.5
45-49	15.1	32.7	25.6	47.9	1,029	68.4	53.4
Residence							
Urban	21.3	50.2	41.5	71.5	1,200	70.2	58.0
Rural	26.5	34.9	29.0	61.4	8,852	56.9	47.3
Region							
Southern	24.3	48.9	41.1	73.2	1,867	66.8	56.1
Highlands	23.9	27.5	25.0	51.5	4,189	53.5	48.6
Momase	29.9	37.3	31.6	67.2	2,630	55.5	47.0
Islands	26.0	47.2	30.7	73.2	1,366	64.5	42.0
Education							
No education	26.9	24.2	19.5	51.1	2,808	47.4	38.2
Elementary	24.3	35.5	31.1	59.8	465	59.4	52.1
Primary	27.0	40.2	34.2	67.2	4,381	59.8	50.8
Secondary	22.5	45.9	37.5	68.4	2,021	67.1	54.9
Higher	24.6	41.6	30.6	66.2	377	62.8	46.3
Wealth quintile							
Lowest	32.0	23.2	18.5	55.3	1,933	42.0	33.5
Second	28.6	31.2	26.4	59.8	1,946	52.2	44.1
Middle	25.3	36.4	30.0	61.7	2,021	59.0	48.7
Fourth	23.9	45.2	38.0	69.1	2,042	65.4	55.0
Highest	20.1	46.3	38.4	66.4	2,110	69.7	57.9
Total	25.9	36.7	30.5	62.6	10,052	58.7	48.7
SEXUALLY ACTIVE UNMARRIED WOMEN[4]							
Residence							
Urban	37.1	38.1	27.0	75.2	43	50.6	35.9
Rural	70.5	14.2	13.4	84.7	216	16.8	15.8
Total	65.0	18.2	15.7	83.2	259	21.9	18.8

Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al. 2012.
[1] Modern methods include female sterilisation, male sterilisation, pill, IUD/loop, injectables, implants, male condom, female condom, and other modern methods.
[2] Total demand is the sum of unmet need and met need.
[3] Percentage of demand satisfied is met need divided by total demand.
[4] Women who have had sexual intercourse within 30 days preceding the survey

Unmet need for family planning is highest in the Momase region (30%). Unmet need for family planning among women decreases with increasing wealth, from 32% among women in the lowest wealth quintile to 20% among those in the highest quintile.

3.8   EARLY CHILDHOOD MORTALITY

Infant and child mortality rates are basic indicators of a country's socioeconomic situation and quality of life (United Nations Development Program [UNDP] 2007). Estimates of child mortality are based on information collected in the birth history section of the Woman's Questionnaire, which includes questions about aggregate childbearing experience (that is, the number of sons and daughters who live with their mother, the number who live elsewhere, and the number who have died). Table 8 presents estimates for three successive 5-year periods prior to the 2016-18 PNG DHS. The rates are estimated directly from the information in the birth history on children's birth date, survivorship status, and age at death for children who died. This information is used to directly estimate the following five mortality rates:

Neonatal mortality: the probability of dying within the first month of life

Postneonatal mortality: the difference between infant and neonatal mortality

Infant mortality: the probability of dying before the first birthday

Child mortality: the probability of dying between the first and the fifth birthday

Under-5 mortality: the probability of dying between birth and the fifth birthday

All rates are expressed per 1,000 live births with the exception of child mortality, which is expressed per 1,000 children surviving to age 12 months.

As shown in Table 8, during the 5 years immediately preceding the survey, the infant mortality rate was 33 deaths per 1,000 live births. The child mortality rate was 16 deaths per 1,000 children surviving to age 12 months, while the overall under-5 mortality rate was 49 deaths per 1,000 live births. Sixty-seven percent of all deaths among children under age 5 in Papua New Guinea take place before a child's first birthday, with 41% occurring during the first month of life. Child mortality accounts for 33% of all under-5 deaths.

Table 8 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-5 mortality rates for 5-year periods preceding the survey, PNG DHS 2016-18

Years preceding the survey	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
0-4	20	13	33	16	49
5-9	27	15	42	13	55
10-14	26	16	42	18	59

[1] Computed as the difference between the infant and neonatal mortality rates

3.9   MATERNAL CARE

Proper care during pregnancy and delivery is important for the health of both the mother and the baby. In the 2016-18 PNG DHS, women who had given birth in the 5 years preceding the survey were asked a number of questions about maternal care. Mothers were asked whether they had obtained antenatal care during the pregnancy for their most recent live birth in the 5 years preceding the survey and whether they had received tetanus toxoid injections while pregnant. For each live birth over the same period, mothers were also asked what type of assistance they received at the time of delivery. Finally, women who had a live birth in the 2 years before the survey were asked if they received a postnatal checkup within 2 days of delivery. Table 9 summarises information on the coverage of these maternal health services.

3.9.1   Antenatal Care

Antenatal care (ANC) from a skilled provider is important to monitor pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy, at delivery, and during the postnatal period (42 days after delivery). The 2016-18 PNG DHS results show that 76% of women who gave birth in the 5 years preceding the survey received antenatal care from a skilled provider at least once for their last birth. Forty-nine percent of women had four or more ANC visits.

Urban women were more likely than rural women to have received ANC from a skilled provider (89% and 75%, respectively) and to have had four or more ANC visits (63% and 47%, respectively). Women in the Islands and Southern regions are more likely to receive antenatal care from a skilled provider (89% and 83%, respectively) and to have four or more ANC visits (63% and 58%, respectively) than women in other regions. Women who have more education are more likely than those who have less education to receive ANC from a skilled provider. For instance, 54% of women with no education received ANC from a skilled

provider, as compared with 98% of women with a higher education. The proportion of women who receive ANC from a skilled provider increases steadily with increasing wealth.

Table 9 Maternal care indicators according to background characteristics

Among women age 15-49 who had a live birth in the 5 years preceding the survey, percentage who received antenatal care from a skilled provider for the most recent live birth, percentage with four or more ANC visits for the most recent live birth, and percentage whose most recent live birth was protected against neonatal tetanus; among all live births in the 5 years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility; and among women age 15-49 who had a live birth in the 2 years preceding the survey, percentage who received a postnatal check during the first 2 days after giving birth, according to background characteristics, PNG DHS 2016-18

Background characteristic	Women who had a live birth in the 5 years preceding the survey				Live births in the 5 years preceding the survey			Women who had a live birth in the 2 years preceding the survey	
	Percentage receiving antenatal care from a skilled provider[1]	Percentage with 4+ ANC visits	Percentage whose most recent live birth was protected against neonatal tetanus[2]	Number of women	Percentage delivered by a skilled provider[1]	Percentage delivered in a health facility	Number of births	Percentage with a postnatal check during the first 2 days after birth[3]	Number of women
Mother's age at birth									
<20	81.4	54.3	39.6	666	61.1	60.6	1,122	47.1	364
20-34	77.1	50.0	38.5	4,845	57.0	55.3	7,093	46.8	2,683
35-49	69.1	42.1	35.1	1,249	50.7	47.4	1,547	38.5	595
Residence									
Urban	88.6	62.9	50.1	761	86.5	85.4	1,017	72.2	409
Rural	74.5	47.2	36.4	5,998	52.9	51.1	8,745	42.1	3,233
Region									
Southern	83.3	57.6	40.4	1,327	64.4	62.6	1,914	54.6	727
Highlands	73.3	45.8	34.0	2,621	54.2	54.5	3,757	38.2	1,382
Momase	68.2	40.0	38.0	1,851	44.5	40.1	2,675	39.1	990
Islands	88.7	63.0	45.3	961	74.3	71.7	1,416	63.3	543
Mother's education									
No education	53.7	28.6	21.4	1,717	31.5	31.3	2,532	23.7	897
Elementary	74.3	48.7	28.8	314	43.4	41.8	493	36.2	173
Primary	79.1	50.8	40.5	3,027	57.4	54.5	4,377	46.5	1,668
Secondary	92.8	67.1	50.2	1,423	82.1	80.5	1,986	65.0	743
Higher	98.1	62.4	60.1	278	95.1	95.3	373	75.3	161
Wealth quintile									
Lowest	56.0	31.4	24.6	1,417	33.4	31.2	2,102	22.7	740
Second	68.7	42.9	30.0	1,357	38.7	36.9	1,995	32.1	728
Middle	78.4	51.1	36.8	1,341	56.3	54.1	2,011	45.1	772
Fourth	84.7	55.6	46.7	1,358	69.0	67.1	1,925	56.6	736
Highest	94.5	65.6	53.1	1,286	91.1	90.6	1,729	73.5	666
Total	76.1	49.0	38.0	6,759	56.4	54.7	9,761	45.5	3,642

