



Reproductive, Maternal and Neonatal Health in eight Provinces - Endline Survey Report

Benjamin Lamberet, Ian Ramage
Angkor Research and Consulting Ltd.

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Acronyms and abbreviations

- ACFID:	Australian Council For International Development
- ANC:	Antenatal Care
- ASFR:	Age-Specific Fertility Rate
- Avg.:	Average or mean value
- BCC:	Behaviour Change Communication
- BEmONC:	Basic Emergency, Obstetric and Newborn Care
- CAPI:	Computer Assisted Personal Interviewing
- CBD:	Community Based Distributors
- CBO:	Community Based Organization
- CC:	Commune Council
- CCWC:	Commune Committee for Women and Children
- CDHS:	Cambodia Demographic and Health Survey
- CDPO:	Cambodian Disabled People's Organisation
- CEEmONC:	Comprehensive Emergency, Obstetric and Newborn Care
- CHP:	Community Health Promotion
- DFAT:	Department of Foreign Affairs and Trade (Australian Government)
- DID:	Difference-in-difference (analysis)
- EM:	Ethnic Minority
- EPI-Walk:	Expanded Program for Immunization Random Walk method
- FGD:	Focus Group Discussion
- FP:	Family Planning
- FTIRM:	Fast Track Initiative Road Map to Reduce Maternal and Newborn Mortality
- HC:	Health Centre
- HH:	Household
- HIS:	Health Information System
- IDI:	In-Depth-Interview
- ISAF:	Implementation of Social Accountability Framework
- IUD:	Intra-Uterine Device
- KHR:	Khmer Riel
- LAM:	Lactational Amenorrhea Method
- LAPM:	Long Acting or Permanent Method
- LBW:	Low Birth Weight
- Marie Stopes:	Marie Stopes International Cambodia
- MCAT:	Midwifery Coordination Alliance Team
- MCH:	Maternal and Child Health
- MCM:	Modern Contraceptive Method
- MERI:	Monitoring, Evaluation, Reporting and Improvement
- MoH:	Ministry of Health
- NECHR:	National Ethics Committee for Health Research
- NGO:	Non-Governmental Organisation
- NIPH:	National Institute of Public Health
- NS:	Non significant (p-value for relevant statistical test > 0.1)
- OD:	Operational District
- PAC:	Priority Access Card
- PAPI:	Paper and Pencil Interviewing

- PCA: Principal Component Analysis
- PLGHA: Protecting Life in Global Health Assistance
- PNC: Postnatal Care
- pp: Percentage point
- PPS: Probability-Proportional-to-Size
- PSL: Partnering to Save Lives
- QC: Quality Control
- RMNH: Reproductive, Maternal and Neonatal Health
- SBA: Skilled Birth Attendant
- SCI: Save the Children International
- SD: Standard Deviation
- TBA: Traditional Birth Attendant
- ToR: Terms of Reference
- UNFPA: United Nations Population Fund
- USD: US Dollar (USD 1 = KHR 4,000)
- VHSG: Village Health Support Group
- VSC: Voluntary Surgical Contraception
- VSLA: Village Savings and Loans Association
- WB: World Bank
- WG: Washington Group (Short Set of Questions on Disability)
- WRA: Woman of Reproductive Age (15-49 years old)

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Executive Summary

Partnering to Save Lives (PSL) is a partnership between the Ministry of Health (MoH), CARE, Marie Stopes International Cambodia (Marie Stopes), Save the Children International¹ and the Australian Government's Department of Foreign Affairs and Trade (DFAT). Since its start in August 2013, PSL has supported all seven components of the MoH's 2016-2020 Fast Track Initiative Road Map to Reduce Maternal and Newborn Mortality (FTIRM): emergency obstetric and newborn care, skilled birth attendance, newborn care, family planning, safe abortion (through training and quality improvement), behaviour change communication, and removing financial barriers.

The program implemented holistic reproductive, maternal and neonatal health (RMNH) initiatives in the underserved north-eastern provinces of Kratie, Mondul Kiri, Ratanak Kiri and Stung Treng, and supported long-term family planning services and training on safe abortion in an additional 18 provinces across the country, with women of reproductive age (WRA) (15-49 years old) and newborn babies up to 28 days old as the program's primary targets. All activities were implemented with the ultimate goal to save the lives of women and neonates in Cambodia, through improved quality, access and utilisation of RMNH services, through a partnership approach.

Progress towards these outcomes has been regularly monitored using PSL's monitoring, evaluation, reporting and improvement (MERI) framework, which covers all indicators and their definitions, target areas and planned annual targets.

Objectives

As PSL approached the end of its five-year project cycle, the partnership contracted Angkor Research in November 2017 to conduct the endline survey, with the objective to assess the program's level of progress and achievements. More specifically, the endline survey aims to:

- Review the MERI indicators across the baseline, midline and endline survey rounds;
- Determine the level of progress and achievement of the project at outcome level, with a focus on outcomes 1, 2,3, and 4; and
- Identify possible reasons or factors for any observed change.

Methodology

The endline survey focused on eight target provinces classified into two programming "components": component 1 including the four north-eastern provinces, in which most of the PSL activities are implemented (meeting with Midwifery Coordination Alliance Team, coaching, financial barriers, behaviour change communication, etc.), and component 2, including four "comparison" provinces, where only a limited number of PSL activities occurred (long term family planning, safe abortion practices and/or activities to overcome financial barriers).

A multi-stage, mixed-methods approach was deemed the most appropriate to fulfil the study objectives, and involved a quantitative household survey, a quantitative WRA survey, as well as a set of qualitative

¹ Save the Children International (SCI) is subject to Protecting Life in Global Health Assistance (PLGHA) and has not engaged in activities that are not compliant with PLGHA.

interviews and discussions: In-Depth-Interviews (IDI) with Village Health Support Group volunteers, with Maternal and Child Health (MCH) supervisors at the Operational District (OD) and with medical staff at the health centre for the Basic Emergency, Obstetric and Neonatal Care (BEmONC) assessments, Focus Group Discussions (FGDs) and case studies. Data collection was conducted in the same eight provinces, ten ODs and 120 villages (60 villages in each project component) across the three survey rounds (Table 1). This sample is representative of the whole population of WRA in the PSL target areas, and the sample structure ensures rigor and comparability across the three surveys rounds.

**Table 1: Number of interviews conducted across the three survey rounds
(C1: component 1; C2: component 2)**

Data collection method	Baseline			Midline			Endline		
	C1	C2	Total	C1	C2	Total	C1	C2	Total
Quantitative									
- Household	1,155	1,102	2,257	1,320	1,320	2,640	1,326	1,332	2,658
- WRA	1,412	1,350	2,762	1,663	1,587	3,250	1,613	1,636	3,249
Qualitative									
- IDI BEmONC assessment	8	-	8	9	-	9	8	-	8
- IDI VHSG	-	-	-	-	-	-	12	-	12
- IDI MCH	5	4	9	5	4	9	6	5	10
- FGD	-	-	-	-	-	-	11	6	17
- Case study	-	-	-	-	-	-	4	6	10

Descriptive analysis and cross-tabulations were conducted for all metrics using a set of statistical (t-test for mean values, chi-square test for frequencies) that particularly highlighted the statistically significant results. The impact of the PSL project activities along the five years of implementation was assessed through difference-in-difference (DID) analysis, only for indicators with comparable data across the three survey rounds and for which there was no PSL intervention in the comparison provinces. Quotes from IDIs and FGDs were used to reinforce the findings and enrich the results and recommendations.

Results

All MERI indicators results are displayed in Table 2, in the **Error! Reference source not found.**, immediately after this executive summary. Households across the three survey rounds, had an average size of 5.0 members, 1.3 of them being eligible female members of reproductive age (15-49 years old). 15.7% of all households were considered poor for this evaluation (categories 1 and 2, or "poor" and "poorest", as per the Cambodia Demographic and Health Survey (CDHS) Principal Component Analysis (PCA) definition) and 14.0% of the households reportedly belonged to ethnic minorities.

Surveyed women were on average 30 years old and most of them completed lower secondary education. The great majority of women were of Buddhist religion and more than three quarters were married at the time of the survey. Women's disability status was assessed through the Washington Group Short Set of Disability Questions, and revealed a significant decrease in the rates of disabled women (DISABLE1, with any form of impairment) across the three survey rounds, from 44.0% at baseline to 13.5% at endline. This decrease is likely due to changes in the survey methodology, including some changes to the text of questions in this section (changes that came directly from the Washington Group), as well as how the questions may have been asked.

Family Planning

Almost all of the surveyed WRAs across the three survey rounds (more than 95%), were aware of at least one type of contraception. Knowledge of modern contraceptive methods (MCM) was also high, with more than 95.0% of women aware of at least one type of MCM. Forty percent (40.3%) of the women surveyed at endline reported using any type of contraceptive, including traditional methods, with the daily pill remaining the most popular method across the three survey rounds. Modern contraceptives were mostly obtained from the health centre (more than 40% across the three surveys).

The percentage of WRAs using any type of MCM remained steady across the whole study duration, reaching 28.6% at endline. This indicator improved significantly among WRAs with disability and WRAs from ethnic minorities, reaching a rate of more than one in three women in both groups (respectively 34.7% and 35.2%). Among these MCM users, slightly more than 20% used Long Acting or Permanent Methods (LAPMs) (Indicator O2.2), with no significant difference from one survey round to another.

The assessment of the satisfied demand for MCM at endline revealed that more than one in five sexually active women had unmet contraceptive needs (20.9% did not want a child, but were not using any contraception methods). More than half of the sexually active women were found to have their needs for MCM met (51.5%), in line with the CDHS 2014 findings (56.4%).

Pregnancy, antenatal care (ANC) and delivery

At each round of survey, more than three quarters of the WRAs reported at least one pregnancy experience, with an average of 3.6 pregnancies and 2.8 live births. Around 7% - 8% of the surveyed women, depending on the survey round, reported being pregnant at the time of the interview. Slightly less than one third of all women at each survey round reported at least one live birth in the 24 months preceding the survey.

- Adolescent Birth Rate: This ratio was estimated to be 98.8 per 1,000 at endline (data were not collected in previous surveys), higher than the national CDHS 2014 value of 57 per 1,000 (or 66 per 1,000 when considering rural areas only). This might be due to the higher Age-Specific Fertility Rates (ASFR) observed in North-East provinces for the 15 to 19 years old age category, and is consistent with the CDHS fertility values for these provinces.
- ANC: The percentages of women receiving at least two antenatal care consultations with a skilled birth attendant (SBA) increased significantly in both component 1 and 2 areas for the duration of the PSL project. A significant DID of +13.5pp (percentage points) from the baseline to the endline was calculated for the ANC2 indicator, meaning that the PSL intervention likely accelerated the increase in the percentage of WRA seeking antenatal care with SBA for their last live birth (at least two visits). This significant finding was also found to be valid among women from poor households and women with disability. On the other hand, the DID calculated for women receiving at least four antenatal care consultations with a SBA were not statistically significant (+4.0pp at endline).
- Delivery: Across the three survey rounds, an increase in the number of deliveries in health centres was observed, from 44% to more than 50% at endline. The frequency of home deliveries also decreased significantly, from around 30% at baseline to around 10% during the final survey round. This trend was confirmed by the increase in WRAs giving birth in any health facility with a SBA, from 55.2% to 78.6%. A significant DID of +21.9pp was also calculated at endline, highlighting the positive change in PSL intervention areas for this indicator. The DID was also statistically significant among WRAs with disability, at midline only.
- Newborn care: At endline, around 80% of the WRAs who had a live birth in the two years before the survey reported that for their last live delivery, the birth attendant placed their baby on their

bare chest immediately after birth; around 85% mentioned that their baby was wiped or dried immediately after birth, and around 67% mentioned that their baby's bath had been delayed for at least six hours. Nearly half (49%) of the women reported all three types of neonatal care, which was significantly higher than the 43% at baseline, but also significantly lower than the midline rate of 59%. About 6% of newborns were low birth weight, with no significant difference across the survey rounds.

- Postnatal care (PNC): Although a small increase in the PNC1 rate was observed in component 1 provinces, the same trend was observed in component 2 and thus there was no significant intervention effect for this indicator. The PNC2 indicator was not measured at baseline, but was estimated at 19.3% at midline, and at more than 65% at endline. There was no significant change from baseline to endline in WRA receiving counselling on MCM during any of their PNC visits, with around one in four women who received PNC at both baseline and endline receiving counselling on modern family planning methods (26.0% and 26.5%, respectively).
- Abortion and post-abortion care: Only around 3% of surveyed women reported any induced abortion event in the two years before each survey round. Most abortions occurred by the second month of pregnancy (on average 1.8 to 1.4 months at baseline and endline, respectively). Although manual vacuum aspiration was the most common method at baseline, oral and vaginal pills became the preferred modes of abortion in the two follow-up rounds. Around one third of the WRAs who reported an induced abortion sought post-abortion care. Around half of all women knew where to receive a safe abortion. However, abortions at home (mostly using pills) and in the private sector were the most common locations. A significant difference could be calculated between each round of survey on the percentage of women who were aware of the legal status of abortion. Knowledge of the legality of abortion was significantly higher at the endline than the baseline and midline (14.6%, compared to 11.7% and 11.3% respectively). The same statistically significant trend was observed among WRAs with disability, while this rate went significantly down among poor WRAs and WRAs from ethnic minorities. Knowledge of safe abortion service location improved significantly from 50.4% at baseline to 58.8% at midline, before dropping back to 49.4% at the final round of survey. Percentages increased significantly among women from poor households and women from ethnic minorities from baseline to endline. But on the contrary, significantly fewer women with disability knew about safe abortion services location at endline compared to baseline.

