Table 1. sociodemographic characteristics of the study participants by survey year, MICS 2001-2018

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **2001**  **(N=1913)** | **2010**  **(N=2697)** | **2018**  **(N=4691)** | **p-value** |
| **Age, n (%)** |  |  |  | <0.001 |
| 15-19 | 276 (14.34) | 344 (11.96) | 503 (12.15) |  |
| 20-24 | 470 (24.45) | 822 (28.59) | 918 (22.19) |  |
| 25-29 | 506 (26.31) | 746 (25.96) | 950 (22.97) |  |
| 30-34 | 329 (17.09) | 495 (17.24) | 933 (22.56) |  |
| 35-39 | 233 (12.12) | 293 (10.21) | 592 (14.31) |  |
| 40-44 | 89 (4.61) | 134 (4.65) | 210 (5.07) |  |
| 45-49 | 21 (1.09) | 40 (1.39) | 31 (0.74) |  |
| **Education level, n (%)** |  |  |  | <0.001 |
| Below primary | 470 (24.44) | 686 (23.88) | 715 (17.29) |  |
| Primary | 837 (43.49) | 1,278 (44.47) | 1447 (34.99) |  |
| Secondary and higher | 617 (32.07) | 910 (31.65) | 1974 (47.73) |  |
| **Marital status, n (%)** |  |  |  | 0.2145 |
| Married or living with a man | 1,702 (88.45) | 2,515 (87.53) | 3,565 (86.18) |  |
| Single | 222 (11.55) | 359 (12.47) | 572 (13.82) |  |
| **Place of residence, n (%)** |  |  |  | 0.013 |
| Rural | 1,270 (66.03) | 2,164 (75.28) | 2,591 (62.63) |  |
| Urban | 654 (33.97) | 710 (24.72) | 1,546 (37.37) |  |
| **Ever had children dead, n (%)** | 789 (40.99) | 1055 (36.70) | 754 (18.23) |  |
| **Total live births, median (range)** | 3 (1-15) | 3 (1-14) | 3 (1-15) | <0.001 |
| **Province, n (%)** |  |  |  | <0.001 |
| Bandundu | 240(12.55) | 244(9.05) | 447(9.53) |  |
| Bas Congo | 123(6.43) | 178(6.60) | 155(3.30) |  |
| Equateur | 176(9.20) | 271(10.05) | 918(19.57) |  |
| Kasai Occidental | 182 (9.51) | 235(8.71) | 447(9.53) |  |
| Kasai Oriental | 215 (11.23) | 258(9.57) | 645(13.75) |  |
| Katanga | 171(8.94) | 322(11.94) | 771(16.44) |  |
| Kinshasa | 313(16.36) | 199(7.38) | 137(2.92) |  |
| Kivu | 314(16.41) | 788(29.22) | 552(11.77) |  |
| Orientale | 179(9.36) | 202(7.49) | 619(13.20) |  |
| **Household header’s sex, n (%)** |  |  |  | <0.001 |
| Male | 1,752(91.58) | 2,363(87.62) | 3,600(76.74) |  |
| Female | 161(8.42) | 334(12.38) | 1,091(23.26) |  |
| **Household header’s education level, n (%)** |  |  |  | 0.101 |
| Below primary | 220(11.50) | 309(11.46) | 605(12.90) |  |
| Primary | 575(30.06) | 796(29.51) | 1,297(27.65) |  |
| Secondary and higher | 1,118(58.44) | 1,592(59.03) | 2,789(59.45) |  |

Figure 1. Prevalence of at least once skilled antenatal care visit and skilled attendance at delivery by year and place of residence, DRC MICS 2001-2018