Note: If more than one source of assistance was mentioned, only the provider with the highest qualifications is considered in this tabulation.
[1] Skilled provider includes doctor, midwife, nurse, or trained village health volunteer.
[2] Includes mothers with two injections during the pregnancy of their most recent live birth, or two or more injections (the last within 3 years of the most recent live birth), or three or more injections (the last within 5 years of the most recent live birth), or four or more injections (the last within 10 years of the most recent live birth), or five or more injections at any time prior to the last live birth
[3] Includes women who received a check from a doctor, midwife, nurse, trained village health volunteer, or village birth attendant

3.9.2   Tetanus Toxoid

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, a major cause of early infant death in many developing countries, often due to failure to observe hygienic procedures during delivery. Table 9 shows that 38% of women with a birth in the 5 years before the survey received sufficient doses of tetanus toxoid to protect their last birth against neonatal tetanus. The percentage of women whose last birth was protected from tetanus varies with level of education and wealth. Women with no education and those in the lowest wealth quintile are substantially less likely to have had their last birth protected from tetanus. For instance, 21% of women with no education had their last birth protected from tetanus, as compared with 60% of women with a higher education.

3.9.3   Delivery Care

Access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother and/or baby (Van Lerberghe and De Brouwere 2001; WHO 2006). The survey data show that, in Papua New Guinea, 56% of the births in the 5 years preceding the survey were delivered by a skilled provider and 55% were delivered in a health facility (Table 9).

Births in urban areas are far more likely to benefit from skilled delivery care than those in rural areas. Eighty-seven percent of births to urban mothers were assisted by a skilled provider and 85% were

***Figure 2* Maternal health care by residence**

delivered in a health facility, as compared with 53% and 51%, respectively, of births to rural women (Figure 2). Seventy-four percent of births in the Islands region were assisted by a skilled provider, compared with 45% of those in the Momase region.
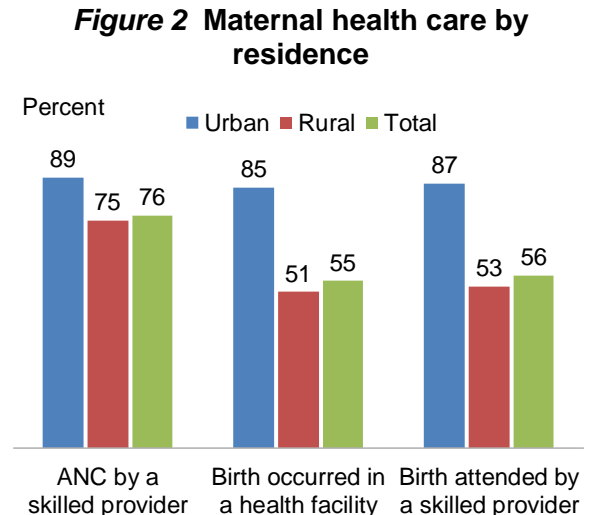
Mothers' educational status correlates highly with whether their delivery is assisted by a skilled provider and whether the birth is delivered in a health facility. For example, 32% of births to mothers with no education were assisted by a skilled provider and 31% were delivered in a health facility, as compared with 95% each of births to mothers with a higher education. A similar relationship is observed with wealth.

3.9.4   Postnatal Care for the Mother

A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. Safe motherhood programmes recommend that all women receive a check of their health within 2 days after delivery.

To assess the extent of postnatal care utilisation, respondents were asked, for their last birth in the 2 years preceding the survey, whether they had received a checkup after delivery and the timing of the first checkup. As shown in Table 9, 46% of women reported having received a PNC checkup in the first 2 days after birth.

The proportion of women receiving a postnatal checkup within 2 days of delivery is higher in urban than rural areas (72% and 42%, respectively) and increases with increasing education and wealth.

3.10   CHILD HEALTH AND NUTRITION

The 2016-18 PNG DHS collected data on a number of key child health indicators, including vaccinations of young children, nutritional status as assessed by anthropometry, infant feeding practices, and treatment practices when a child is ill.

3.10.1 Vaccination of Children

Universal immunisation of children against six common vaccine-preventable diseases, namely tuberculosis, diphtheria, whooping cough (pertussis), tetanus, polio, and measles, is crucial to reducing infant and child mortality. The vaccine given in Papua New Guinea against diphtheria, whooping cough, and tetanus (DPT) also protects against hepatitis B (HepB) and *Haemophilus influenzae* type b (Hib) and is called the DPT-HepB-Hib or pentavalent vaccine. Pentavalent was introduced in Papua New Guinea in 2008. The pneumococcal conjugate vaccine (PCV-13) protects against *Streptococcus pneumoniae* bacteria,

which cause severe pneumonia, meningitis, and other illnesses; this vaccine was introduced in 2014 (Papua New Guinea Ministry of Health 2015). On August 12, 2015, Papua New Guinea introduced one dose of inactivated poliomyelitis vaccine (IPV) at 14 weeks of age into its national routine immunisation schedule, which coincided with the launch of a nationwide measles and rubella (MR) vaccine. The IPV does not replace the oral polio vaccine but is used with that vaccine to strengthen a child's immune system and protect against polio.

Papua New Guinea has established a schedule for the administration of all basic childhood vaccines based on the World Health Organization's guidelines. Historically, an important measure of vaccination coverage has been the proportion of children age 12-23 months who have received all "basic" vaccinations. A child is considered to have received all basic vaccinations if he or she has received a bacille Calmette-Guérin (BCG) vaccination against tuberculosis; three doses of pentavalent (DPT-HepB-Hib) to prevent diphtheria, pertussis, and tetanus; at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. BCG should be given shortly after birth or at first clinical contact. Polio vaccine should be given at approximately age 6 weeks, 10 weeks, and 14 weeks. Pentavalent (DPT-HepB-Hib) vaccine should also be given at approximately age 6, 10, and 14 weeks. In Papua New Guinea, the measles and rubella vaccine should be given at or soon after the child reaches age 6 months, with another dose at 9 months.

A second, more critical measure of vaccination coverage is the proportion of children age 12-23 months and 24-35 months who have received all age-appropriate vaccinations. A child age 12-23 months is considered to have received all age-appropriate vaccinations if the child has received all basic vaccinations along with a birth dose of hepatitis B, one dose of inactivated polio vaccine, and three doses of pneumococcal vaccine (also given at age 6, 10, and 14 weeks). Similarly, a child who is age 24-35 months has received all age-appropriate vaccinations if the child has received a third dose of measles given at 18 months in addition to all of the age-appropriate vaccinations relevant for a child age 12-23 months. However, in the case of the PNG DHS, the third dose of measles and rubella had not yet been rolled out when the fieldwork started in 2016. Therefore, the survey was not able to capture the third dose of measles and rubella vaccine at 18 months, preventing the presentation of results on all age-appropriate vaccinations for children in the 24- to 35-month age group.

In the 2016-18 PNG DHS, information on vaccination coverage was obtained in two ways—from health cards and from mothers' verbal reports. All mothers were asked to show the interviewer the cards on which vaccination dates were recorded for all of their children. If the card was available, the interviewer then recorded from the card the dates of each vaccination received. In cases in which the card indicated the child had not received all basic vaccinations, the mother was asked whether the child had received other vaccinations that were not recorded on the card, and, if so, they too were recorded. If there was no card, or if the mother was unable to show the card to the interviewer, the child's vaccination information was based on the mother's recall. The mother was asked to recall whether the child had received the BCG, hepatitis B (birth dose), polio, pentavalent, pneumococcal, inactivated polio, and measles and rubella vaccines. If she indicated that the child had received the polio, pentavalent, pneumococcal, or measles and rubella vaccine, she was asked about the number of doses that the child received. The results presented here are based on the vaccination card and, for those children without a card, information provided by the mother. Cards were seen for 30% of children age 12-23 months (data not shown).