Satisfaction with RMNH services, financial and referral mechanisms

- Satisfaction with RMNH services: There was an overall decrease in women that were “highly satisfied” with RMNH services from the baseline to the endline. The DID analysis also showed a significant negative effect (-10.2pp). However, a similar analysis run for women who mentioned that they were either highly satisfied or satisfied, showed that there was no statistical change from baseline to endline (non significant DID of +1.9pp), with the percentage of highly satisfied and satisfied WRAs at more than 95% over the project implementation period.
- Financial support: The percentage of WRAs who benefitted from financial support mechanisms for RMNH services reached around 10% at endline; significantly higher than the 7.5% at baseline. But, note that PSL financial support schemes were stopped after the program’s mid-term review.
- Community referral: Although there was a decrease in the overall numbers of women accessing RMNH services through a community referral mechanism (from 7.0% at baseline to 3.8% at endline), there was a significant positive impact of PSL in component 1 provinces, as identified through the DID analysis (+2.6pp). This suggests that the PSL project may have helped strengthen the referral system, as a significantly higher number of WRA had access to community referral

mechanisms for RMNH services in component 1 provinces. However, family and relatives remain the most frequently mentioned referral sources. Significant and positive impacts were also observed among WRAs from poor households, and WRAs with disability.

- Out-of-pocket expenditures: At endline, WRA reported total expenditures of USD 15, higher than the baseline survey round (USD 11.3). Expenses on ANC, delivery and PNC steeply increased at endline, thus confirming the previous findings about increases in ANC and PNC visits, and deliveries occurring in health facilities.

RMNH knowledge and self-efficacy

- Knowledge of danger signs - pregnancy: There was an overall decrease in the number of WRAs that identified three danger signs during pregnancy, from 20.9% at baseline to 12.6% at endline. However, a significant project effect was found for the percentage of WRA who could identify at least three pregnancy danger signs in component 1 (+8.5pp). This implies that the PSL intervention may have resulted in limiting the drop in knowledge of danger signs among WRAs. The same significant impact was also observed among adolescents and poor women.
- Knowledge of danger signs - neonatal distress: A similar trend was seen in the knowledge of neonatal danger signs, where there was an overall decrease in knowledge among WRA, from 11.3% of WRA at baseline able to identify at least three of the danger signs for neonatal distress, to 7.3% of WRA at endline. However, there was a significant impact identified of the PSL intervention in component 1 (+5.5pp). Once again, the finding was also valid among adolescents and women with disabilities.
- Self-efficacy: Only 14.4% of the women surveyed at endline felt empowered with modern family planning, and were completely sure that they could discuss the issue with their husband and take decisions on their own, even without their husband's approval. This was significantly lower than the baseline (25.3%) The same significant decreases were observed among adolescent WRAs, poor WRAs, WRAs from ethnic minorities and WRAs with disability.

Basic emergency obstetric and newborn care assessments

The research team conducted eight Basic Emergency Obstetric and Newborn Care (BEmONC) assessments in the same medical facilities that were identified during the previous survey rounds; six health centres and two referral hospitals² in component 1 provinces. After asking a set of six questions for each of the seven signal functions, a score was computed out of a total of 35 points. The average score at the endline was 33; considerably higher than the midline (31) and baseline (28), showing progressive improvement throughout the project period. Six out of the eight facilities improved their overall scores from the previous survey rounds. At endline, two facilities reached the maximum score of 35/35 and were considered fully functioning BEmONC facilities: Koh Nhek Health Centre and Snoul Referral Hospital. This is an improvement over both the baseline (no facilities) and midline (one facility).

Qualitative findings

Outcomes from all qualitative interviews suggested that midwives acquired increased skills and knowledge thanks to the trainings promoted through the PSL project. In particular, midwives were more confident and capable of performing all BEmONC procedures, including newborn resuscitation. These improvements were

² Originally seven health centres and one referral hospital. Snoul Health Centre was upgraded to a referral hospital between the midline and endline surveys.

perceived to offer a safer and more comfortable delivery environment to pregnant women, and to help decrease mortality rates among mothers and newborns.

The PSL project intervention was also perceived among qualitative respondents as helping to improve public sector health staff behaviour, in terms of politeness, ethics and morale. This was then considered a major influence on people accessing RMNH services in the public health sector. Vulnerable groups such as ethnic minorities and people with disabilities particularly benefitted from this better behaviour, and respondents reported a decrease in discrimination against them. This is somewhat in contrast to the DID analysis, which showed a negative impact of PSL on high satisfaction with RMNH services.

Behaviour change communication (BCC) activities were considered very useful in raising awareness among the general population on all RMNH services, but especially on family planning, ANC, and PNC. The effect was particularly obvious among people from ethnic minorities, whose RMNH knowledge and RMNH-related practices significantly improved. A higher level of awareness was also noted among youth and men, with their decision-making process shifting towards safer RMNH practices.

Conclusion

The projects' most notable positive achievements are as follows:

- 1- Practice and behaviour-related: Increased percentage of women giving birth with SBA in health facilities; and increased percentage of women receiving at least two antenatal consultations with SBA.
- 2- Knowledge-related: Positive project impacts on the awareness of danger signs for both pregnancy and neonatal distress; and increased percentage of women who know that abortion is legal in Cambodia.
- 3- Service-related: Positive and significant intervention effect on the percentage of women accessing RMNH services through any community referral mechanism; and improvements in BEmONC facilities and procedures.
- 4- Equity-related: This study demonstrated that many women in target areas, including adolescents, poor women, women with disabilities, and women from ethnic minorities, are benefitting from an improved set of RMNH services and are less subjected to discrimination since the PSL intervention started. However, quantitative data show that efforts are still needed to consistently address the RMNH needs of the most vulnerable (see Table 2).

Of concern were the findings that self-efficacy for women in negotiating and using family planning appears to have reduced across the project intervention period, across all provinces (Components 1 and 2) and all vulnerable groups. Findings for self-efficacy related to refusal of sex showed mixed results depending on scenario. However, qualitative data contrasts with many women reporting greater empowerment in decision-making and support of their partner. Nevertheless, these findings warrant further validation and examination as they may indicate that the manner of implementation has inadvertently served to create an environment of less confidence for women or may signal a broader social phenomenon. Other indicators including knowledge of danger signs for mothers and newborns, and reported referral through community-based mechanisms, also appear to have reduced over time across all intervention and comparison provinces suggestive of other important factors at work influencing community level.

The quantitative and qualitative results of this evaluation indicate that PSL has contributed towards achieving some of the project target outcomes, in particular: 1) improved quality RMNH services for target

populations; 2) greater equity of access to appropriate RMNH services for target populations; and, 4) improved RMNH behaviours among target populations. These outcomes also contribute in the ultimate goal of reducing mortality among mothers and newborns, as part of the MoH FTIRM.

Recommendations

Even though the PSL project is reaching the end of its implementation phase, a few general recommendations have been made so that PSL partners and other stakeholders in the RMNH sector can build on its progress.

Regular or continuous capacity building opportunities for health staff (especially midwives) were unanimously identified as the main short-term recommendation by the endline survey respondents. Peer-to-peer opportunities, such as MCAT meetings, were very well perceived. Providing more training for the community representatives, such as VHSG volunteers, would also help reinforce the referral mechanisms.

Community engagement and BCC promotional activities should be pursued, but could be better targeted; it is recommended that future projects define specific information channels and messages for various groups (e.g., adolescents may not have the same media preferences/access as poor people or people from ethnic minorities). These BCC activities can also target new topics, as ANC and deliveries seem to have already successfully been tackled. For example, sensitisation could focus on PNC and abortion, for which the indicators still lag behind other RMNH services.

Additional budget, equipment and drugs supplies, infrastructures and human resources are still needed in public health facilities, and would definitely contribute to building a safer and more comfortable health environment for RMNH patients.

Other major initiatives tackling RMNH issues are also worth being mentioned as possibilities to sustain, maintain, or at least in complement to PSL achievements, such as, for example: the Social Accountability Framework Implementation Plan (I-SAF) initiative, expected to generally contribute to the effort for better service delivery in public health facilities; the National Quality Enhancement Monitoring (NQEM) system proposed by the Ministry of Health, expected to sustain regular service quality assessment in health facilities, and to provide regular training and coaching for health staff; the Service Delivery Grants being introduced under the Cambodia Health Equity and Quality Improvement Project (H-EQIP), which should allow some of the PSL activities to be directly supported by provincial health departments, operational districts or facilities' budgets.

Summary table

As mentioned earlier, the impact of the PSL project activities was assessed through DID analysis, only for indicators with comparable data across the three survey rounds and for which there was no PSL intervention in the comparison provinces. For all indicators, a basic trend analysis was run, comparing their values across the three survey rounds through chi-square test. Table 2 below provides the DID result, when applicable, and the chi-square significance level for the trend analysis.

A significant chi-square test means that the percentages observed for the concerned indicator are statistically and significantly different across the different survey rounds. The results section of this report will only describe the DID outcomes for the relevant indicators, but the below table shows that although the trend for a given indicator might show a significant drop from baseline to endline, the DID might still be positive. This is particularly the case for the MERI indicators I2.1, I4.1 and I4.2. This is because the trend analysis only looks for potential significant differences between values at each round, whereas the DID analysis compares these values trends across the survey rounds and across the project components.

No statistical test was run for the BEmONC indicator (irrelevant given the low number of cases). The analysis did also not consider the midline values for some of the MERI indicators, as per PSL's request and because of its questionable reliability. Significantly positive DID results are highlighted in green, significantly negative DID results in red and non-significant DID results in light yellow.

Table 2: Master list of MERI indicators

MERI ref.	Description	Baseline	Midline	Endline	Chi-sq. ³	DID
MERI O1.3	% of functioning BEmONC facilities	0/8	1/8	2/8	–	–
MERI O1.3	Mean BEmONC facility score	28	31	33	–	–
MERI O1.4	% of WRAs delivering in a health facility with a skilled birth attendant (C1)					
	Overall ($n_{base}=379$; $n_{mid}=424$; $n_{end}=401$)	55.2%	70.3%	78.6%	***	+ 21.9pp***
	Adolescent WRAs ($n_{base}=41$; $n_{mid}=32$; $n_{end}=63$)	51.2%	65.6%	66.7%	*	+ 8.3pp (NS)
	WRAs from poor households ($n_{base}=658$; $n_{mid}=819$; $n_{end}=801$)	42.2%	48.7%	58.0%	*	+ 18.0pp (NS)

³ Chi-square is the test of statistical significance between the indicator values in each survey round. Chi-square tests were conducted for almost all targeted indicators (not for the BEmONC indicator), to characterize their trends over the project implementation period.

MERI ref.	Description	Baseline	Midline	Endline	Chi-sq. ³	DID
	WRAs from ethnic minorities ($n_{base}=147$; $n_{mid}=130$; $n_{end}=158$)	37.4%	53.1%	63.3%	***	NA ⁴
	WRAs with disability ($n_{base}=166$; $n_{mid}=55$; $n_{end}=50$)	56.6%	76.4%	70.0%	**	+ 12.8pp (NS)
MERI O2.1	% of WRAs using modern contraception (all provinces)					
	Overall ($n_{base}=2,762$; $n_{mid}=3,250$; $n_{end}=3,249$)	26.8%	31.3%	28.6%	***	–
	Adolescent WRAs ($n_{base}=416$; $n_{mid}=463$; $n_{end}=500$)	5.5%	6.3%	8.0%	NS	–
	WRAs from poor households ($n_{base}=726$; $n_{mid}=500$; $n_{end}=312$)	27.0%	33.6%	23.4%	***	–
	WRAs from ethnic minorities ($n_{base}=449$; $n_{mid}=473$; $n_{end}=736$)	33.6%	41.4%	35.2%	**	–
	WRAs with disability ($n_{base}=1,215$; $n_{mid}=597$; $n_{end}=438$)	28.2%	32.0%	34.7%	**	–
MERI O2.2	% of modern FP users using long acting or permanent methods (all provinces)					
	Overall ($n_{base}=739$; $n_{mid}=1,017$; $n_{end}=930$)	23.6%	24.2%	21.3%	NS	–
	WRAs from poor households ($n_{base}=196$; $n_{mid}=168$; $n_{end}=73$)	17.4%	14.9%	8.2%	NS	–
	WRAs from ethnic minorities ($n_{base}=151$; $n_{mid}=196$; $n_{end}=259$)	9.9%	7.1%	10.0%	NS	–
	WRAs with disability ($n_{base}=342$; $n_{mid}=191$; $n_{end}=152$)	24.6%	30.9%	15.8%	***	–
MERI O3.2	% of WRAs attending PNC who receive counselling in modern FP methods (C1)					
	Overall ($n_{base}=277$; $n_{mid}=300$; $n_{end}=313$)	26.0%	46.0%	26.5%	***	+ 3.1pp (NS)
	Adolescent WRAs ($n_{base}=29$; $n_{mid}=20$; $n_{end}=46$)	20.7%	65.0%	15.2%	***	- 4.2pp (NS)
	WRAs from poor households ($n_{base}=99$; $n_{mid}=55$; $n_{end}=55$)	26.3%	34.6%	20.0%	NS	+ 2.5pp (NS)
	WRAs from ethnic minorities ($n_{base}=94$; $n_{mid}=72$; $n_{end}=109$)	23.4%	51.4%	31.2%	***	NA ⁴
	WRAs with disability ($n_{base}=122$; $n_{mid}=43$; $n_{end}=36$)	25.4%	48.8%	38.9%	**	+ 22.9pp*
MERI O3.3	% of WRAs who report being highly satisfied with RMNH services provided (C1)					
	Overall ($n_{base}=448$; $n_{end}=617$)	44.4%	–	41.5%	NS ⁵	- 10.2pp**
	Adolescent WRAs ($n_{base}=44$; $n_{end}=71$)	43.2%	–	46.5%	NS ⁵	+ 10.8pp (NS)

⁴ No DID analysis for the ethnic minorities disaggregation level as no ethnic minorities were identified in Component 2 provinces at baseline and midline.

⁵ The chi-square test for this indicator was run between the baseline and endline rounds only, as per PSL's instructions, and because midline data was considered of questionable reliability.