Table 2. Demographic, socio-economic factors associated with women’s skilled antenatal care visits and skilled attendance at delivery.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **At least once skilled antenatal care visit** | | | | **Skilled attendance at delivery** | | | |
|  | **Urban** | | **Rural** | | **Urban** | | **Rural** | |
|  | **OR** | **p-value** | **OR** | **p-value** | **OR** | **p-value** | **OR** | **p-value** |
| **At least once skilled antenatal care visit** |  |  |  |  | **8.36** | **0.000** | **10.62** | **0.000** |
| **Year** |  |  |  |  |  |  |  |  |
| 2001 | Ref. |  | **Ref.** |  | Ref. |  | **Ref.** |  |
| 2010 | 0.35 | 0.010 | 0.48 | 0.000 | 2.24 | 0.005 | 1.70 | 0.000 |
| 2018 | 0.31 | 0.010 | 0.30 | 0.000 | 4.47 | 0.000 | 4.60 | 0.000 |
| **Age group** |  |  |  |  |  |  |  |  |
| 15-19 | Ref. |  | Ref. |  | Ref. |  | Ref. |  |
| 20-24 | 0.74 | 0.288 | 0.96 | 0.786 | 0.98 | 0.962 | 1.17 | 0.364 |
| 25-29 | 0.75 | 0.420 | 0.90 | 0.548 | 0.71 | 0.425 | 1.16 | 0.465 |
| 30-34 | 1.58 | 0.349 | 1.03 | 0879 | 0.67 | 0.368 | 1.03 | 0.844 |
| 35-39 | 1.65 | 0.327 | 0.93 | 0.726 | 0.40 | 0.106 | 1.07 | 0.720 |
| 40-44 | 2.27 | 0.286 | 0.82 | 0.479 | 0.22 | 0.016 | 1.05 | 0.845 |
| 45-49 | 1.74 | 0.618 | 0.53 | 0.121 | 1.14 | 0.898 | 1.58 | 0.237 |
| **Education level** |  |  |  |  |  |  |  |  |
| Below primary | Ref. |  | Ref. |  | Ref. |  | Ref. |  |
| Primary | 2.28 | 0.004 | 1.27 | 0.056 | 1.41 | 0.324 | 1.31 | 0.002 |
| Secondary and higher | 3.35 | 0.000 | 1.73 | 0.002 | 1.69 | 0.169 | 1.58 | 0.001 |
| **Marital status** |  |  |  |  |  |  |  |  |
| Currently unmarried | Ref. |  | Ref. |  | Ref. |  | Ref. |  |
| Married or living with a man | 1.05 | 0.884 | 1.26 | 0.098 | 0.86 | 0.672 | 0.75 | 0.036 |
| **Ever had children born alive but later died** | 0.84 | 0.541 | 0.94 | 0.557 | 0.69 | 0.155 | 0.75 | 0.001 |
| **Total live births** | 0.88 | 0.041 | 1.00 | 0.967 | 1.13 | 0.074 | 1.00 | 0.835 |
| **Wealth group** |  |  |  |  |  |  |  |  |
| **Poorest group** | Ref. |  | Ref. |  | Ref. |  | Ref. |  |
| **Poorer group** | 1.38 | 0.394 | 1.16 | 0.183 | 0.85 | 0.665 | 1.08 | 0.490 |
| **Middle group** | 2.66 | 0.010 | 1.38 | 0.025 | 3.72 | 0.000 | 1.51 | 0.003 |
| **Wealthier group** | 2.35 | 0.012 | 1.95 | 0.000 | 5.21 | 0.000 | 2.69 | 0.000 |
| **Wealthiest group** | 3.71 | 0.002 | 2.44 | 0.000 | 15.46 | 0.000 | 12.51 | 0.000 |

Main findings:

1. (1) The prevalence of at least once skilled antenatal care visits has declined since 2001. A significant disparity was seen between urban and rural since 2010.

1. (2) The prevalence of skilled attendance at delivery has increased since 2001. The difference between urban and rural has been reduced since 2010.

2. In table 2, we find at least once skilled antenatal care visits are significantly associated with later skilled attendance at delivery, with a very large OR. Therefore, improving antenatal care visits in the DRC will not only help to promote the health in the prenatal period, but also improve women’s behaviour when they gave their birth.

3. Education and wealth were found significantly associated with these two behaviours.

(1) There is a difference in education’s effect between rural and urban. For ANC, the effect of education is magnified in urban. The situation is converse in the delivery care.

(2) Wealth’s effect on ANC and delivery care are consistently magnified in urban. There is also a threshold. From the middle group, women in wealthier group show better behaviour than in lower group. It means the maternal health behaviour of the lowest two groups in the DRC are roughly the same. They are both in a disadvantageous situation regarding their maternal health seeking behaviour. Thus, these two group of women should be paid more attention in the future intervention.

4. It is odd, but we found women who have ever had children who was born alive but later died in rural was less likely to have skilled attendance at later deliveries. Adverse life events regarding birth history may play a role in these women’s delivery behaviour. We need more literature to explain this phenomenon. It at least shows that this women with adverse birth history in rural should be highly concentrated on.