Table 10 pertains to children age 12-23 months, the age by which children should have received all basic vaccinations. Overall, 35% of children have received all basic vaccinations, and 20% have received all age-appropriate vaccinations. Sixty-nine percent of children have received BCG, 64% have received the first dose of pentavalent, and 69% have received polio 1. Forty-two percent of children have received the third doses of the pentavalent and polio vaccines. Fifty-nine percent of children have received measles and rubella 1 (at 6 months), while 40% have received measles and rubella 2 (at 9 months). Twenty-four percent of children in Papua New Guinea have not received any vaccinations.

Table 10 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), percentage with all basic vaccinations, and percentage with all age-appropriate vaccinations, according to background characteristics, PNG DHS 2016-18

Background characteristic	BCG	HepB (birth dose)[1]	DPT-HepB-Hib 1	2	3	Polio 1	2	3	IPV	Pneumococcal 1	2	3	Measles and rubella 1	2	All basic vaccinations[2]	All age-appropriate vaccinations[3]	No vaccinations	Number of children
Sex																		
Male	69.1	57.4	62.9	50.7	39.2	69.1	52.6	40.0	40.0	59.2	45.1	34.3	57.9	40.9	33.4	19.7	23.3	955
Female	69.7	57.6	65.0	54.0	44.6	68.9	57.9	44.8	38.1	57.2	46.0	36.7	59.7	39.1	37.5	20.9	24.1	808
Birth order																		
1	72.7	63.3	62.6	52.9	44.0	68.4	53.2	43.5	44.2	54.2	46.0	37.7	58.6	41.3	36.3	22.5	23.1	395
2-3	73.7	60.5	67.0	55.0	43.9	72.1	60.1	45.4	41.2	62.7	49.7	39.4	62.5	44.1	37.8	22.2	20.9	722
4-5	65.0	53.3	60.3	49.6	39.8	66.9	53.9	40.0	34.8	54.6	42.8	32.0	55.8	38.1	34.2	16.8	25.6	396
6+	58.5	46.5	62.5	47.2	34.6	64.3	45.3	34.5	32.0	58.1	37.4	25.5	52.8	29.5	28.0	16.3	29.5	251
Vaccination card																		
Seen	87.3	71.5	82.4	69.4	59.1	86.0	70.6	59.7	43.6	76.4	62.2	51.7	75.0	52.9	51.5	30.2	4.4	1,069
Not seen/no card	43.3	37.3	36.6	26.7	15.3	44.4	32.3	15.7	33.4	31.5	20.7	10.6	34.8	21.0	10.6	5.0	51.6	667
Residence																		
Urban	90.9	81.0	82.2	71.2	57.4	85.2	72.5	60.8	50.1	71.9	59.2	49.9	74.6	54.0	48.8	27.3	7.2	215
Rural	66.4	54.2	61.3	49.6	39.5	66.8	52.6	39.6	37.6	56.4	43.6	33.4	56.5	38.1	33.4	19.2	26.0	1,548
Region																		
Southern	79.3	67.7	75.4	64.5	52.0	80.6	67.0	53.9	50.2	71.8	58.7	46.0	69.5	51.4	45.8	30.5	16.0	369
Highlands	62.5	52.8	54.6	42.2	33.3	61.1	47.3	33.5	30.0	49.9	37.3	28.8	51.6	34.7	27.8	14.4	28.2	648
Momase	61.6	45.9	58.5	46.6	36.4	63.1	47.8	36.6	35.7	53.0	39.5	30.2	51.6	31.3	30.4	15.8	30.5	467
Islands	85.2	74.3	79.4	68.5	56.2	81.9	69.4	56.3	51.2	69.0	57.3	45.2	72.9	52.2	46.8	27.5	11.8	279
Education																		
No education	46.8	31.3	44.7	32.9	21.2	49.9	36.3	22.3	22.0	38.7	28.9	17.6	39.3	21.4	17.1	9.6	43.0	428
Elementary	73.2	56.9	62.9	46.1	37.1	73.2	56.1	39.6	21.6	52.5	32.7	21.9	48.8	36.5	34.6	11.0	14.0	96
Primary	70.3	57.1	63.8	53.0	43.6	70.1	55.6	43.4	39.3	60.7	46.6	37.5	59.0	39.5	36.2	21.0	22.3	795
Secondary	86.3	80.4	79.7	72.9	59.1	81.4	72.5	59.7	59.1	69.5	61.9	49.5	75.6	54.5	50.9	33.8	11.5	355
Higher	98.2	96.1	94.5	61.9	57.7	97.2	69.8	60.3	58.3	92.1	64.4	59.2	92.6	80.5	52.5	20.3	1.6	90
Wealth quintile																		
Lowest	43.5	28.5	39.3	27.9	20.4	48.0	35.0	20.7	19.3	40.1	26.7	16.9	38.7	19.8	15.4	8.1	43.6	342
Second	59.7	47.5	54.4	41.4	31.2	61.2	42.5	30.4	31.6	48.9	36.1	27.9	49.9	28.6	24.7	14.7	31.8	348
Middle	71.9	62.0	66.2	57.1	45.6	70.3	59.6	46.9	40.1	57.1	46.9	35.8	55.8	39.5	39.2	22.4	21.0	353
Fourth	78.4	62.3	71.6	59.3	48.5	74.9	60.4	49.5	45.3	64.1	51.8	40.7	64.1	43.9	42.9	24.3	16.9	366
Highest	92.0	85.9	86.6	74.1	61.6	89.5	76.7	62.3	58.1	80.3	65.1	54.6	83.9	67.4	53.0	30.9	6.2	355
Total	69.4	57.5	63.9	52.2	41.7	69.0	55.1	42.2	39.1	58.3	45.5	35.4	58.7	40.1	35.3	20.2	23.7	1,763

Note: Children are considered to have received the vaccine if it was either written on the child's vaccination card or reported by the mother. For children whose vaccination information is based on the mother's report, the date of vaccination is not collected. The proportions of vaccinations given during the first and second years of life are assumed to be the same as for children with a written record of vaccination. Total includes 27 cases with missing information on vaccination card seen.

BCG = Bacille Calmette-Guérin
DPT = Diphtheria-pertussis-tetanus
HepB = Hepatitis B
Hib = *Haemophilus influenzae* type b
IPV = Inactivated polio vaccine

[1] For children whose vaccination information is based on the mother's report, children reported to have received HepB (birth dose) received the vaccine within 24 hours after birth. For children whose vaccination information is based on the written record of vaccination, children are considered to have received hepatitis B (birth dose) if this vaccine is recorded on their card, regardless of when the dose was administered.
[2] BCG, three doses of DPT-HepB-Hib, three doses of oral polio vaccine, and one dose of measles and rubella vaccine
[3] BCG, hepatitis B (birth dose), three doses of DPT-HepB-Hib, three doses of oral polio vaccine, one dose of inactivated polio vaccine, three doses of pneumococcal vaccine, and two doses of measles and rubella vaccine

Basic vaccination coverage differs by residence, with urban children more likely to receive all basic vaccinations than rural children (49% versus 33%). A similar pattern is seen for all age-appropriate vaccinations (27% and 19%, respectively). Children in the Highlands region (28%) are less likely to receive all basic vaccinations than children in the Islands (47%) and Southern (46%) regions. Vaccination coverage improves with increasing mother's education and wealth.

3.10.2 Childhood Acute Respiratory Infection, Fever, and Diarrhoea

Acute respiratory infection (ARI), fever, and dehydration from diarrhoea are important contributing causes of childhood morbidity and mortality in developing countries (WHO 2003). Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. In the 2016-18 PNG DHS, for each child under age 5, mothers were asked if the child had experienced a cough accompanied by short, rapid breathing or difficulty in breathing as a result of a chest-related problem (symptoms of ARI); a fever; or an episode of diarrhoea in the 2 weeks preceding the survey. Respondents were also asked if treatment was sought when the child was ill. Overall, 3% of children under age 5 showed symptoms of ARI, 18% had a fever, and 14% experienced diarrhoea in the 2 weeks preceding the survey (data not shown). It should be noted that the morbidity data collected are subjective because they are based on a mother's perception of illnesses without validation by medical personnel.