MERI ref.	Description	Baseline	Midline	Endline	Chi-sq. ³	DID
	WRAs from poor households ($n_{base}=162$; $n_{end}=49$)	44.4%	–	44.1%	NS ⁵	- 12.7pp (NS)
	WRAs from ethnic minorities ($n_{base}=194$; $n_{end}=277$)	46.9%	–	51.3%	NS ⁵	NA ⁴
	WRAs with disability ($n_{base}=206$; $n_{end}=95$)	40.8%	–	37.9%	NS ⁵	- 1.9pp (NS)
MERI O4.1	% women attending 4 or more antenatal care visits (C1)					
	Overall ($n_{base}=379$; $n_{mid}=424$; $n_{end}=401$)	47.0%	55.4%	60.6%	***	+ 4.0pp (NS)
	Adolescent WRAs ($n_{base}=41$; $n_{mid}=32$; $n_{end}=63$)	43.9%	50.0%	55.6%	NS	- 24.1pp (NS)
	WRAs from poor households ($n_{base}=154$; $n_{mid}=113$; $n_{end}=81$)	29.9%	39.8%	38.3%	NS	+ 9.1pp (NS)
	WRAs from ethnic minorities ($n_{base}=147$; $n_{mid}=130$; $n_{end}=158$)	30.6%	46.9%	59.5%	***	NA ⁴
	WRAs with disability ($n_{base}=166$; $n_{mid}=55$; $n_{end}=50$)	46.4%	58.2%	70.0%	**	+ 13.6pp (NS)
MERI O4.1	% WRAs attending 2 or more antenatal care visits (C1)					
	Overall ($n_{base}=379$; $n_{mid}=424$; $n_{end}=401$)	73.4%	82.8%	89.5%	***	+ 13.5pp***
	Adolescent WRAs ($n_{base}=41$; $n_{mid}=32$; $n_{end}=63$)	68.3%	81.3%	90.5%	**	+ 15.0pp (NS)
	WRAs from poor households ($n_{base}=154$; $n_{mid}=113$; $n_{end}=81$)	52.8%	72.6%	79.0%	***	+ 26.4pp**
	WRAs from ethnic minorities ($n_{base}=147$; $n_{mid}=130$; $n_{end}=158$)	57.8%	69.2%	87.3%	***	NA ⁴
	WRAs with disability ($n_{base}=166$; $n_{mid}=55$; $n_{end}=50$)	71.1%	90.9%	88.0%	***	+ 14.1pp (NS)
MERI O4.2	% of women receiving PNC1 (C1)					
	Overall ($n_{base}=379$; $n_{mid}=424$; $n_{end}=401$)	43.3%	66.5%	71.6%	***	+23.2pp***
	Adolescent WRAs ($n_{base}=41$; $n_{mid}=32$; $n_{end}=63$)	41.5%	62.5%	65.1%	**	+ 34.3pp*
	WRAs from poor households ($n_{base}=154$; $n_{mid}=113$; $n_{end}=81$)	30.5%	46.0%	56.8%	***	+ 28.8pp**
	WRAs from ethnic minorities ($n_{base}=147$; $n_{mid}=130$; $n_{end}=158$)	31.3%	50.0%	59.5%	***	NA ⁴
	WRAs with disability ($n_{base}=166$; $n_{mid}=55$; $n_{end}=50$)	43.4%	72.7%	64.0%	***	+17.8pp (NS)
MERI O4.2	% of women receiving PNC2 (C1)					
	Overall ($n_{mid}=424$; $n_{end}=401$)	NA	6.8%	43.4%	*** ⁶	–

⁶ The chi-square test for the PNC2 indicator was run between the midline and endline rounds only, as the available data does not permit to calculate it at baseline.

MERI ref.	Description	Baseline	Midline	Endline	Chi-sq. ³	DID
	Adolescent WRAs ($n_{mid}=32$; $n_{end}=63$)	NA	6.3%	33.3%	*** ⁶	–
	WRAs from poor households ($n_{mid}=113$; $n_{end}=81$)	NA	5.3%	38.3%	*** ⁶	–
	WRAs from ethnic minorities ($n_{mid}=130$; $n_{end}=158$)	NA	4.6%	30.4%	*** ⁶	–
	WRAs with disability ($n_{mid}=55$; $n_{end}=50$)	NA	7.3%	32.0%	*** ⁶	–
MERI I2.1	% of WRAs referred through a community referral mechanism (C1)					
	Overall ($n_{base}=656$; $n_{end}=989$)	7.0%	–	3.8%	*** ⁵	+ 2.6pp*
	Adolescent WRAs ($n_{base}=50$; $n_{end}=85$)	8.0%	–	9.4%	NS ⁵	+ 10.9pp (NS)
	WRAs from poor households ($n_{base}=229$; $n_{end}=160$)	8.3%	–	6.3%	NS ⁵	+ 12.5pp*
	WRAs from ethnic minorities ($n_{base}=245$; $n_{end}=360$)	5.3%	–	8.3%	NS ⁵	NA ⁴
	WRAs with disability ($n_{base}=328$; $n_{end}=157$)	6.7%	–	3.8%	NS ⁵	+ 7.5pp*
MERI I3.1	% of WRAs using a financial support mechanism (all provinces)					
	Overall ($n_{base}=1,264$; $n_{end}=1,928$)	7.5%	–	9.8%	** ⁵	–
	Adolescent WRAs ($n_{base}=71$; $n_{end}=121$)	8.5%	–	14.9%	NS ⁵	–
	WRAs from poor households ($n_{base}=360$; $n_{end}=186$)	8.1%	–	19.9%	*** ⁵	–
	WRAs from ethnic minorities ($n_{base}=245$; $n_{end}=441$)	2.9%	–	9.3%	*** ⁵	–
	WRAs with disability ($n_{base}=566$; $n_{end}=257$)	6.7%	–	9.0%	NS ⁵	–
MERI I4.1	% of WRAs who can identify 3 danger signs during pregnancy (C1)					
	Overall ($n_{base}=1,415$; $n_{end}=1,613$)	20.9%	–	12.6%	*** ⁵	+ 8.5pp***
	Adolescent WRAs ($n_{base}=223$; $n_{end}=278$)	11.7%	–	7.9%	NS ⁵	+ 6.9pp*
	WRAs from poor households ($n_{base}=472$; $n_{end}=257$)	16.9%	–	11.7%	* ⁵	+ 20.5pp***
	WRAs from ethnic minorities ($n_{base}=449$; $n_{end}=593$)	15.6%	–	12.5%	NS ⁵	NA ⁴
	WRAs with disability ($n_{base}=697$; $n_{end}=258$)	26.5%	–	8.9%	*** ⁵	+ 6.1pp (NS)
MERI I4.2	% of WRAs who can identify 3 danger signs for neonatal distress (C1)					
	Overall ($n_{base}=1,415$; $n_{end}=1,613$)	11.3%	–	7.3%	*** ⁵	+ 5.5pp***
	Adolescent WRAs ($n_{base}=223$; $n_{end}=278$)	4.5%	–	4.3%	NS ⁵	+ 4.7pp*

MERI ref.	Description	Baseline	Midline	Endline	Chi-sq. ³	DID
	WRAs from poor households ($n_{base}=472$; $n_{end}=257$)	8.1%	—	4.3%	* ⁵	+ 3.5pp (NS)
	WRAs from ethnic minorities ($n_{base}=449$; $n_{end}=593$)	7.8%	—	4.6%	** ⁵	NA ⁴
	WRAs with disability ($n_{base}=697$; $n_{end}=258$)	13.3%	—	6.2%	*** ⁵	+ 6.9pp*
MERI I4.3	% of WRAs who feel empowered to discuss and use modern FP (all provinces)					
	Overall ($n_{base}=2,762$; $n_{end}=3,249$)	25.3%	—	14.4%	*** ⁵	—
	Adolescent WRAs ($n_{base}=416$; $n_{end}=500$)	15.1%	—	9.2%	*** ⁵	—
	WRAs from poor households ($n_{base}=726$; $n_{end}=312$)	21.5%	—	10.9%	*** ⁵	—
	WRAs from ethnic minorities ($n_{base}=449$; $n_{end}=736$)	21.6%	—	13.3%	*** ⁵	—
	WRAs with disability ($n_{base}=1,215$; $n_{end}=438$)	22.8%	—	13.0%	*** ⁵	—
MERI I4.4	% of WRAs who know that abortion is legal (all provinces)					
	Overall ($n_{base}=2,762$; $n_{mid}=3,250$; $n_{end}=3,249$)	11.7%	11.3%	14.6%	***	—
	Adolescent WRAs ($n_{base}=416$; $n_{mid}=463$; $n_{end}=500$)	13.0%	12.1%	15.8%	NS	—
	WRAs from poor households ($n_{base}=726$; $n_{mid}=500$; $n_{end}=312$)	13.5%	12.4%	11.5%	*	—
	WRAs from ethnic minorities ($n_{base}=449$; $n_{mid}=473$; $n_{end}=736$)	16.0%	16.9%	14.1%	***	—
	WRAs with disability ($n_{base}=1,215$; $n_{mid}=597$; $n_{end}=438$)	12.0%	8.5%	14.6%	***	—

NA = non-applicable; NS = non-significant; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

A. Project Background

Partnering to Save Lives (PSL) is a partnership between the Ministry of Health (MoH), CARE, Marie Stopes International Cambodia (Marie Stopes), Save the Children International⁷ and the Australian Government's Department of Foreign Affairs and Trade (DFAT). Since its start in August 2013, PSL has supported all seven components of the MoH's 2016-2020 Fast Track Initiative Road Map to Reduce Maternal and Newborn Mortality (FTIRM): emergency obstetric and newborn care, skilled birth attendance, newborn care, family planning, safe abortion (through training and quality improvement), behaviour change communication, and removing financial barriers.

The program implemented holistic reproductive, maternal and neonatal health (RMNH) initiatives in the underserved north-eastern provinces of Kratie, Mondul Kiri, Ratanak Kiri and Stung Treng, and supported family planning services and training on safe abortion in an additional 18 provinces across the country, with women of reproductive age (WRA; 15-49 years old) and newborn babies up to 28 days old as the program's primary targets. All activities were implemented with the ultimate goal to save the lives of women and neonates in Cambodia, through improved quality, access and utilisation of RMNH services, through a partnership approach. More precisely, the PSL program has aimed at achieving the following six primary outcomes:

1. Improved quality RMNH services for target populations;
2. Greater equity of access to appropriate RMNH services for target populations;
3. More responsive RMNH services that meet the needs of target populations;
4. Improved RMNH behaviours amongst target populations;
5. Evidence-based innovation and learning that contributes to improved policy and practices;
6. A partnership model that demonstrates impact and value for money to achieve RMNH outcomes.

Progress towards these outcomes has been regularly monitored using PSL's monitoring, evaluation, reporting and improvement (MERI) framework, which covers all indicators and their definitions, target areas and planned annual targets. The MERI framework was updated on a yearly basis and it was used as a key guiding document for the endline survey. PSL conducted a baseline survey in its first year of implementation and a midline evaluation during the third year to assess progress against these indicators.⁸ Both the baseline and the midline data was collected by the National Institute of Public Health (NIPH).

Objectives

As PSL approaches the end of its five-year project cycle, the partnership contracted Angkor Research in November 2017 to conduct the endline survey, with the objective to assess the program's level of progress and achievement. More specifically, the endline survey aims to:

- Review the MERI indicators across the baseline, midline and endline survey rounds;
- Determine the level of progress and achievement of the project at outcome level, with a focus on outcomes 1, 2,3, and 4 (see above); and,
- Identify possible reasons or factors for any observed change.

⁷ Save the Children International (SCI) is subject to Protecting Life in Global Health Assistance (PLGHA) and has not engaged in activities that are not compliant with PLGHA.

⁸ Full reports can be found with any of the following links: <http://www.care-cambodia.org/care-research>; <https://cambodia.savethechildren.net/resources/health-&-nutrition/t-52>;

This report will first detail the endline survey methodology, including the sampling strategy, the qualitative and the quantitative approaches. A comparison of the results across the three rounds of the survey will then permit to assess the project's level of achievement and effectiveness. Finally, a discussion section will summarise the evaluation main findings, challenges and lessons learned, and will suggest a set of recommendations for actions following PSL.

B. Methodology

The endline survey focused on eight target provinces classified into two programming "components": component 1 includes the four north-eastern provinces (Kratie, Stung Treng, Mondul Kiri and Ratanak Kiri), in which most of the PSL activities are implemented (Midwifery Coordination Alliance Team Meetings, coaching, financial barriers, behaviour change communication, community referral, family planning, and safe abortion practices.), while component 2 includes four "comparison" provinces (Battambang, Koh Kong, Preah Sihanouk and Pursat), where only a limited number of PSL activities occurred (long term and permanent family planning, safe abortion practices and/or financial barriers).

A multi-stage, mixed-methods approach was deemed the most appropriate to fulfil the study objectives. This approach involved a quantitative survey targeting women of reproductive age (WRA) that included indicators representing household demographics and RMNH practices. This quantitative survey was designed so the data it gathered would remain comparable across the different rounds of survey and would allow for a rigorous statistical analysis. A set of qualitative tools were also developed as per PSL partners' request, in order to capture the beneficiaries and subnational partners' perceptions of the program's impacts. The survey preparation phase lasted for approximately two months, from the end of November 2017 to mid-January 2018.

1. Sample design

The sampling methodology is described below for both the quantitative (household and WRA interviews) and the qualitative parts of the survey (Focus Group Discussions (FGD), In-Depth-Interviews (IDI) and case studies).

a) Quantitative survey components

The sample size was calculated at baseline to detect a 15 percentage points (pp) change in the percentage of WRAs using modern contraceptive methods, and a 20pp change in the percentage of births given with assistance of a skilled attendant in a health facility. Researchers also took into account the effect of disaggregation and the project available budget to suggest a total sample size of 3,000 WRAs (1,500 for each component). They assumed an average of 25% of WRAs in the general population and an average household size of 4.5 members, to compute an average ratio of 1.13 WRA per household. This ratio was then used to estimate that a sample size of 2,640 household interviews (1,320 for each component) would be sufficient to reach the desired number of WRAs.

Respondents were randomly selected for the endline survey using a two-stage cluster sample design, similar to the baseline and midline sample selection.

Primary Sampling Unit selection – Village

The first stage of selection was also completed at baseline and concerned the selection of the primary sampling units (PSU), or villages for this study. The health coverage plan for what was at that time the nine targeted operational districts (OD) was used as the sampling frame⁹, as it listed all of the villages and their household population per health centre (HC) catchment area. Although a minimum of 30 clusters per component would have been enough, researchers preferred to increase this number to 60 per component to minimise the design effect and increase the sample randomness. 120 villages (60 per component) were thus selected via probability-proportional-to-size (PPS), based on an estimated number of WRAs per target OD. Angkor Research conducted the quantitative survey in these same 120 villages, once again to ensure statistically powerful results and cross-rounds comparability. The list of provinces, districts, communes and villages selected for the survey is presented in Annex 1: Villages sample selection for PSL Lot 1 Endline Survey.

Elementary Sampling Unit selection – Household

Because village household listings are often incomplete or outdated in Cambodia, field staff selected the elementary sampling units – or households for this study – using a modified version of the Expanded Programme on Immunisation random walk selection method, commonly called EPI-Walk method. This method ensures the household selection randomness, as the entire village is covered and all households have an equal chance of being included in the sample.

Eligible households included at least one woman of reproductive age (15 to 49 years old) among their members at the time of the endline survey. Field staff identified the eligible households by asking all of the households selected through the EPI-Walk method a set of screening questions. With a total sample size of 2,640 households in 120 selected villages, a target number of 22 eligible household interviews per village were determined.

In addition to the household survey, an individual module on knowledge, attitudes, practices and behaviours towards RMNH was completed with all eligible WRAs. Face to face interviews were completed with WRAs (no proxy interview authorised because of the sensitive nature of the questions), after they provided informed consent.

This sample is representative of the whole population of WRA in the PSL target areas, and the sample structure ensures rigorous and comparable data across the three surveys rounds.

b) Qualitative survey components

FGDs and IDIs enabled a deeper interpretation of the quantitative results, by bringing greater insight to potential project-related issues or challenges, on respondents' attitudes and perceptions towards RMNH services. A total of eight Basic Emergency Obstetric and Neonatal Care (BEmONC) assessments and 10 IDIs with OD Maternal and Child Health (MCH) supervisors were planned, in order to remain in line with the previous rounds of survey. 16 FGDs, 12 IDIs with Village Health Support Group (VHSG) volunteers and four case studies were added to the endline as per PSL partners' request.

FGD participants were selected from among the quantitative survey respondents, following the grouping structure presented in Table 3, and based on their perceived overall knowledge of RMNH services and on

⁹ One of these nine ODs got later split into two ODs, then bringing the number of target ODs to a total of ten.

their perceived understanding of RMNH services access trends in the five years preceding the survey, as these different groups may have different experiences and needs around RMNH issues. Respondents with disability were also invited to participate in all discussions. Villages where PSL implemented its Behaviour Change Communication (BCC) activities were prioritised for FGDs and VHSG IDIs. However, because only five villages from the survey sample match the BCC villages listing (see Village sample selection in Annex), the field teams chose where to conduct the remaining FGDs and IDIs, based on the selection criteria described above.

Data from all IDIs helped inform the interpretation of the survey results, and permitted to describe the VHSG volunteers or OD's viewpoint on the implementation of PSL activities and on any potential change in RMNH indicators over the project timeframe. The BEmONC assessments utilised the instruments from the previous survey rounds to ensure comparability, and were carried out by trained medical providers, nurses or midwives, recruited by the research team for the purpose of this study only (from different health facilities than those visited for this survey). The sample strata, target sample sizes and corresponding sampling selection methods for all quantitative and qualitative tools are summarised in Table 3 here below.

Table 3: Endline sample stratification, target sample size and sampling methodology

Strata	Component 1	Component 2	Total	Selection method
Quantitative Survey				
Province	4	4	8	Purposive (baseline)
Operational Districts	6	4	10	Purposive (baseline)
Villages (PSUs)	60	60	120	Purposive (baseline)
Household interviews	1,320 (22/Vill.)	1,320 (22/Vill.)	2,640	Random (EPI-Walk)
- <i>Women of Reproductive Age</i>	1,500	1,500	3,000	<i>Catch-all (within HH)</i>
Qualitative Survey				
Focus Group Discussions	10	6	16	
- <i>Married WRA (>19yo)</i>	1	2	3	<i>Purposive</i>
- <i>Unmarried WRA (>19yo)</i>	1	2	3	<i>Purposive</i>
- <i>Married EM WRA (>19yo)*</i>	2	0	2	<i>Purposive</i>
- <i>Unmarried EM WRA (>19yo)*</i>	2	0	2	<i>Purposive</i>
- <i>Men</i>	2	1	3	<i>Purposive</i>
- <i>Female adolescent (15-19yo)</i>	2	1	3	<i>Purposive</i>
In-Depth-Interviews (VHSG)	12 (3/Prov.)	0	12	Purposive
In-Depth-Interviews (OD MCH)	6 (1/OD)	4 (1/province)	10	Purposive
Facility Assessment (BEmONC)	8	0	8	Purposive
Case studies with WRA			4	Purposive

*EM: from Ethnic Minorities

2. Survey instruments design

All of the baseline and midline quantitative and qualitative data collection instruments were reviewed and updated by Angkor Research and the PSL partners for the endline survey, based on the programme indicators (MERI framework). The VHSG IDI and FGD guides were purposively designed for this last survey round. All tools were developed with support from the PSL team in both English and Khmer languages. The quantitative survey instruments were pre-tested twice (including one pilot test during the training) so they would collect high quality data, relevant to the project indicators and easily comparable with the data collected during the previous survey rounds. Seven instruments were thus developed and are located in Annex 2: Endline survey data collection instruments:

1. A quantitative household questionnaire;
 - a. Informed consent
 - b. Section 1 – Screening
 - c. Section 2 – Household socio-economic status
 - d. Contact information
2. A quantitative WRA questionnaire;
 - a. Section 1 – Household and woman identification
 - b. Informed consent
 - c. Section 2 – Key characteristics
 - d. Section 3 – Disability status (as per the Washington Group short set of disability questions¹⁰)
 - e. Section 4 – Family planning
 - f. Section 5 – Pregnancy experience and related information (e.g. antenatal Care, delivery, postnatal care, abortion, etc.)
 - g. Section 6 – Knowledge and self-efficacy on RMNH
 - h. Section 7 – Comments
3. A qualitative VHSG volunteer IDI interview guide;
4. A qualitative MCH supervisor (OD) IDI interview guide;
5. A qualitative health facility assessment guide on BEmONC;
6. A qualitative PSL project beneficiaries' FGD guide;
7. A “beneficiary story” or case study guide, suggesting ideas or themes, which could be further developed.

3. Field staff training

The survey team included 24 staff representing four field teams. Each team had one field supervisor, one field editor and four interviewers, including one trained medical staff (nurse and/or midwife to help with the qualitative and medical-related components of this survey).

All field staff followed six days of training, from the 8th to the 13th of January 2018, during which they learned about the survey objectives, the sampling selection methods for target respondents (households with WRAs), the different interview modes (Computer Assisted Personal Interviewing (CAPI) with tablets, and Paper and Pencil Interviewing (PAPI)), the different types of data collection tools (quantitative and qualitative), the informed consent and the RMNH-related indicators. All field staff participated in the pilot

¹⁰ <http://www.washingtongroup-disability.com/wp-content/uploads/2016/01/The-Washington-Group-Short-Set-of-Questions-on-Disability.pdf>

test as part of the training and as a “dry run” before the actual data collection. In-office data Quality Control (QC) staff also took part in all aspects of the training, so they could get familiar with the research instruments and their implementation. Finally, all of the involved staff were briefed about the ethical considerations inherent to this study, as described in the following section.

4. Ethical commitment

In addition to receiving approval from the National Ethics Committee for Health Research in Cambodia (on the 26th of December 2017, reference number: 285NECHR), a number of international ethical procedures and standards were incorporated into the endline survey research methodology. This included informed consent, use of socio-culturally appropriate and respectful questions and means of measurement, and the anonymity of all data. Because of the sensitive nature of the survey, same-sex interviews were conducted (female respondents were always interviewed by female interviewers) as this approach is culturally appropriate and increases the comfort of respondents to discuss RMNH matters, improving the survey response rate and therefore the overall data quality.

Additionally included in the training, all of the field and QC staff participated in a Child Safeguarding Training session provided by Save the Children, and in another session on communication with persons with disability with the Cambodian Disabled People's Organization (CDPO). Both trainings ensured that all staff complied with the requested ethical commitments, were aware of the best practices, and comfortable with interviewing children (15 to 18 years old individuals for this survey) and people living with disability.

In villages where respondents were identified as being a member of an ethnic or indigenous minority and were not comfortable speaking in Khmer, field supervisors asked for support from the ethnic or indigenous community leader (or elder) and from the village chief to find a qualified female translator. In the case no suitable translator was found in the immediate village vicinity, the field supervisors could contact the relevant PSL partners and ask for their support.

At the start of each interview, the respondent was informed of the purpose and nature of the survey, and of the information that would be recorded. Respondents were aware that they could refuse to participate, pause, request clarification or cancel the interview at any time during the process. The interviewer then requested the verbal consent of each respondent to conduct the interview before proceeding.

This report and its annexes do not include any individual respondent information and presents the results for subgroups of the main population (e.g. gender, wealth groups, age groups, etc.), so it is not possible to identify individual respondent by examining the survey results. This ensures the anonymity and the confidentiality of the respondents and of their answers.

All of these measures are consistent with the principles and guidelines for ethical research and evaluation in development, proposed by the Australian Council for International Development (ACFID)¹¹.

¹¹ ACFID, Principles and Guidelines for ethical research and evaluation in development. Updated in July 2017.

5. Data collection

The endline survey data collection started on the 15th of January and was completed on the 14th of February 2018. All field teams conducted tablet-based data collection, with the two Computer Assisted Personal Interview (CAPI) data collection systems designed under the World Bank Survey Solutions package for the two quantitative surveys. Data from the qualitative survey components (IDIs, FGDs, case studies) was reported on paper and audio-recorded with respondents' consent.

a) Survey results

Figure 1 below displays the endline household survey response rate. Although a total of 3,049 household interviews were attempted in total, only 2,769 were found to be eligible for this survey (counting at least one WRA among its members). Noticeably, among all of the interviews attempted with eligible households, the survey reached a completion rate of 96.0% (2,658 completed household interviews).

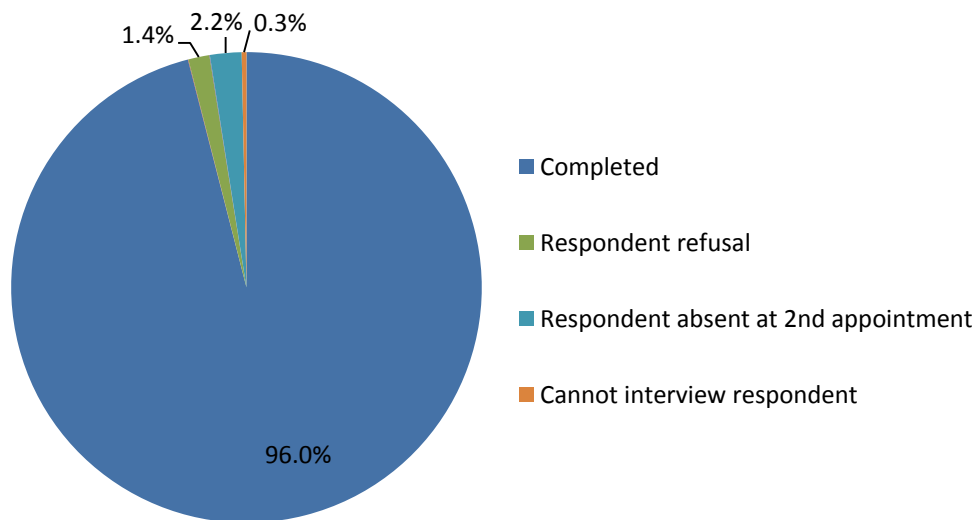


Figure 1: Household survey response rate at endline, among eligible households
(n_{end}=2,769)

Table 4 below details the results breakdown for each round of survey. Each survey round collected data from on average 1.2 WRAs per household.

A total of 17 FGDs (one more than planned) were conducted, 11 in Component 1 and six in Component 2 provinces, with each FGD counting from three to seven participants (on average five), as displayed in Table 4.