Table 11 shows that treatment from a health facility or provider was sought for 63% of children with ARI symptoms and 50% of those with a fever. Treatment was sought from a health facility or health provider for 38% of children with diarrhoea. Thirty percent of children with diarrhoea received a rehydration solution from an oral rehydration salt (ORS) packet; 7% of children with diarrhoea were given zinc supplements, and 5% received both ORS and zinc supplements.

Table 11 Treatment for acute respiratory infection (ARI) symptoms, fever, and diarrhoea according to background characteristics

Among children under age 5 who had symptoms of acute respiratory infection (ARI) or had a fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, and among children under age 5 who had diarrhoea during the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, percentage given a fluid made from oral rehydration salt (ORS) packets, percentage given zinc, and percentage given ORS and zinc, according to background characteristics, PNG DHS 2016-18

	Children with symptoms of ARI[1]		Children with fever		Children with diarrhoea				
Background characteristic	Percentage for whom advice or treatment was sought[2]	Number of children	Percentage for whom advice or treatment was sought[2]	Number of children	Percentage for whom advice or treatment was sought[2]	Percentage given fluid from ORS packet	Percentage given zinc	Percentage given ORS and zinc	Number of children
Age in months									
<6	(67.9)	27	49.2	129	25.0	11.4	5.8	2.9	70
6-11	(71.2)	49	53.0	246	32.3	26.4	7.0	4.7	199
12-23	54.7	69	52.5	414	38.3	30.9	8.9	7.2	391
24-35	63.1	43	44.0	385	43.7	35.7	9.7	5.5	288
36-47	59.5	46	48.1	270	39.1	28.3	3.5	2.6	194
48-59	(70.4)	25	51.5	256	41.5	31.9	5.1	3.1	173
Sex									
Male	67.8	122	51.8	859	38.6	31.3	7.4	5.1	664
Female	58.8	138	47.3	842	38.2	28.6	7.3	4.9	650
Residence									
Urban	85.7	27	66.7	207	51.5	42.3	9.9	7.5	214
Rural	60.3	232	47.2	1,494	35.8	27.6	6.8	4.5	1,100
Region									
Southern	63.0	54	65.2	316	54.4	39.1	11.8	6.4	233
Highlands	60.4	96	40.6	565	28.4	24.2	7.2	5.9	580
Momase	(69.0)	75	47.1	556	39.2	30.3	3.7	1.8	368
Islands	57.0	34	54.9	264	51.6	38.4	10.1	7.7	134
Mother's education									
No education	39.8	68	33.6	387	34.6	23.0	6.2	3.3	326
Elementary	*	20	42.5	72	33.0	28.1	7.6	6.5	81
Primary	70.1	119	53.3	808	42.4	32.4	6.8	4.4	589
Secondary	83.6	41	58.0	377	38.4	33.7	9.4	7.3	267
Higher	*	11	58.3	56	24.9	30.2	9.5	8.8	53
Wealth quintile									
Lowest	(47.7)	48	31.4	370	35.7	23.5	7.2	2.7	272
Second	(70.3)	53	44.4	344	33.0	28.5	3.7	2.9	251
Middle	49.0	65	47.8	346	32.4	20.5	7.8	5.2	233
Fourth	76.7	45	62.0	342	41.3	34.4	5.1	3.8	266
Highest	76.0	48	65.6	300	47.7	40.8	12.3	10.0	292
Total	63.0	260	49.5	1,701	38.4	30.0	7.3	5.0	1,315

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Symptoms of ARI include a cough accompanied by short, rapid breathing that is chest-related and/or difficult breathing that is chest-related.
[2] Excludes advice or treatment from a traditional practitioner

3.10.3 Infant and Young Child Feeding Practices

Breastfeeding is sufficient and beneficial for infant nutrition in the first 6 months of life. Breastfeeding immediately after birth also helps the uterus contract, hence reducing the mother's postpartum blood loss. Giving any other foods and water (in addition to breast milk) before the child is age 6 months is discouraged because it may inhibit breastfeeding and expose the infant to illness. Infants older than age 6 months need other food and drink while they continue to breastfeed until age 2 or older; breast milk remains an important source of energy, protein, and other nutrients such as vitamin A and iron. The food given should include a variety of options such as peeled, cooked, and mashed vegetables; grains; fruit; some oil; and also meat, eggs, chicken, and dairy products to provide adequate nourishment (Pan American Health Organization 2002).

The 2016-18 PNG DHS collected data on infant and young child feeding (IYCF) practices for all children born in the 2 years preceding the survey. Table 12 shows breastfeeding practices by child's age. As recommended that children under age 6 months be exclusively breastfed; the results showed that 62% of infants in this age group are exclusively breastfed. In addition to breast milk, 5% of these young children consume plain water, 2% consume non-milk liquids, 1% consume other milk, and 24% consume complementary foods. Eight percent of infants under age 6 months are fed using a bottle with a nipple, a practice that is discouraged because of the risk of illness to the child. Sixty-eight percent of children age 6-8 months receive timely complementary foods.

Table 12 Breastfeeding status according to age

Percent distribution of youngest children under age 2 who are living with their mother by breastfeeding status and percentage currently breastfeeding, and percentage of all children under age 2 using a bottle with a nipple, according to age in months, PNG DHS 2016-18

| Age in months | Breastfeeding status | | | | | | | Percentage currently breast-feeding | Number of youngest children under age 2 living with their mother | Percentage using a bottle with a nipple | Number of all children under age 2 |
	Not breast-feeding	Exclusively breast-feeding	Breast-feeding and consuming plain water only	Breast-feeding and consuming non-milk liquids[1]	Breast-feeding and consuming other milk	Breast-feeding and consuming comple-mentary foods	Total				
0-1	7.4	81.6	1.5	1.7	1.5	6.3	100.0	92.6	327	5.5	333
2-3	3.8	68.6	5.0	1.9	0.9	19.8	100.0	96.2	294	9.0	299
4-5	7.6	33.0	8.4	2.0	1.6	47.5	100.0	92.4	282	10.2	287
6-8	12.1	13.7	3.9	1.9	0.3	68.2	100.0	87.9	515	13.8	540
9-11	8.6	3.6	0.9	1.1	0.9	84.8	100.0	91.4	434	12.8	455
12-17	14.8	2.8	1.0	0.6	0.0	80.8	100.0	85.2	872	12.2	919
18-23	29.3	2.1	0.5	1.2	0.0	67.0	100.0	70.7	728	11.2	845
0-3	5.7	75.5	3.2	1.8	1.2	12.7	100.0	94.3	621	7.2	632
0-5	6.3	62.2	4.8	1.9	1.3	23.6	100.0	93.7	903	8.1	919
6-9	10.6	11.4	3.3	1.6	0.7	72.4	100.0	89.4	656	14.1	689
12-15	13.8	2.6	0.5	0.9	0.0	82.2	100.0	86.2	601	12.8	623
12-23	21.4	2.5	0.8	0.9	0.0	74.5	100.0	78.6	1,600	11.7	1,763
20-23	28.8	2.2	0.7	1.2	0.0	67.1	100.0	71.2	437	7.9	530

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfeeding, breastfeeding and consuming plain water, non-milk liquids, other milk, and complementary foods (solids and semisolids) are hierarchical and mutually exclusive, and their percentages add to 100%. Thus, children who receive breast milk and non-milk liquids and who do not receive other milk and who do not receive complementary foods are classified in the non-milk liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.
[1] Non-milk liquids include juice, juice drinks, or other liquids.

The minimum acceptable diet indicator is used to assess the proportion of children age 6-23 months who meet minimum standards with respect to IYCF practices. Specifically, children age 6-23 months who have a minimum acceptable diet meet all three IYCF criteria below:

- Breastfeeding, or not breastfeeding and receiving two or more feedings of commercial infant formula; fresh, tinned, or powdered animal milk; or yogurt.

- Fed with foods from five or more of the following groups: (a) breast milk; (b) grains, roots, and tubers, including porridge and fortified baby food from grains; (c) legumes and nuts; (d) dairy products (milk, yogurt, cheese); (e) eggs; (f) meat, poultry, fish, and shellfish (and organ meats); (g) vitamin A-rich fruits and vegetables (and red palm oil); and (h) other fruits and vegetables.