Table 4: FGD details (C1: component 1; C2: component 2)

	Location	Type of FGD	#	Ages
C1	Kratie	Male respondents from ethnic minorities	4	26; 27; 44;47
	Kratie	Adolescent unmarried WRAs*	6	15; 15; 16; 17; 18; 18
	Kratie	Married WRAs	6	23; 24; 38 (D1); 38 (D1); 43; 48
	Stung Treng	Married WRAs from ethnic minorities	5	24; 25; 35; 37; 38
	Stung Treng	Unmarried WRAs from ethnic minorities	7	20; 21; 22; 24 (D1); 25; 29; 39
	Ratanak Kiri	Adolescent unmarried WRAs	3	16; 17; 19
	Ratanak Kiri	Male respondents	4	27; 31; 36; 41
	Ratanak Kiri	Unmarried WRAs from ethnic minorities	4	20; 25; 26; 29
	Ratanak Kiri	Married WRAs from ethnic minorities	6	17; 19; 19; 23; 34; DK
	Mondul Kiri	Married WRAs from ethnic minorities	5	19; 24; 28; 29; 39
	Mondul Kiri	Married WRAs	5	22; 23; 28; 29; 38
C2	Battambang	Married WRAs	6	23; 27; 29; 31; 34; 37
	Preah Sihanouk	Adolescent unmarried WRAs	5	16 (D1); 16; 17; 17; 19
	Koh Kong	Married WRAs	5	23 (D1); 29; 30 (D1); 38; 42
	Pursat	Male respondents	6	26; 27; 28; 31; 38; DK
	Pursat	Unmarried WRAs	7	48; 6 DKs
	Pursat	Unmarried WRAs	6	23; 23; 23; 24; 29; 29

* Khmer and from ethnic minorities

DK = respondent could not inform his age or age was not reported; D1 = survey respondent with disability (DISABLE1)

Twelve IDIs were conducted with volunteers from village health support groups (VHSG), at a rate of three IDIs per province in the Northeast. IDIs were also conducted with the Maternal and Child Health (MCH) Supervisors in each of the 10 ODs. Finally, eight facility BEmONC assessments were completed in the same medical facilities that were identified during the previous survey rounds.

Table 5: Number of interviews completed across the three survey rounds (C1: component 1; C2: component 2)

Type of survey	Baseline			Midline			Endline		
	C1	C2	Total	C1	C2	Total	C1	C2	Total
Quantitative									
- Household	1,155	1,102	2,257	1,320	1,320	2,640	1,326	1,332	2,658
- WRA	1,412	1,350	2,762	1,663	1,587	3,250	1,613	1,636	3,249
Qualitative									
- BEmONC assessments	8	0	8	9	0	9	8	0	8
- VHSG volunteers	0	0	0	0	0	0	12	0	12
- MCH supervisors	5	4	9	5	4	9	6	4	10
- FGDs	0	0	0	0	0	0	11	6	17
- Case studies	-	-	-	-	-	-	4	6	10

b) Quality Control

All quantitative data went through at least three rounds of quality control (QC). The first round of QC occurred in the field where dedicated field editors verified the questionnaires through a series of consistency checks, verification and validation functions built in the World Bank (WB) Survey Solutions CAPI systems. The second round of QC was operated in office by the two dedicated data QC staff, who checked all of the forms received on the server on a daily basis and were able to "reject" or send a questionnaire back to the field team in case of any error, discrepancy, missing value left unexplained. Any issue identified during these two rounds of QC were immediately addressed by sending the interviewer back to the respondent to get the correct answer.

The third and last round of QC occurred during the data-cleaning phase, after data collection completion. Once downloaded from the WB Survey Solutions server, datasets were checked using version 15.0 of the Stata software for consistency, missing values and outlier values. To confirm correct values, respondents who provided a phone number could be contacted by the data QC staff.

c) Qualitative data management

Concurrent with the quantitative data cleaning, qualitative data was transcribed directly into Microsoft Office Word using the completed paper forms (for IDIs), the discussion notes and the audio recordings (for FGDs). The transcripts were then translated into English by experienced Khmer-English translators. It was then checked for appropriate translation and ease of understanding by a translation supervisor. Any discrepancy or error identified at this stage was corrected by referring to the original audio recording or to interviewer's notes.

6. Analysis

Immediately after completion of the data cleaning stage, the baseline, midline and endline datasets were linked into a unique "longitudinal" dataset, where variable names and answer codes were standardised to facilitate the analysis. Two variables were created to identify, for each case, the survey round and the program component it belongs to. These variables were particularly useful in running the difference-in-difference (DID) analysis. The dataset used for the analysis counts a total of 9,261 observations.

a) Descriptive data analysis

Descriptive analysis and cross-tabulations were run for all metrics using Stata 15.0 statistical analysis software. The chi-square test was used to compare proportions between each survey component, or between each round of survey, while the t-test was used to compare means of normally distributed data. P-values are informed when the differences are found to be statistically significant: $p < 0.1$, $p < 0.05$ and $p < 0.01$ respectively correspond to levels of significance of 90%, 95% and 99%.

b) Difference-in-difference analysis

In order to understand and estimate the potential impacts of the PSL activities along their five years of implementation in component 1 provinces (“the intervention”), a difference-in-difference (DID) analysis was run, only for indicators with comparable data across the three survey rounds, and for which there was no PSL intervention in the comparison provinces:

- MERI O1.4: percentage of WRAs delivering in a health facility with a skilled birth attendant;
- MERI O3.2: percentage of WRAs attending PNC who receive counselling in modern family planning (FP) methods;
- MERI O3.3: percentage of WRAs who report being highly satisfied with RMNH services provided;
- MERI O4.1: percentage of WRAs attending 4 or more antenatal care visits;
- MERI O4.2: percentage of WRAs receiving PNC1;
- MERI I2.1: percentage of WRAs accessing RMNH services in the past 12 months, who were referred through a community referral mechanism;
- MERI I4.1: percentage of WRAs who can identify 3 danger signs during pregnancy;
- MERI I4.2: percentage of WRAs who can identify 3 danger signs for neonatal distress.

When running the DID analysis, a key indicator’s trend is measured first within a “treatment group” that received the intervention (component 1 population), and a “control group” that did not receive the intervention (component 2 population). Secondly it is measured from the baseline round of survey, or pre-intervention round (as PSL activities had not yet been implemented in component 1 provinces), to the midline and/or endline round of survey, or post-intervention rounds.

The DID assumes that the measured indicator would have had a similar trend within the treatment and the control groups over time, had there not been any intervention (i.e. if PSL had not implemented specific activities in component 1 provinces). Any change observed in the control group is thus considered to reflect the same change in the treatment group, in the absence of PSL activities. Therefore, a counterfactual trend can be estimated, which corresponds to what the trend for that indicator might have been in the treatment group, had there been no intervention. This counterfactual trend is obtained by applying the observed control group indicator’s trend to the treatment group indicator at baseline.

Assuming that other factors which could have influenced the key indicator were consistent between the treatment and the control groups, any statistically significant difference between the counterfactual indicator post-intervention and the treatment group indicator post-intervention might have been caused by the intervention itself, or in other words by the implementation of the PSL activities. Figure 2 here below proposes a simple example to illustrate the DID concept.

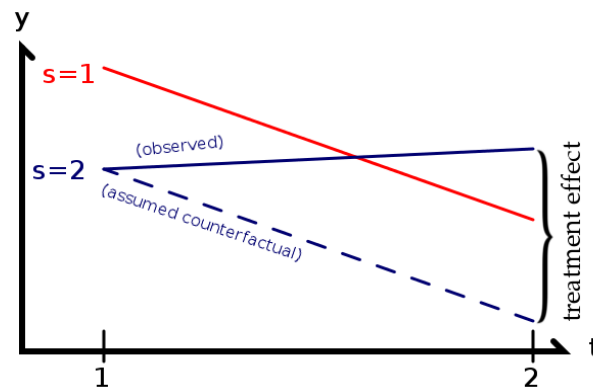


Figure 2: Example of difference-in-difference analysis¹²

In the above example, “s=1”, in red, represents the trend observed for the indicator “y” within the control group, while “s=2”, in blue, represents the trend for the same indicator within the treatment group. Both trends are displayed from the instant t1 (baseline, pre-treatment) to t2 (endline, post-treatment). The blue dotted line represents the counterfactual, or what “s=2” trend would have looked like, had there been no treatment. The difference between “s=2” and its counterfactual, at endline, is the DID and represents the potential treatment effect.

Both the DID and the descriptive analysis were conducted to reflect the achievements of the program for PSL’s key target populations: adolescents, ethnic/indigenous groups (no DID conducted, see why in the Limitations section), poor households and persons with disability.

c) Qualitative data analysis

All of the IDI transcripts were thoroughly read and reviewed. For each type of IDI (VHSG volunteers, BEmONC assessments and MCH supervisors), each transcript and each question, the frequency of key respondents’ statements was estimated and used to prioritize the “main ideas” or “main themes” they mentioned. These main ideas and themes were then used to inform the In-depth-interview results section of this report.

All of the FGD transcripts were also systematically read and reviewed. Depending on the discussion context (type of respondent, FGD location in component 1 or 2 provinces), quotes were taken from these transcripts and incorporated into this report to reinforce or sometimes contradict the findings, and to enrich the survey results and recommendations.

¹² Source: Wikipedia. Used under Creative Commons license.

7. Limitations

Several factors can limit the effectiveness of this evaluation. Firstly, all data collected for this three-round survey was self-reported by respondents, who may have over-reported or under-reported their utilization of services or how they accessed them. In addition, there could have been issues of recall bias with health care service personnel, etc.

Secondly, because provinces were not assigned to each program component at random (all north-eastern provinces are in component 1 and all other provinces in component 2), caution is needed when making any inference with the general population of WRAs. Indeed, intrinsic, pre-intervention differences between both components' populations, particularly considering their respective socio-economic characteristics, may confound the evaluation DID results. For example, the level of wealth within the population or the level of education might be different between the two components and might thus have a confounding effect on the impact observed for some of the key indicators. The differences in background variables between component 1 and component 2 provinces can be consulted in Annex 3: Additional tables and figures, Table 26. Although the DID method permits to control for some of these differences, the ideal design would have been to compare two populations as similar as possible. Annex 3: Additional tables and figures, Table 27 thus provides DID results adjusted for a set of five covariates: wealth group, number of household members, education level, religion and marital status. These DID values are only slightly different from those presented in the results section, which do not take the covariates into account. This may indicate that the background variables have only a limited confounding effect on the DID results calculated and presented in this report.

Thirdly, as mentioned earlier in the methodology section, it is worth reminding that the PSL BCC activities were actually implemented in a very limited number of the surveyed villages. The RMNH indicators tackled in this survey, and more particularly those related to knowledge and awareness, may thus not present as much impact as if most villages had been part of the BCC activities.

External factors of influence, other than the intervention itself, can also significantly confound the results and make it difficult to attribute the observed impact to the intervention only. This is particularly true when these factors of influence occur within one component's population and not within the other. For example, if new health facilities had been built in component 1 provinces in the same time as PSL activities were implemented, then this would most likely have had an impact on RMNH services use indicators. The DID analysis would then be unable to determine whether the observed impact was attributable to the PSL activities, or to the fact that new health facilities had been built. The presence of other RMNH programs in the target areas (control or treatment provinces) may thus also have an effect on the DID results for the concerned indicators. Would any RMNH program other than PSL be identified in the surveyed treatment provinces, the endline analysis would not be capable of making the distinction between PSL potential impact, and the impact imputable to this other program. Similarly, should any other RMNH program be identified in the surveyed control provinces, the analysis may then not be able to identify any significant impact on the related indicators.

Finally, differences in the survey design between each round of data collection may have had an effect of the level of data comparability. Table 6 below presents the main differences in the preparation phase, the data collection phase and the analysis phase between the baseline, midline and endline rounds of survey. In the preparation phase, the most notable differences were found in the questionnaire design, as for example, the Washington Group (WG) Short Set of Questions on Disability underwent several updates

along the project duration and questions thus differed slightly from one round to another. Post natal care (PNC) visits were not recorded in the same way for all survey rounds, as the baseline only asked about the very first visit, while the midline and endline data collection instruments permitted to record all PNC visits in a roster design. The understanding of the notion of “ethnicity” also differed significantly between the baseline, midline and endline: only north-east indigenous communities were classified as ethnic minorities during the two first survey rounds, while the endline also considered the Cham communities, mostly met in component 2 provinces, to belong to ethnic minorities.

During the data collection phase, the most important difference concerned the mode of data collection for quantitative instruments, which changed from paper-based at baseline and midline, to tablet-based at endline. This may particularly have had an impact on data overall quality and consistency. Interestingly, village household listings were used at baseline and midline to run the household sampling selection. Angkor Research usually considers these village household listings as of questionable reliability (frequently outdated, especially in provinces with high migration rates), and preferred to implement the random modified EPI-walk methodology described previously in this section. During the data analysis phase, the main difference concerned the wealth score calculation: at baseline and midline, NIPH ran their own Principal Component Analysis (PCA), which basically consists in multiple linear regressions to find out the variables the most correlated to wealth (or to poverty). The PCA relies on a set of assumptions and decisions (for example, on which variables to initially include in the model, on how many principal components the analyst wishes to keep) which were not informed in any of the two previous reports, or in their respective datasets. At endline, Angkor Research then decided to use the PCA coefficients provided by the Cambodia Demographic and Health Survey (CDHS). To keep comparability with the previous survey rounds, these coefficients were also applied to the baseline and midline data. The percentages of households belonging to each wealth group thus differ from the values presented in the baseline and midline reports.

Table 6: Main survey design differences between each round

Item	Baseline (NIPH)	Midline (NIPH)	Endline (Angkor Research)
Preparation phase			
Questionnaire design			
- Disability questions	WG questions on disability (old)	WG questions on disability (old)	WG questions on disability (updated)
- Ethnicity questions	Only north-east indigenous minorities	Only north-east indigenous minorities	Any ethnicity reported by respondent
- PNC visits	Only first visit	Roster of all visits	Roster of all visits
- Contraceptive knowledge	Prompted	Prompted	Spontaneous and prompted
- Satisfied demand for MCM	Not included	Not included	Included
- Adolescent birth rate	Not included	Not included	Included
Qualitative tools			
- BEmONC	Yes	Yes	Yes
- OD MCH	Yes	Yes	Yes
- VHSG	No	No	Yes
- FGD	No	No	Yes
- Case studies	No	No	Yes
Training	2 days	2 days	6 days
Data collection phase			
Date	12/2013 to 01/2014	12/2015 to 01/2016	01/2018 to 02/2018
Number of teams	5 teams (20 interviewers)	5 teams (20 interviewers)	4 teams (16 interviewers)
Quality Control	Field supervisor	Field supervisor	Field supervisor, editor, in-office staff
Mode of data collection (quantitative)	Paper-based (PAPI)	Paper-based (PAPI)	Tablet-based (CAPI)
Household sampling strategy	Random, based on village listing	Random, based on village listing	Modified random EPI-walk
Analysis phase			
Wealth score calculation	PCA (NIPH design)	PCA (NIPH design)	PCA (CDHS design)
Type of quantitative analysis	Descriptive	Descriptive + DID	Descriptive + DID

C. Endline Survey Results

All along this section and for figures or tables, the sample size will be provided, with “ n_{base} ” corresponding to sample size at baseline, “ n_{mid} ” to the sample size at midline and “ n_{end} ” to the sample size at endline. “ n ” will refer to the total sample size (across the three survey rounds).