- Fed the minimum recommended number of times per day, according to their age and breastfeeding status:

  – For breastfed children, minimum meal frequency is receiving solid, semisolid, or soft food at least twice a day (for infants age 6-8 months) or at least three times a day (for children age 9-23 months).

  – For nonbreastfed children age 6-23 months, minimum meal frequency is receiving solid, semisolid, or soft food or milk feeds at least four times a day. At least one of the feeds must be a solid, semisolid, or soft food.

Figure 3 shows the percentage of children being fed the minimum acceptable diet, by age. Among children age 6-23 months, only 17% are fed in accordance with the criteria for a minimum acceptable diet.

Figure 3 Minimum acceptable diet by age, in months

Percent
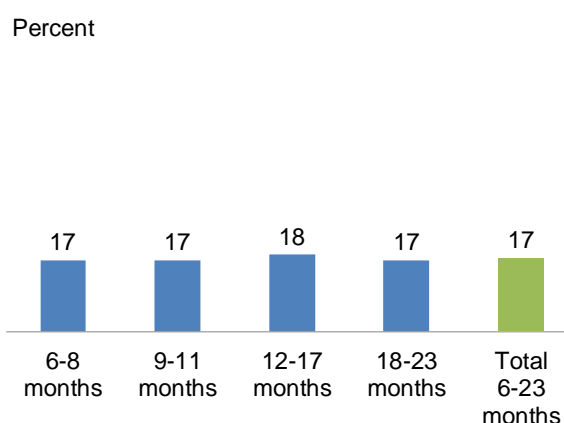
3.11 OWNERSHIP AND USE OF MOSQUITO NETS

3.11.1 Ownership of Mosquito Nets

The use of insecticide-treated mosquito nets (ITNs) is a primary health intervention designed to reduce malaria transmission in Papua New Guinea. An ITN is defined as a factory-treated net that does not require any further treatment. In previous DHS surveys, the definition of an ITN included nets that had been soaked with insecticides within the past 12 months.[2] In the most recent questionnaires, The DHS Program dropped questions on retreatment of nets. This was done because mosquito nets that require annual retreatment and the products used for retreatment are no longer distributed, and the distinction between ITNs and long-lasting insecticide-treated nets (LLINs) is no longer meaningful. What are defined as ITNs in the 2016-18 PNG DHS were previously known as LLINs.

All households in the 2016-18 PNG DHS were asked if they owned mosquito nets and, if so, what type and how many. Table 13 presents the percentage of households with at least one ITN, the average number of nets per household, and the percentage of households with at least one ITN for each two persons who stayed in the household the previous night, by background characteristics. Sixty-nine percent of households have at least one ITN. On average, there are about two ITNs per household.

Table 13 Household possession of insecticide-treated nets according to background characteristics

Percentage of households with at least one insecticide-treated net (ITN), average number of ITNs per household, and percentage of households with at least one ITN per two persons who stayed in the household last night, according to background characteristics, PNG DHS 2016-18

Background characteristic	Percentage of households with at least one ITN[1]	Average number of ITNs[1] per household	Number of households	Percentage of households with at least one ITN[1] for every two persons who stayed in the household last night[2]	Number of households with at least one person who stayed in the household last night
Residence					
Urban	71.7	2.2	1,521	42.5	1,517
Rural	68.3	1.9	14,500	45.6	14,416
Region					
Southern	84.4	2.6	2,681	55.3	2,670
Highlands	48.4	1.1	6,916	29.4	6,879
Momase	84.3	2.6	4,075	59.4	4,040
Islands	83.2	2.3	2,349	56.1	2,344
Wealth quintile					
Lowest	50.3	1.2	3,421	31.1	3,402
Second	65.9	1.8	3,362	43.9	3,351
Middle	76.8	2.1	3,282	53.2	3,273
Fourth	82.8	2.5	3,129	56.3	3,124
Highest	68.8	2.1	2,826	42.7	2,783
Total	68.6	1.9	16,021	45.3	15,933

[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment.
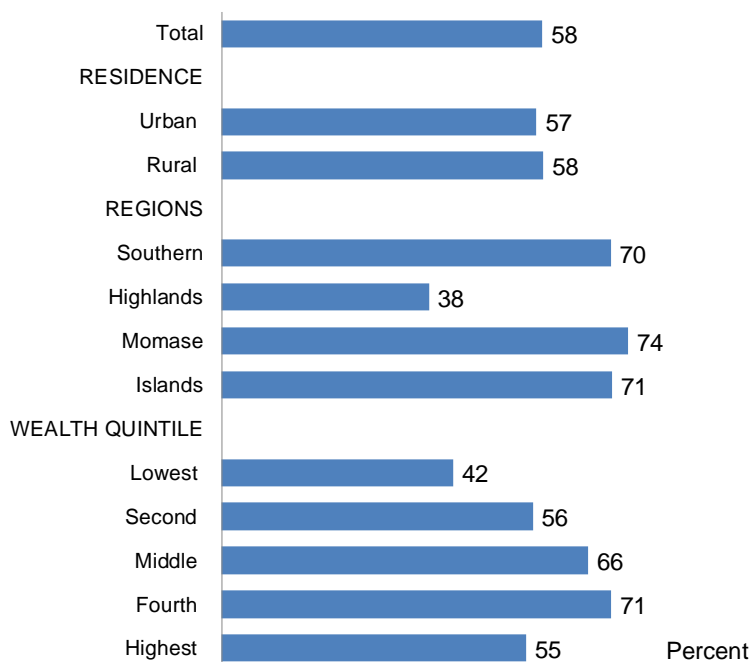[2] De facto household members

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[2] Although the 2016-18 PNG DHS included a question on nets being soaked with insecticides within the past 12 months, these nets are not considered ITNs.

Similar proportions of rural and urban households own at least one ITN (68% and 72%, respectively). Households in the Highlands region less often reported having an ITN than other households, and they have only one ITN per household on average. Households in the lowest wealth quintile less often reported having an ITN than those in the other quintiles.

Forty-five percent of the households in Papua New Guinea have at least one ITN for every two persons who stayed in the household the night before the survey. The percentage of households with at least one ITN for every two persons who stayed in the household the night before the survey is slightly higher in rural areas (46%) than in urban areas (43%). Households in the Momase region are more likely than those in other regions to have at least one ITN for every two persons who stayed in the household the night before the survey.

***Figure 4* Percentage of the de facto population with access to an insecticide-treated net (ITN) in the household**

Category	Percent
Total	58
RESIDENCE	
Urban	57
Rural	58
REGIONS	
Southern	70
Highlands	38
Momase	74
Islands	71
WEALTH QUINTILE	
Lowest	42
Second	56
Middle	66
Fourth	71
Highest	55

Note: Percentage of de facto household population who could sleep under an ITN if each ITN in the household were used by up to two people

Figure 4 shows the percentage of the de facto population with access to an ITN. Overall, 58% of the household population has access to an ITN, which means that all de facto household members could sleep under an ITN if each ITN in the household were used by up to two people. There is only minimal variation by residence in access to an ITN. The proportion of the household population with access to an ITN ranges from a low of 38% in the Highlands region to a high of 74% in the Momase region. De facto household members in the lowest wealth quintile are least likely to have access to an ITN.

3.11.2 Use of ITNs by Children and Pregnant Women

Community-level protection against malaria helps reduce the spread of the disease and offers an additional layer of protection against malaria for those who are most vulnerable: children under age 5 and pregnant women. This section describes use of mosquito nets among children and pregnant women.

Table 14 shows that 52% of children under age 5 slept under an ITN the night before the survey. Seventy-one percent of children in the Momase region slept under an ITN, as compared with only 32% of those in the Highlands region. Among households with at least one ITN, almost three quarters of children (72%) slept under an ITN the night before the survey.