Significance levels will be displayed in a different format depending on three scenarios:

- 1. The presented statistic is a mean value (in tables only)** – each cell contains a subscript; cells which do not share the same subscript contain statistically different values, at least at the 90% significance level (t-test $p < 0.1$). For example in Table 7, the average number of female members within all households was statistically different between the midline and endline rounds of survey (respectively different subscripts “a” and “b”). However, there was no statistically significant difference between the baseline mean value and the midline or endline mean values (as the baseline subscript contains both “a” and “b” subscripts);
- 2. The presented statistic is a frequency from a single-answer categorical variable** – the p-value corresponding to the chi-square test is provided under the table or figure title. For example, in Figure 3, the p-value is lower than 0.01, which shows that the distribution of the surveyed households in the different wealth groups is different between each round of survey, at the 99% significance level. Non-significant distribution differences between the three survey rounds are marked with “NS” instead of a p-value, like in Figure 4.
- 3. The presented statistic is a frequency from a multiple-answer categorical variable** – p-values corresponding to their respective chi-square tests are presented under the form of an asterisk “*” next to each of the variable answer labels: “*” corresponds to a p-value lower than 0.1 (90% significance level), “**” to a p-value lower than 0.05 (95% significance level) and “***” to a p-value lower than 0.01 (99% significance level). For example in Figure 7, the three asterisks show that the percentages of WRAs knowledgeable about the daily pill contraception method were statistically different between each round of survey. Variable categories with non-significant difference are not marked with any asterisk.

The reader may learn about which question is of single-answer or multiple-answer type, by referring to the final questionnaires provided by Angkor Research to PSL, and appended in Annex in this report.

For DID analysis, “ $p_{\text{base-mid}}$ ” will refer to the p-value obtained through t-test for the DID calculated between the baseline and midline survey rounds, and “ $p_{\text{base-end}}$ ” to the p-value for the baseline to endline DID.

1. Sample description

d) Households' socio-economics

The average household size fell slightly between baseline (5.2 persons) and endline (5.0 persons), although there was only a small difference in the average number of total female members and the average number of women eligible to participate in the survey (Table 7).

Table 7: Key household characteristics

	Baseline	Midline	Endline
Average number of household members	5.2 _a	5.4 _b	5.0 _c
Average number of female members	2.6 _{a,b}	2.7 _a	2.6 _b
Average number of eligible female members	1.3 _a	1.4 _b	1.3 _{a,b}
Average number of household members generating income	2.2 _a	2.4 _b	2.1 _c

Cells not sharing the same subscript contain statistically significantly different values, at least at the 90% confidence level (test p -value < 0.1)

Based on the PCA coefficients provided by the Cambodia Demographic and Health Survey (CDHS) for durable assets, means of transportation, house construction materials, access to clean water and sanitation, a wealth score was computed for each household in the sample. The CDHS also provides cut-off values for these scores to classify all households into five wealth quintiles (each quintile gathers 20% of the household population), numbered from 1 (“Poorest”) to 5 (“Better-off”)¹³. When applying these cut-off values to the wealth scores within the PSL sample, we obtained the breakdown of wealth groups displayed in Figure 3.

The surveyed population got seemingly wealthier across the different rounds of survey, as the richest groups (4 and 5) gathered from 52.3% of the households at baseline, to 59.2% at midline and 71.8% at endline (Figure 3). Logically, the percentages of poorest and poor households decreased from 21.2% at baseline to 16.3% at midline and only 10.2% at endline. Table 26 in Annex compares the wealth group households' distribution from baseline to endline in each project component. Component 1 provinces have significantly higher percentages of poor and poorest households than component 2 provinces across the three survey rounds. More particularly, at endline, component 1 provinces count 17.4% of households in the poorest and poor categories, against only 3.1% in component 2 provinces. The percentages of households in the poorest and poor wealth categories decreased in both project components from baseline to endline, although the decrease was steeper in component 2 provinces.

This trend is in line with the observed percentages of households owning an IDPoor and/or a Priority Access Card (PAC). These cards, which give access to free basic health care in public facilities for the poorest families, were owned by 30.4% of the surveyed households at baseline, 28.7% at midline and 27.4% at endline ($p < 0.1$).

The household wealth status will be used in this report as one of the results disaggregation levels, with a particular focus on poor families. From this point on, poor households will thus refer to the surveyed population two lowest wealth groups. In other words, when presenting survey results among poor households, we will actually be presenting results for the wealth groups 1 and 2, respectively the “Poorest”

¹³ Coefficients from CDHS 2010 were used for the baseline households, while the CDHS 2014 coefficients were used for the midline and endline rounds of survey. For more information on the CDHS wealth index construction, please refer to the DHS Program website <https://www.dhsprogram.com/topics/wealth-index/Wealth-Index-Construction.cfm>

and “Poor” groups. This decision was taken so the “poor households” level of disaggregation corresponds to a number of families high enough to allow for relevant and significant statistical analysis.

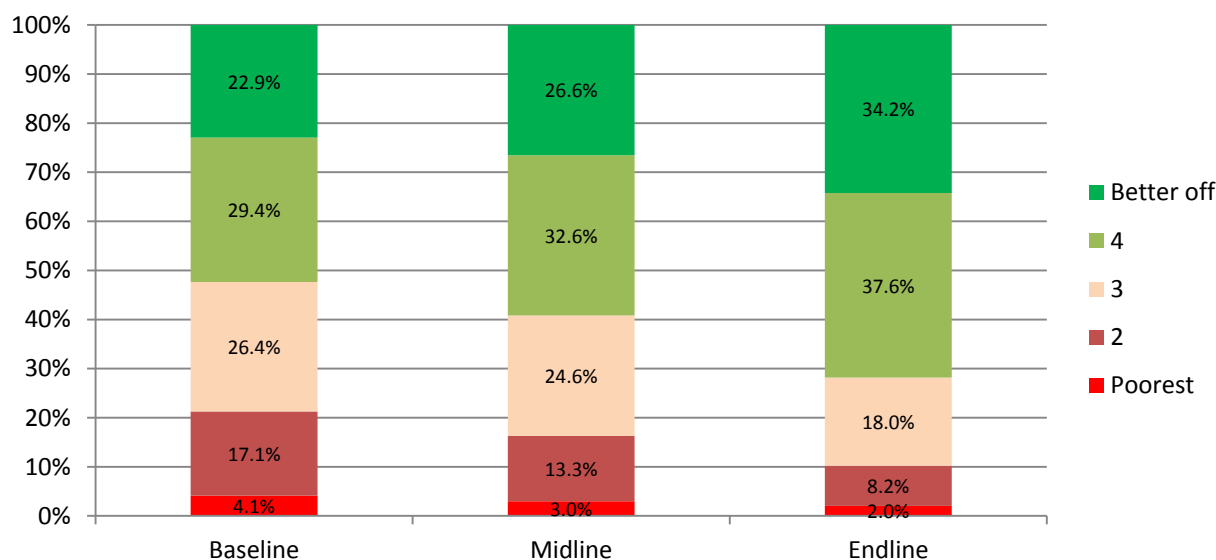


Figure 3: Wealth groups by survey round
($n_{base}=2,757$; $n_{mid}=2,640$; $n_{end}=2,658$; $p<0.01$)

Table 8 below shows the distribution of the different ethnic minorities reported at baseline, midline and endline. At endline, Cham accounted for 21.4% of all households from ethnic minorities, but were not reported as belonging to an ethnic minority during the previous survey rounds (same applies to Lao, Vietnamese, and Chinese households). Next most common ethnic minorities at endline were the Tampoun and the Phnong (which were also the two main ethnic minorities at baseline and midline), respectively accounting for 14.3% and 11.9% of ethnic minority households.

Results in this report will be disaggregated by ethnicity, with a focus on households belonging to ethnic minorities. This category will thus indiscriminately include all of the households identifying themselves as of non-Khmer ethnicity. Respectively 15.8% and 14.0% of households reported belonging to an ethnic minority at baseline and midline, while 21.6% of the households at endline identified themselves as of non-Khmer ethnicity. Noticeably, and most likely because Cham were not reported as an ethnic minority at baseline and midline, all ethnic minority households for these two rounds of survey are located in the component 1 provinces (North-East provinces). It was therefore not possible to produce any DID analysis for the ethnic minority level of disaggregation in this report.

Table 8: Distribution of ethnic minority households by survey round
($n_{base}=356$; $n_{mid}=369$; $n_{end}=574$; $p<0.01$)

Ethnic minorities	Baseline	Midline	Endline
Cham/Muslim	0.0%	0.0%	21.4%
Tampoun	25.6%	28.5%	14.3%
Phnong	19.4%	19.0%	11.9%
Lao	0.0%	0.0%	11.5%
Jarai	15.7%	16.3%	8.2%
Kuoy	6.5%	14.4%	7.8%
Praov	9.6%	0.0%	6.5%
Kreung	12.4%	13.3%	6.3%

Ethnic minorities	Baseline	Midline	Endline
Vietnamese	0.0%	0.0%	4.5%
Kavaet	5.6%	6.0%	3.8%
Stieng	1.7%	2.4%	1.1%
Chinese	0.0%	0.0%	0.7%
Kanh chak	0.0%	0.3%	0.0%
Khmer Khin	3.7%	0.0%	0.0%
Other	0.0%	0.0%	2.1%
Total	100.0%	100.0%	100.0%

e) Women of Reproductive Age characteristics

There was no significant difference in WRAs' mean age between the baseline (29.9 years old), midline (30.1) and endline (30.1). As shown below in Figure 4, the distribution of WRAs by age group was consistent between the three survey rounds.

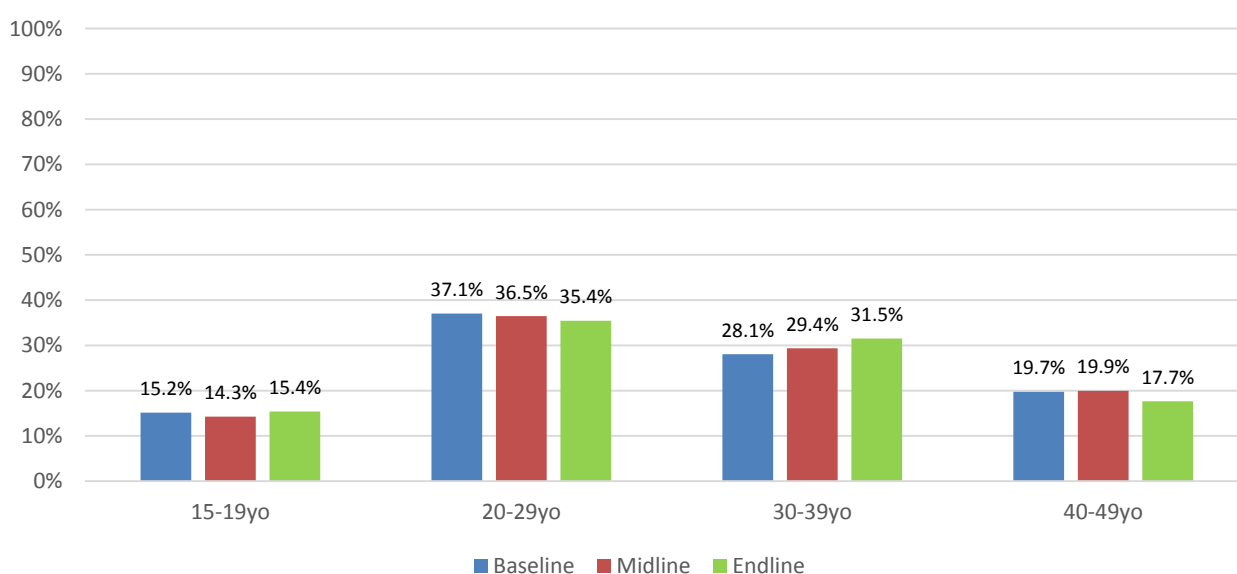


Figure 4: WRAs' age groups by survey round

($n_{\text{base}}=2,745$; $n_{\text{mid}}=3,250$; $n_{\text{end}}=3,249$; NS)

At endline 18.7% of respondents had received no education at all which was a slight and non-significant decrease from the baseline where 23.5% of WRA were uneducated. The most common level of education at endline was primary school level, accounting for 47.2% of WRAs.

Table 9: WRAs' education level

($n_{\text{base}}=2,762$; $n_{\text{mid}}=3,250$; $n_{\text{end}}=3,249$; $p<0.01$)

Highest grade attended	Baseline	Midline	Endline
No education at all	23.5%	21.8%	18.7%
Primary	46.1%	47.7%	47.2%
Lower secondary	19.5%	20.5%	22.4%
Upper secondary	9.1%	8.6%	9.4%
Higher	1.9%	1.5%	2.4%
Total	100.0%	100.0%	100.0%

By far the most common religion observed amongst all WRAs was Buddhist, accounting for 86.8% of the final endline sample (Figure 5). Indigenous religions of the North-East minorities account for 7% (midline and endline) to 10.5% (baseline) of all WRAs.