Table 14 Use of insecticide-treated nets by children and pregnant women according to background characteristics

Percentage of children under age 5 who, the night before the survey, slept under an insecticide-treated net (ITN); among children under age 5 in households with at least one ITN, percentage who slept under an ITN the night before the survey; percentage of pregnant women age 15-49 who, the night before the survey, slept under an ITN; and among pregnant women age 15-49 in households with at least one ITN, percentage who slept under an ITN the night before the survey, according to background characteristics, PNG DHS 2016-18

Background characteristic	Children under age 5 in all households		Children under age 5 in households with at least one ITN[1]		Pregnant women age 15-49 in all households		Pregnant women age 15-49 in households with at least one ITN[1]	
	Percentage who slept under an ITN[1] last night	Number of children	Percentage who slept under an ITN[1] last night	Number of children	Percentage who slept under an ITN[1] last night	Number of pregnant women	Percentage who slept under an ITN[1] last night	Number of pregnant women
Residence								
Urban	54.0	1,177	72.2	881	55.9	83	78.2	59
Rural	51.4	9,902	71.4	7,128	48.2	656	71.5	443
Region								
Southern	59.3	2,223	69.0	1,912	61.5	139	69.7	122
Highlands	32.2	4,172	64.0	2,098	23.6	306	56.2	128
Momase	71.2	3,033	82.5	2,616	79.8	170	91.1	149
Islands	54.8	1,651	65.4	1,384	55.9	124	68.0	102
Wealth quintile								
Lowest	40.5	2,358	74.8	1,278	33.7	182	76.5	80
Second	51.2	2,276	71.5	1,631	52.9	165	76.2	115
Middle	62.3	2,250	77.3	1,813	57.4	126	72.2	100
Fourth	63.6	2,196	74.8	1,865	61.0	151	73.6	125
Highest	40.3	1,999	56.6	1,422	43.3	115	60.7	82
Total	51.7	11,079	71.5	8,009	49.1	739	72.3	502

Note: Table is based on children and pregnant women who stayed in the household the night before the interview.
[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment.

Table 14 also shows that 49% of pregnant women slept under an ITN the night before the survey. Among households with at least one ITN, 72% of pregnant women slept under an ITN the night before the survey. Pregnant women in households in the Momase region with at least one ITN are more likely to sleep under an ITN than those in the Highlands region (91% and 56%, respectively).

3.11.3 Intermittent Preventive Treatment of Malaria in Pregnancy

In areas of high malaria transmission, by the time an individual reaches adulthood, she or he has acquired immunity that protects against severe disease. However, pregnant women—especially those pregnant for the first time—frequently regain their susceptibility to malaria. Although malaria in pregnant women may not manifest itself as either febrile illness or severe disease, it is frequently the cause of mild to severe anaemia. In addition, malaria during pregnancy can interfere with the maternal-foetal exchange that occurs at the placenta, leading to delivery of low birth weight infants.

In the 2016-18 PNG DHS, women who had a live birth in the 5 years preceding the survey were asked if they took any sulfadoxine-pyrimethamine (SP)/Fansidar during the pregnancy leading to their most recent birth and, if so, how many times they took SP/Fansidar. Women were also asked where they obtained SP/Fansidar.

Table 15 shows that 50% of women with a live birth in the 2 years preceding the survey reported taking one or more doses of SP/Fansidar; 36% reported taking two or more doses, and 24% reported taking three or more doses. Women in urban areas are more likely to take SP/Fansidar during pregnancy than those in rural areas. The proportion of women taking SP/Fansidar during pregnancy increases with increasing wealth.

Table 15 Use of intermittent preventive treatment (IPTp) by women during pregnancy according to background characteristics

Percentage of women age 15-49 with a live birth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth, received one or more doses of SP/Fansidar, received two or more doses of SP/Fansidar, and received three or more doses of SP/Fansidar, according to background characteristics, PNG DHS 2016-18

Background characteristic	Percentage who received one or more doses of SP/Fansidar	Percentage who received two or more doses of SP/Fansidar	Percentage who received three or more doses of SP/Fansidar	Number of women with a live birth in the 2 years preceding the survey
Residence				
Urban	63.6	41.8	27.3	409
Rural	48.5	35.0	23.0	3,233
Region				
Southern	55.7	40.2	24.5	727
Highlands	44.3	27.2	16.5	1,382
Momase	45.1	35.2	26.1	990
Islands	66.8	52.6	34.9	543
Wealth quintile				
Lowest	30.1	18.1	13.5	740
Second	40.9	30.8	19.5	728
Middle	50.1	37.7	24.6	772
Fourth	60.7	43.7	27.7	736
Highest	71.2	49.7	32.9	666
Total	50.2	35.7	23.5	3,642

3.11.4 Prevalence, Diagnosis, and Prompt Treatment of Fever among Children

In moderately to highly endemic areas of malaria, acute clinical disease is almost always confined to young children who suffer high parasite densities. If untreated, this condition can progress very rapidly to severe malaria, which can lead to death. The diagnosis of malaria is based on clinical criteria and supplemented by the detection of parasites in the blood (parasitological or confirmatory diagnosis). Fever is a major manifestation of malaria in young children, although it also accompanies other illnesses. In Papua New Guinea, artemisinin-based combination therapy (ACT) is the recommended first-line treatment for uncomplicated malaria.

In the 2016-18 PNG DHS, for each child under age 5, mothers were asked if the child had experienced an episode of fever in the 2 weeks preceding the survey and, if so, whether treatment and advice were sought. Table 16 shows the percentage of children under age 5 who had a fever in the 2 weeks preceding the survey. Also shown, among children with a fever, are the percentage for whom advice or treatment was sought, the percentage who had a drop of blood taken from a finger or heel prick (presumably for a malaria test), and, among those who took any antimalarial drug, the percentage who took any ACT.

Table 16 Prevalence, diagnosis, and prompt treatment of children with fever according to background characteristics

Percentage of children under age 5 with a fever in the 2 weeks preceding the survey; among children under age 5 with fever, percentage for whom advice or treatment was sought and percentage who had blood taken from a finger or heel; and among children under age 5 with fever who took any antimalarial drug, percentage who took any artemisinin-based combination therapy (ACT), according to background characteristics, PNG DHS 2016-18

Background characteristic	Children under age 5		Children under age 5 with fever			Children under age 5 with fever who took any antimalarial drug	
	Percentage with fever in the 2 weeks preceding the survey	Number of children	Percentage for whom advice or treatment was sought[1]	Percentage who had blood taken from a finger or heel for testing	Number of children	Percentage who took any ACT	Number of children
Residence							
Urban	21.1	984	64.1	41.3	207	67.3	52
Rural	17.8	8,387	45.5	22.3	1,494	72.4	311
Region							
Southern	17.1	1,850	61.4	32.0	316	63.8	73
Highlands	15.9	3,564	39.5	8.4	565	63.6	74
Momase	21.6	2,578	45.6	31.4	556	78.6	156
Islands	19.2	1,378	53.4	36.1	264	73.3	60
Wealth quintile							
Lowest	18.7	1,977	31.1	10.3	370	(74.5)	62
Second	17.9	1,918	42.0	19.8	344	78.2	83
Middle	17.9	1,931	44.8	24.9	346	73.9	57
Fourth	18.4	1,861	61.2	30.7	342	62.8	80
Highest	17.8	1,683	62.9	40.5	300	70.2	81
Total	18.2	9,371	47.7	24.6	1,701	71.7	363

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Excludes advice or treatment from a traditional practitioner and others

Eighteen percent of children under age 5 had a fever during the 2 weeks preceding the survey. Advice or treatment was sought for 48% of children with a fever, and 25% had blood taken from a finger or heel for testing. Advice or treatment for fever is more likely to be sought for children in urban areas than children in rural areas (64% and 46%, respectively). Seventy-two percent of children with a fever who took any antimalarial drug took ACT.

3.12   HIV/AIDS AWARENESS, KNOWLEDGE, AND BEHAVIOUR

3.12.1 Knowledge of HIV Prevention

The 2016-18 PNG DHS included a series of questions asked of both women and men that addressed respondents' knowledge of HIV prevention, awareness of modes of HIV transmission, and behaviours that can prevent the spread of HIV.

Eighty-two percent of women and 90% of men have heard of AIDS (data not shown). Table 17 shows that 52% of women and 58% of men age 15-49 know that consistent use of condoms is a means of preventing the spread of HIV. Sixty-nine percent of women and 74% of men know that limiting sexual intercourse to one faithful, uninfected partner can reduce the chance of contracting HIV. Finally, 48% of women and 52% of men know that both using condoms and limiting sexual intercourse to one uninfected partner are means of preventing HIV.