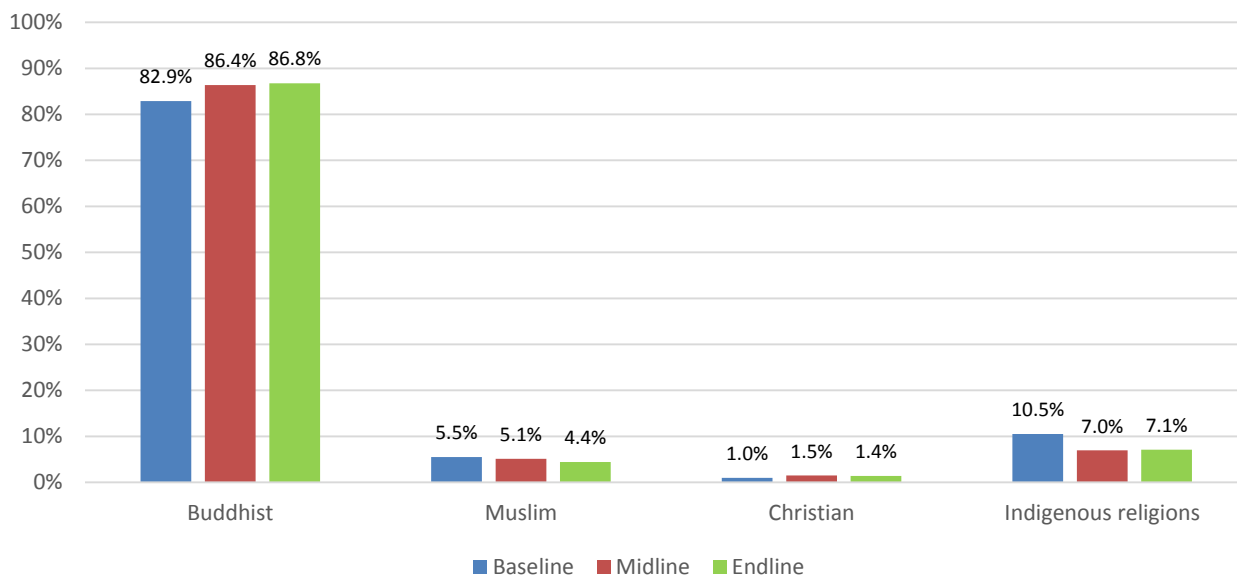


Figure 5: WRAs' religion

($n_{\text{base}}=2,762$; $n_{\text{mid}}=3,250$; $n_{\text{end}}=3,249$; $p<0.01$)

Around three quarters of the WRAs across the three survey rounds reported being married. This proportion increased significantly from baseline to midline (72.6% to 77.4%), and remained rather steady at endline. The rates of single WRAs then logically followed the inverse trend, decreasing significantly from 21.3% at baseline to 17.5% at midline, and remaining rather stable until endline (17.8%).

Table 10: Marital status of WRAs

($n_{\text{base}}=2,762$; $n_{\text{mid}}=3,250$; $n_{\text{end}}=3,249$; $p<0.01$)

Marital status	Baseline	Midline	Endline
Single and NOT in a regular relationship	14.8%	16.3%	16.0%
Single with boyfriend living elsewhere	6.4%	0.9%	1.8%
Single living with a partner	0.1%	0.3%	0.4%
Married	72.6%	77.4%	76.4%
Divorced/separate	3.1%	2.9%	3.6%
Widowed	3.0%	2.1%	1.9%
Total	100.0%	100.0%	100.0%

Using the Washington Group Short Set of Disability Questions¹⁴, all of the surveyed WRAs were classified into the groups of “Non-disabled”, “DISABLE1” (most inclusive, where respondent has at least some

¹⁴ See the Washington Group on Disability Statistics website: <http://www.washingtongroup-disability.com/washington-group-question-sets/short-set-of-disability-questions/>

difficulty with any of the listed tasks) and “DISABLE3” (where the respondent has a lot of difficulty with any of the listed tasks, or could not perform any of them at all). The results of this analysis are displayed below in Figure 6. For comparison, the CDHS 2014 reports 2.3% of women with severe disability (DISABLE3) and 10.5% of women with some impairment (DISABLE1), though these rates concern all women, irrespective of their age (not limited to the 15-49 years old age category). The endline rates of disabled WRAs can thus be considered as rather in line with the CDHS values. Results in this report will also be disaggregated by disability status, as people living with a disability are among PSL’s main target beneficiaries. However, because of the very low frequencies observed for severely disabled WRAs (DISABLE3), results will only be cross-tabulated with DISABLE1 for more relevance, and still to ensure the most powerful statistical analysis.

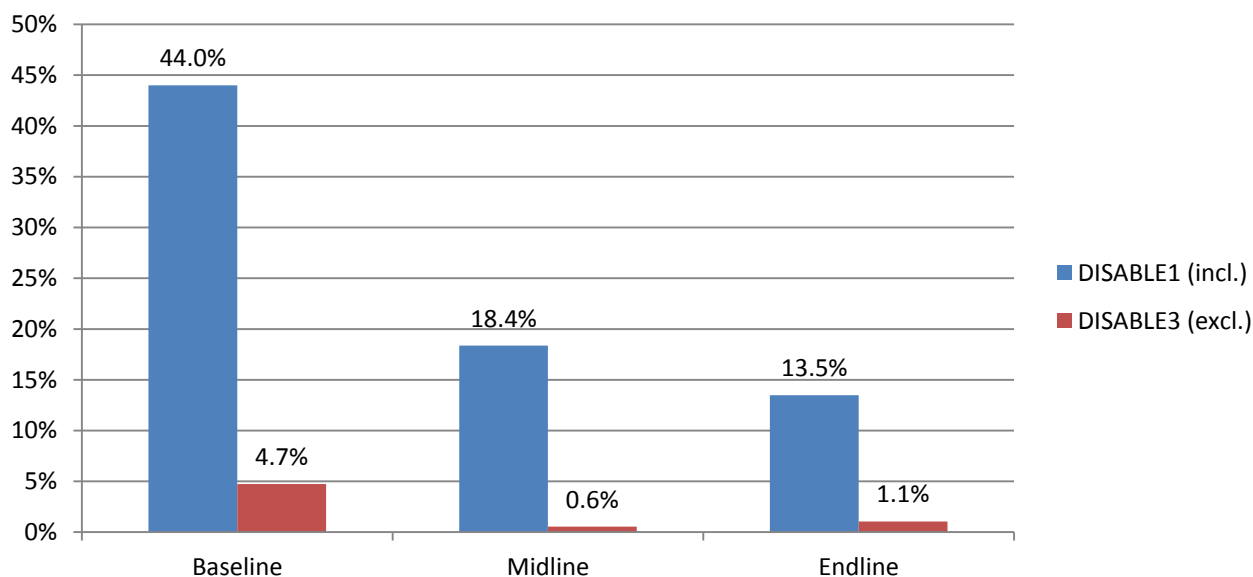


Figure 6: WRAs' disability status
 (n_{base}=2,762; n_{mid}=3,250; n_{end}=3,249; p<0.01)

2. Family Planning

In line with the CDHS and the baseline and midline surveys, researchers also collected data on 10 modern contraceptive methods (MCM) at endline: female and male sterilization, intra-uterine device (IUD), injection, implant, daily pills, monthly pills, male condoms, female condoms and emergency contraception. Data was also collected on four traditional methods: the lactational amenorrhea method (LAM), calendar or rhythm method, withdrawal and abstinence (additional for endline). To collect data on knowledge of contraceptive methods during the baseline and midline survey rounds, the interviewer asked whether the respondent had heard of each method, providing the corresponding description if necessary, as per the questionnaire and CDHS methodology. At endline however, spontaneous answers were also recorded (“What contraceptive method have you heard of?”), and interviewers only prompted about the methods that had not been spontaneously mentioned. Respondents were considered knowledgeable about a given contraceptive method if they mentioned it spontaneously, or if they said that they had heard about it when it was prompted.

a) Contraceptive Methods

At endline, 95.0% of WRAs were aware of at least one type of contraception, which was significantly down from the midline awareness levels of 99.4% and baseline of 98.3%. Still at endline, WRAs spontaneously listed on average 3.7 methods of contraception, and among those, an average of 3.4 MCM. The four methods of contraception the most frequently and spontaneously mentioned were the daily pill (85.3%), the injection (70.7%), the IUD (64.6%) and the implant (63.4%), all of them being classified as MCM. Withdrawal was the most frequently listed traditional method with 21.9% of all WRAs spontaneously mentioning it.

Figure 7 below shows WRAs’ level of awareness on contraceptive methods across the three survey rounds, after the interviewer prompted about the methods that had not been spontaneously mentioned. Because the corresponding question could yield multiple answers (respondents could list all of the methods they knew about), significance levels are calculated for each contraceptive method through chi-square test across the three survey rounds. Figure 7 then shows that for all of the contraceptive methods, the percentages of knowledgeable WRAs are significantly different between the baseline, midline and endline rounds of survey.

All of the WRAs who were aware about contraception were also aware of at least one type of MCM at endline (95.0%); significantly lower than midline (99.3%) and baseline (98.1%). The most commonly known method was the daily pill of which 92.9% of WRAs were aware at endline. Around three quarters of the surveyed WRAs at endline (76.1%) were aware of at least one type of traditional contraceptive (significantly higher than the 69.2% at baseline and 70.4% at midline). Respondents knew on average 8.0 contraceptive methods at endline, exactly the same value as at midline, but significantly lower than the average value of 8.1 methods at baseline ($p < 0.1$). Among all of the contraception methods they were aware of, WRAs knew on average 6.4 MCM at endline, significantly lower than the value of 6.7 MCM at midline and 6.8 MCM at baseline ($p < 0.1$).

Noticeably, the percentage of knowledgeable WRAs went down for most types of MCM from midline to endline, while it increased for withdrawal. As mentioned in the Limitations section, this could be partly due to the fact that only a few of the surveyed villages received the BCC activities.

For comparison, the CDHS 2014 reports that awareness of at least one type of contraception is quasi-universal in Cambodia (99.2% of all WRAs), as is the awareness of any MCM (99.2%), while 70.3% of all WRAs are knowledgeable about at least one type of traditional contraception method. WRAs in the CDHS are reported to be aware of on average 8.7 contraception methods. The national survey also mentions the daily pill as the most widely known MCM, with 97.7% of knowledgeable WRAs.

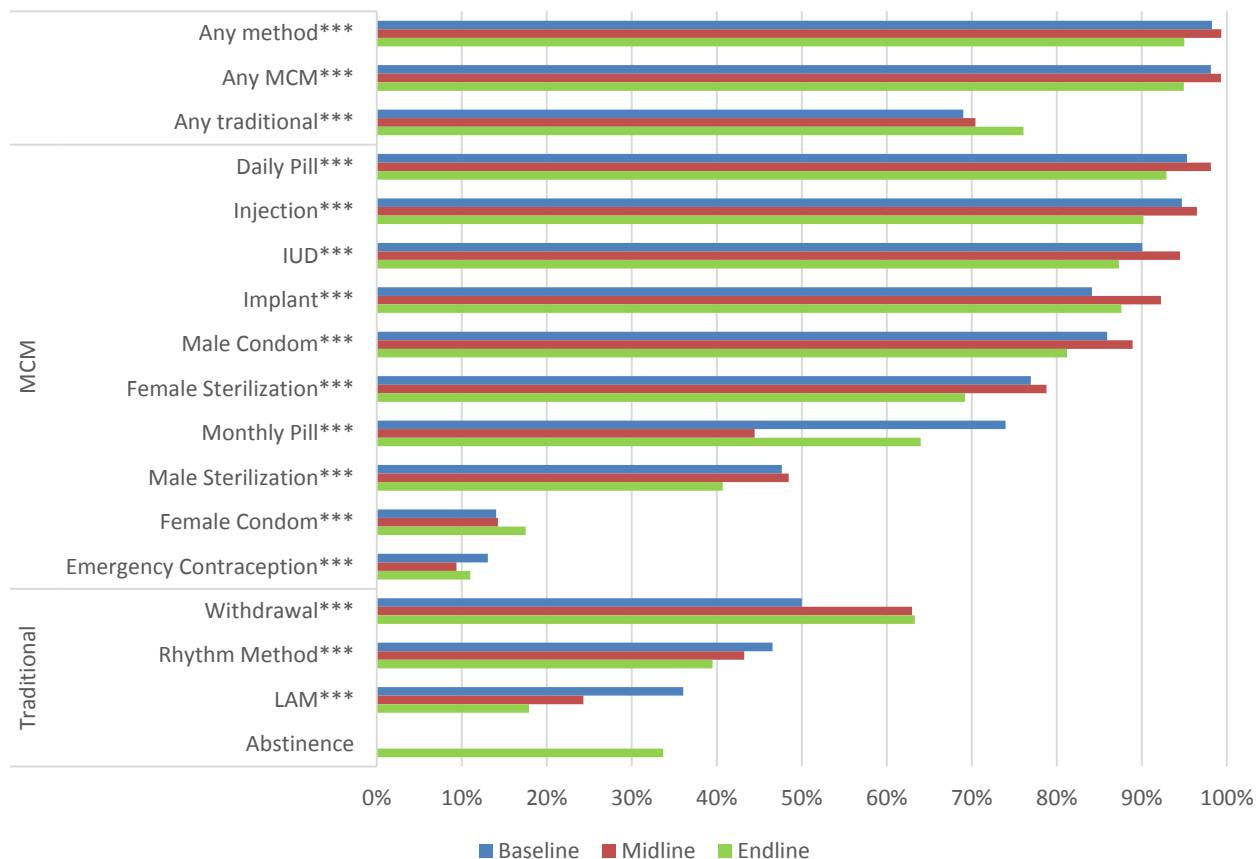


Figure 7: Knowledge of contraceptive methods¹⁵

(n_{base}=2,762; n_{mid}=3,250; n_{end}=3,249)

* p<0.1; ** p<0.05; *** p<0.01

At endline 40.3% of all WRAs were using some method of contraception; significantly lower than at midline (42.3%) but higher than at baseline (35.6%) (p<0.01). This overall increase in contraception use was generally recognised and confirmed by FGD respondents, who also pointed out some of the benefits for a better access to family planning:

“Contraception, people access it a lot, nowadays. It reduces poverty and they use contraception a lot. Before, they used to have one or two children per year, but now they know a lot more, which gives time to earn money.” – FGD with male respondents, Ratanak Kiri province.