Table 17 Knowledge of HIV prevention methods according to background characteristics

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting HIV by using condoms every time they have sexual intercourse and by having one sex partner who is not infected and has no other partners, according to background characteristics, PNG DHS 2016-18

	Percentage of women who say HIV can be prevented by:				Percentage of men who say HIV can be prevented by:			
Background characteristic	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of women	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of men
Age								
15-24	54.7	66.9	50.0	5,704	60.3	72.1	53.2	2,715
15-19	51.7	61.6	46.6	2,945	54.8	65.3	46.5	1,469
20-24	57.9	72.6	53.7	2,759	66.8	80.1	61.0	1,246
25-29	52.1	69.3	47.5	2,543	61.0	74.2	51.3	1,171
30-39	50.3	70.8	46.6	4,239	54.5	74.6	49.9	2,024
40-49	50.2	68.2	45.6	2,712	57.2	77.0	51.7	1,423
Residence								
Urban	67.4	82.4	61.3	2,018	69.6	88.3	64.5	976
Rural	49.9	66.5	45.8	13,180	56.5	71.9	49.7	6,357
Region								
Southern	53.3	65.2	48.8	2,899	61.1	72.0	55.9	1,490
Highlands	50.4	69.6	45.3	6,213	53.5	70.7	45.4	2,871
Momase	49.5	66.5	46.1	3,919	59.8	78.5	54.8	1,999
Islands	61.0	74.5	57.2	2,167	64.5	78.1	57.5	973
Education								
No education	33.7	49.4	29.3	3,488	44.7	53.0	35.6	941
Elementary	43.7	57.5	36.8	676	46.0	62.0	39.6	253
Primary	52.8	68.4	48.3	6,969	56.7	73.2	50.6	3,593
Secondary	66.6	86.2	62.6	3,460	65.8	83.7	58.7	2,156
Higher	79.7	93.8	77.4	605	71.6	88.4	69.0	389
Wealth quintile								
Lowest	33.5	49.1	29.4	2,783	43.9	56.7	37.1	1,366
Second	44.4	60.0	40.7	2,831	55.6	69.7	48.3	1,384
Middle	52.1	68.5	47.8	2,897	59.1	76.7	52.7	1,528
Fourth	60.6	75.9	55.6	3,118	61.2	79.3	54.0	1,399
Highest	65.9	84.6	61.2	3,569	69.0	85.3	63.7	1,656
Total	52.2	68.7	47.9	15,198	58.2	74.1	51.7	7,333

[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

Women and men in urban areas are more likely to be knowledgeable about HIV prevention methods than their counterparts in rural areas. Better-educated respondents and those in the highest wealth quintile are considerably more knowledgeable of HIV prevention methods than other respondents.

3.12.2 Comprehensive Knowledge about HIV Prevention among Young People

Table 18 presents information about comprehensive knowledge of HIV prevention among young people age 15-24. Comprehensive knowledge of HIV prevention is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission: that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV. Knowledge of how HIV is transmitted is crucial in enabling people to avoid HIV infection.

Table 18 Knowledge about HIV prevention among young people

Percentage of young women and young men age 15-24 with comprehensive knowledge about HIV prevention, according to background characteristics, PNG DHS 2016-18

Background characteristic	Women age 15-24		Men age 15-24	
	Percentage with knowledge about HIV prevention[1]	Number of women	Percentage with knowledge about HIV prevention[1]	Number of men
Age				
15-19	21.3	2,945	21.4	1,469
15-17	18.3	1,714	19.2	855
18-19	25.6	1,231	24.4	614
20-24	27.7	2,759	31.9	1,246
20-22	28.9	1,694	29.4	778
23-24	26.0	1,065	36.0	468
Marital status				
Never married	25.9	3,511	25.4	2,373
Ever had sex	33.1	741	33.6	943
Never had sex	23.9	2,770	20.0	1,430
Ever married	22.1	2,194	31.8	342
Residence				
Urban	34.9	819	38.1	409
Rural	22.7	4,885	24.1	2,306
Region				
Southern	22.8	1,145	27.9	555
Highlands	22.9	2,312	24.1	1,071
Momase	28.4	1,426	28.5	733
Islands	24.1	822	25.4	356
Education				
No education	9.0	740	13.0	191
Elementary	15.2	203	8.1	67
Primary	17.3	2,964	18.0	1,492
Secondary	41.1	1,609	41.1	896
Higher	64.5	189	64.4	69
Total 15-24	24.4	5,704	26.2	2,715

[1] Comprehensive knowledge about HIV prevention means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV (that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV)

Table 18 shows that 24% of young women and 26% of young men have comprehensive knowledge of HIV prevention. Never-married young women who have ever had sex are more likely to be knowledgeable about HIV prevention than young women who are married. This pattern is not as prominent among young men. Among both sexes, the proportion with knowledge generally increases with age and educational attainment. Urban young people are more likely than rural young people to have knowledge of HIV prevention.

3.12.3 Multiple Sexual Partners

Limiting the number of sexual partners and practicing protected sex are crucial in the fight against the spread of sexually transmitted infections, including HIV. Respondents to the 2016-18 PNG DHS were asked detailed questions about their sexual behaviour, including the number of partners they had in the 12 months preceding the survey and condom use during their most recent sexual encounter.

Table 19.1 shows that only 1% of women reported having multiple sexual partners in the 12 months preceding the survey and 5% reported having sexual intercourse with a person who was neither their husband nor lived with them. Fourteen percent of never-married women and 10% of divorced, separated, or widowed women had sexual intercourse with a person who was neither their husband nor lived with them. Among women who had multiple sexual partners in the 12 months preceding the survey, 7% used a condom during their last sexual intercourse. Similarly, 17% of women who had sexual intercourse with a person who was neither their husband nor lived with them used a condom during their last sexual intercourse. Women in Papua New Guinea have had an average of 1.7 sexual partners in their lifetime.

Table 19.1 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months by background characteristics: Women

Among all women age 15-49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months and percentage who had intercourse in the past 12 months with a person who was neither their husband nor lived with them; among women having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among women who had sexual intercourse in the past 12 months with a person who was neither their husband nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among women who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, PNG DHS 2016-18

Background characteristic	All women			Women who had 2+ partners in the past 12 months		Women who had intercourse in the past 12 months with a person who was neither their husband nor lived with them		Women who ever had sexual intercourse[1]	
	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their husband nor lived with them	Number of women	Percentage who reported using a condom during last sexual intercourse	Number of women	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of women	Mean number of sexual partners in lifetime	Number of women
Age									
15-24	1.5	9.5	5,704	10.2	84	17.6	543	1.6	2,877
15-19	1.4	7.5	2,945	(8.3)	41	13.2	222	1.5	735
20-24	1.6	11.6	2,759	(12.0)	43	20.6	321	1.6	2,141
25-29	1.9	4.0	2,543	(6.5)	48	16.0	101	1.7	2,341
30-39	1.4	2.5	4,239	(4.5)	61	15.8	104	1.8	4,030
40-49	0.4	1.5	2,712	*	12	(18.3)	41	1.9	2,582
Marital status									
Never married	1.4	14.0	3,968	17.4	54	18.4	557	1.8	976
Married/living together	1.3	1.2	10,052	1.6	126	14.0	118	1.7	9,716
Divorced/separated/widowed	2.1	9.7	1,179	(12.8)	25	14.4	115	2.1	1,139
Residence									
Urban	1.9	7.7	2,018	6.5	37	17.0	155	1.7	1,485
Rural	1.3	4.8	13,180	7.3	168	17.2	634	1.7	10,345
Region									
Southern	0.9	7.3	2,899	(13.8)	25	16.6	212	1.9	2,256
Highlands	2.0	4.2	6,213	6.8	123	13.8	264	1.9	4,804
Momase	0.7	4.9	3,919	*	29	19.3	191	1.4	3,117
Islands	1.3	5.7	2,167	4.4	28	22.1	122	1.8	1,653
Education									
No education	1.0	2.3	3,488	*	34	11.0	80	1.5	3,058
Elementary	0.6	3.4	676	*	4	*	23	1.9	545
Primary	1.0	5.1	6,969	5.9	71	10.6	358	1.8	5,178
Secondary	2.6	8.4	3,460	6.8	89	27.1	290	1.8	2,542
Higher	1.1	6.4	605	*	6	20.5	39	1.8	507
Wealth quintile									
Lowest	0.7	3.8	2,783	*	19	7.3	105	1.5	2,248
Second	0.7	3.5	2,831	*	19	8.3	99	1.8	2,242
Middle	1.5	4.4	2,897	(14.5)	44	18.9	128	1.8	2,276
Fourth	1.6	6.2	3,118	(7.0)	50	18.8	194	1.8	2,388
Highest	2.0	7.4	3,569	3.1	73	22.4	264	1.8	2,677
Total	1.3	5.2	15,198	7.1	205	17.2	790	1.7	11,830

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

Table 19.2 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months by background characteristics: Men

Among all men age 15-49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months and percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them; among men having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among men who had sexual intercourse in the past 12 months with a person who was neither their wife nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among men who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, PNG DHS 2016-18

Background characteristic	All men			Men who had 2+ partners in the past 12 months		Men who had intercourse in the past 12 months with a person who was neither their wife nor lived with them		Men who ever had sexual intercourse[1]	
	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them	Number of men	Percentage who reported using a condom during last sexual inter-course	Number of men	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of men	Mean number of sexual partners in lifetime	Number of men
Age									
15-24	6.9	24.7	2,715	24.0	188	30.1	670	4.0	1,250
15-19	3.8	17.7	1,469	26.8	56	30.5	261	2.6	373
20-24	10.6	32.8	1,246	22.8	132	29.8	409	4.6	877
25-29	13.0	24.3	1,171	8.6	152	35.2	284	5.4	986
30-39	7.5	10.2	2,024	9.6	152	34.9	207	6.5	1,791
40-49	6.2	6.2	1,423	17.5	88	36.2	89	5.8	1,285
Marital status									
Never married	6.9	29.5	3,114	24.0	216	30.0	917	4.2	1,402
Married/living together	7.9	5.4	3,947	8.2	312	40.3	212	5.8	3,655
Divorced/separated/widowed	19.2	44.1	272	(21.2)	52	37.7	120	9.1	254
Type of union									
In polygynous union	47.0	9.7	303	7.1	142	(45.0)	29	7.4	283
Not in polygynous union	4.7	5.0	3,645	9.0	170	39.5	183	5.7	3,373
Not currently in union	7.9	30.6	3,386	23.4	268	30.9	1,037	4.9	1,656
Residence									
Urban	11.1	26.1	976	21.1	108	32.5	255	6.7	716
Rural	7.4	15.6	6,357	13.9	472	32.5	995	5.3	4,595
Region									
Southern	5.7	19.7	1,490	26.4	84	31.4	293	5.5	1,133
Highlands	11.2	16.6	2,871	15.1	322	32.3	476	7.1	1,958
Momase	6.7	16.9	1,999	9.3	133	35.5	337	3.5	1,538
Islands	4.2	14.7	973	12.9	41	28.4	143	5.6	683
Education									
No education	4.9	8.5	941	(21.1)	46	23.2	80	4.1	702
Elementary	6.7	20.6	253	*	17	(26.4)	52	6.3	199
Primary	5.3	12.6	3,593	14.6	192	29.1	452	5.1	2,389
Secondary	12.1	26.7	2,156	16.6	262	37.0	576	6.1	1,685
Higher	16.3	23.1	389	7.8	64	32.6	90	8.0	337
Wealth quintile									
Lowest	6.6	10.4	1,366	(10.7)	89	19.7	142	4.6	924
Second	6.1	13.7	1,384	26.0	85	32.8	189	4.8	1,002
Middle	5.1	14.0	1,528	11.5	78	33.7	214	5.5	1,076
Fourth	6.8	19.3	1,399	11.3	96	33.6	270	5.7	1,028
Highest	14.0	26.2	1,656	15.9	233	35.3	434	6.6	1,281
Total	7.9	17.0	7,333	15.2	580	32.5	1,249	5.5	5,312

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

Table 19.2 shows that 8% of men age 15-49 reported having had two or more sexual partners during the 12 months prior to the survey, while 17% reported that they had sexual intercourse with a person who was neither their wife nor lived with them. Among men who had two or more sexual partners in the 12 months prior to the survey, 15% reported using a condom during their last sexual intercourse. Thirty-three percent of men who had sexual intercourse with a person who was neither their wife nor lived with them used a condom during their last such sexual intercourse. Men in Papua New Guinea have had an average of 5.5 sexual partners in their lifetime.

3.13 DOMESTIC VIOLENCE

Gender-based violence against women has been acknowledged worldwide as a violation of basic human rights. It is a pervasive and worldwide problem in almost all societies. It permeates all social, cultural, economic, and ethnic groups. Violence can take many forms, including physical, sexual, emotional, economic, and psychological abuse. It can impact the health and well-being of women. In 2013, Papua New Guinea's parliament passed the Family Protection Act, outlining penalties for domestic abusers in its effort to address violence against women (National Parliament 2013). However, the enforcement of this act has not been as effective as desired. Reliable data are needed to further inform and educate the population about the issues and to help policymakers properly execute the provision in the constitution.

The 2016-18 PNG DHS included a series of questions for women to collect information on both domestic violence (also known as spousal violence or intimate partner violence) and violence committed by other family members and unrelated individuals. In accordance with the World Health Organization (WHO) guidelines on the ethical collection of information on domestic violence, only one eligible woman per household was randomly selected for the domestic violence module, and the module was not implemented if privacy could not be obtained (WHO 2001).

Table 20 shows that 31% of women age 15-49 have ever experienced physical violence, while 3% have experienced sexual violence. A quarter of women age 15-49 have experienced both physical and sexual violence. Overall, 59% of women age 15-49 have experienced either physical or sexual violence. The proportion of women who have experienced physical or sexual violence increases from 43% among those age 15-19 to 65% among those age 30-39 before declining to 62% among those age 40-49.

Table 20 Experience of different forms of violence

Percentage of women age 15-49 who have ever experienced different forms of violence, by current age, PNG DHS 2016-18

Age	Physical violence only	Sexual violence only	Physical and sexual violence	Physical or sexual violence	Number of women
15-19	28.0	3.4	11.4	42.8	881
15-17	28.6	2.6	7.1	38.3	534
18-19	27.0	4.6	18.0	49.6	346
20-24	34.4	4.2	20.1	58.6	939
25-29	29.2	3.0	31.3	63.4	783
30-39	28.9	2.5	33.5	64.9	1,379
40-49	33.4	3.7	24.5	61.6	891
Total	30.7	3.3	24.9	58.9	4,873

Women who reported any form of physical and/or sexual violence were asked if they sought help and, if so, to specify the source from which they sought help. A detailed account of help-seeking behaviours will be presented in the final report. A majority of women tend to seek assistance from their own family members (Table 21). For instance, 72% of women who experienced either physical or sexual violence sought help from family members. The practice of seeking help from a social work organisation, lawyers, or medical personnel is not common. However, 10% of women who experienced either physical or sexual violence sought help from the police.

Table 21 Sources for help to stop the violence

Percentage of women age 15-49 who have experienced physical or sexual violence and sought help by sources from which they sought help, according to the type of violence that women reported, PNG DHS 2016-18

| | Type of violence experienced | | | |
Source	Physical only	Sexual only	Both physical and sexual	Physical or sexual violence
Own family	73.6	*	69.3	71.7
Husband/partner's family	10.4	*	16.6	13.4
Husband/partner	0.1	*	1.0	0.6
Boyfriend	0.0	*	1.0	0.5
Friend	8.4	*	12.5	10.7
Neighbour	7.7	*	14.2	11.0
Religious leader	7.1	*	11.6	9.3
Doctor/medical personnel	4.7	*	2.2	3.3
Police	5.0	*	14.9	10.1
Lawyer	0.1	*	0.4	0.3
Social work organisation	3.0	*	2.5	2.7
Other	3.6	*	5.6	4.7
Number of women who have sought help	442	29	519	990

Note: Women can report more than one source from which they sought help. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

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