¹⁵ Data on abstinence was collected at endline only.

Figure 8 below shows the percentages of contraceptive use by method, with the daily pill remaining the most popular across all three survey waves (used by 14.9% of WRAs at endline). Most other methods remained steady. The percentage of WRAs using withdrawal increased throughout the study period, ending at 10.6%, although this change was not found to be significant.

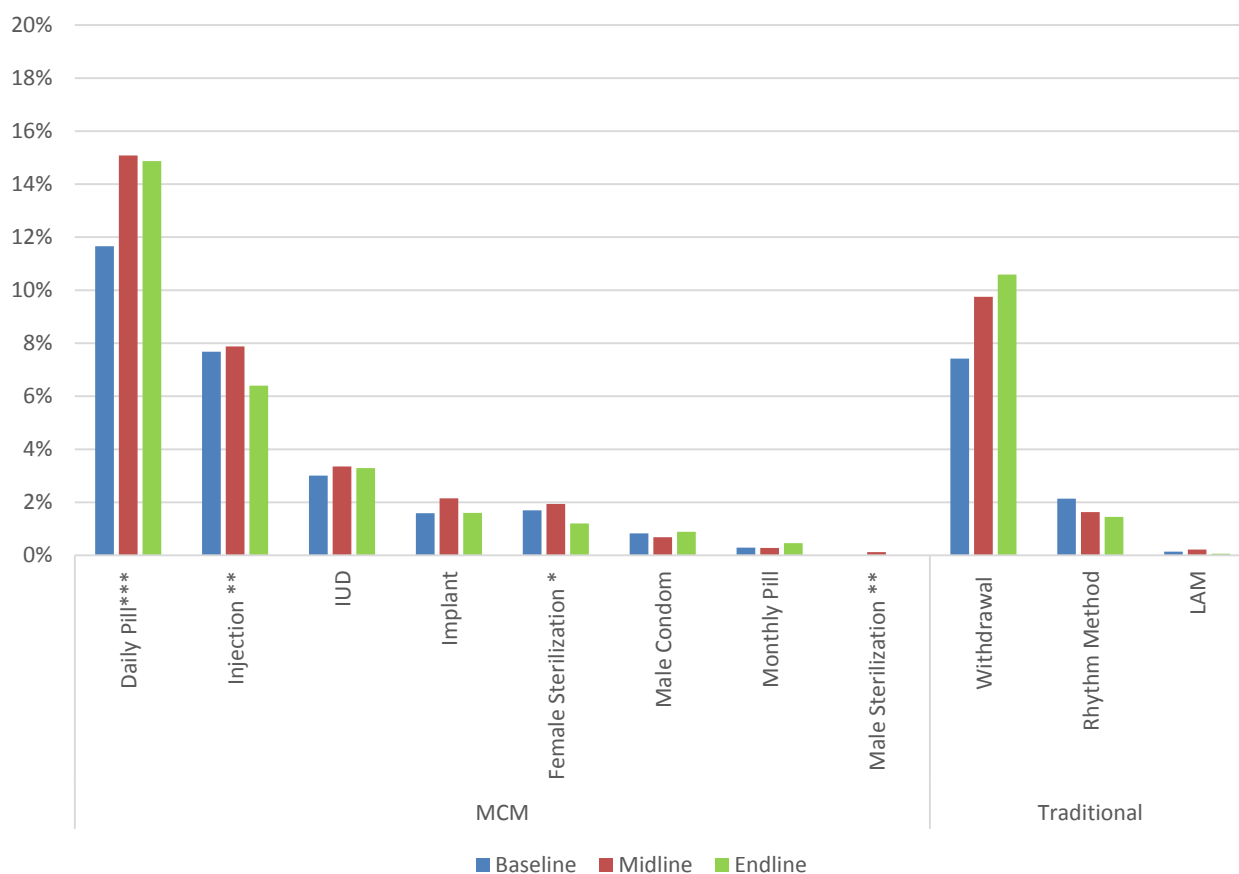


Figure 8: Contraception use by method

($n_{base}=2,762$; $n_{mid}=3,250$; $n_{end}=3,249$)

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

b) Modern Contraceptive Methods

The MERI indicator O2.1 measures the percentage of WRAs who are currently using any type of MCM. Because the intervention areas for this indicator changed over the duration of the PSL project, the indicator value in Figure 9 is displayed for the provinces of component 1, provinces of component 2 and where the intervention was implemented in Year 5¹⁶, as well as the total sample. Across all rounds of survey and levels of disaggregation, around one in three WRAs was reported to currently use any type of MCM (28.6% at endline).

¹⁶ Kratie, Mondul Kiri, Stung Treng, Ratanak Kiri and Preah Sihanouk, then referred to as Y5 provinces

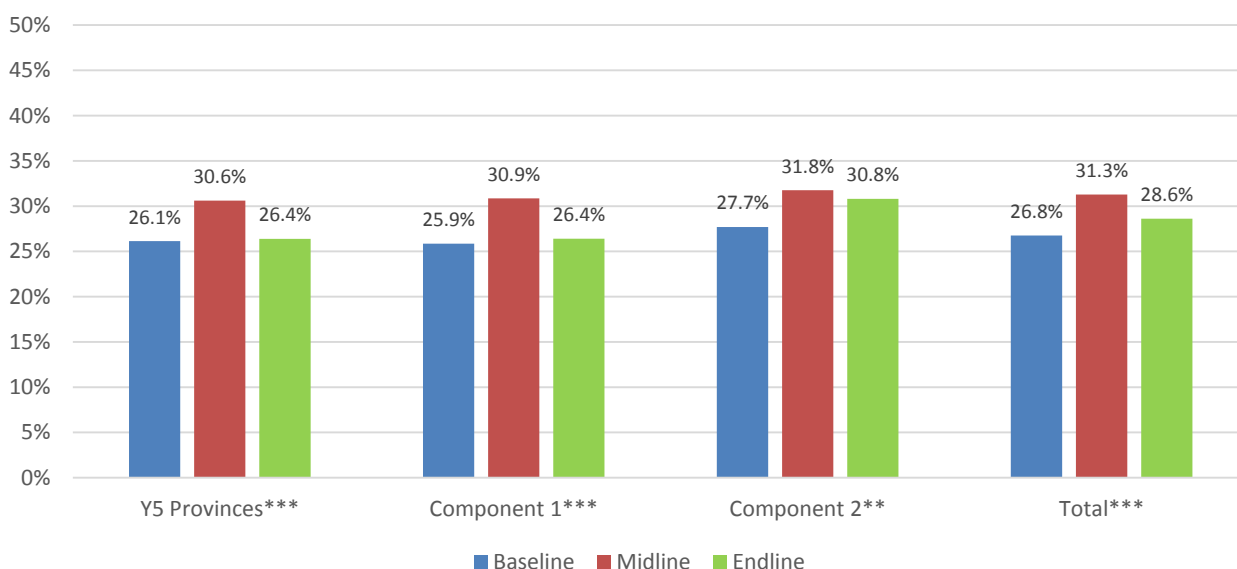


Figure 9: MERI O2.1: Percentage of all WRAs currently using any type of MCM

($n_{base}=2,762$; $n_{mid}=3,250$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 11: MERI O2.1: Percentage of WRAs currently using any type of MCM across the different levels of disaggregation

		Baseline	Midline	Endline
Adolescent WRAs ($n_{base}=416$; $n_{mid}=463$; $n_{end}=500$)	Y5	6.9%	6.5%	8.9%
	C1	8.1%	7.2%	9.7%
	C2	2.6%	5.2%	5.9%
	Total	5.5%	6.3%	8.0%
WRAs from ethnic minorities ($n_{base}=449$; $n_{mid}=473$; $n_{end}=736$)	Y5**	33.6%	41.4%	34.8%
	C1**	33.6%	41.4%	35.1%
	C2			35.7%
	Total**	33.6%	41.4%	35.2%
WRAs from poor households ($n_{base}=726$; $n_{mid}=500$; $n_{end}=312$)	Y5**	25.9%	33.2%	24.3%
	C1**	25.9%	32.8%	24.1%
	C2*	29.1%	35.5%	20.0%
	Total***	27.0%	33.6%	23.4%
WRAs with disability (DISABLE1) ($n_{base}=1,215$; $n_{mid}=597$; $n_{end}=438$)	Y5*	27.8%	31.0%	34.4%
	C1*	27.4%	32.2%	34.9%
	C2	29.2%	31.8%	34.4%
	Total**	28.2%	32.0%	34.7%

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

The percentage of WRAs currently using MCM increased among adolescent WRAs (15-49 years old) from 5.5% at baseline to 8.0% at endline, although this was not significant. It increased significantly among WRAs with disability (DISABLE1), reaching 34.7% at endline (Table 11). The percentage of WRAs from ethnic minorities currently using MCM increased from baseline to midline but then decreased at endline. Part of this endline drop could be imputable to the fact that households from Cham communities were classified as belonging to ethnic minorities, while they were considered Khmer at baseline and midline, as explained in the Sample Description section. Cham communities seem more conservative and have a rate of MCM use of only 30.3%, which then pulls down the overall ethnic minorities' MCM use rate. Finally, the MCM use rate among poor WRAs significantly dropped down to 23.4% at endline.

Figure 10 below shows that the distribution of the different sources of MCM changed significantly across the three survey rounds. However, the most common source for acquiring modern contraception methods remained the same: the public health centre, despite a drop in its prevalence rate (40.7% at endline). WRAs from ethnic minorities particularly appreciated the level of service quality they were offered in health centres, as mentioned in the below quote:

“I like accessing services at the HC, because they provide the medicine for free with a friendly face. For contraception, they tell us clearly about the way to take it by showing signs before they give the medicine to us.” – FGD with unmarried women from ethnic minorities, Stung Treng province.

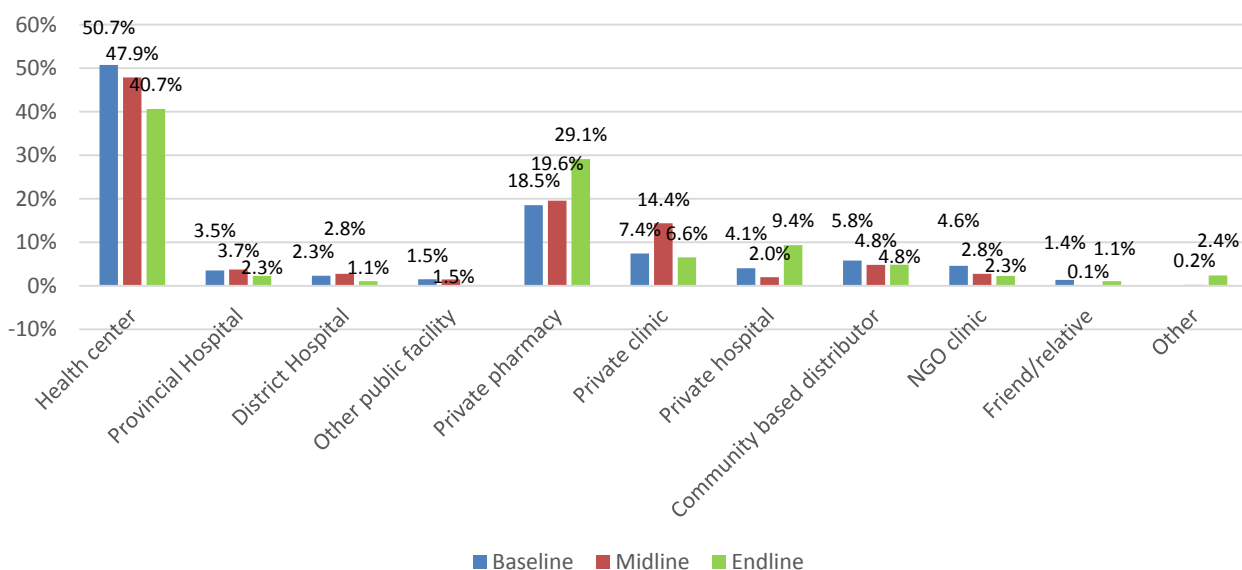


Figure 10: Sources of MCM
 (n_{base}=739; n_{mid}=1,017; n_{end}=930; p<0.01)

Conversely, the popularity of the private sector (private pharmacy, clinic and hospitals together) increased at each round, indicating a movement towards private providers to acquire MCM. One of the main reasons mentioned by FGD respondents to explain this shift concerns the transportation issue: public health facilities can be remote and some WRAs have difficulties accessing them (by lack of money to pay for transport, or lack of time). During a FGD with married women in Battambang province, respondents mentioned that they prefer to buy medicines from their local pharmacy (which they say may belong to doctors from the public health centre) as it is more convenient:

“Most of the public health facilities’ doctors sell medicine at their house but they still work at the health centre. Buying medicine at their home is faster.” – FGD with married women, Battambang province.

c) Long Acting and Permanent Methods (LAPM)

Long acting and permanent methods (LAPM) refers to the methods of female and male sterilization, IUD and implant. The MERI indicator O2.2 measures the percentage of WRA currently using MCM who are using any type of LAPM. Similarly to the MERI indicator O2.1, this indicator value is displayed for the provinces of component 1, provinces of component 2 and where the intervention was implemented in Year 5, as well as the total sample. Among all WRAs using MCM, around one in five WRAs reported using any type of LAPM (21.3% at endline, Figure 11). This rate dropped from baseline and midline to endline, but differences are not statistically significant. WRAs from component 2 provinces reported a higher rate of LAPM usage (between 26.0% at endline to more than 30% at midline)¹⁷.

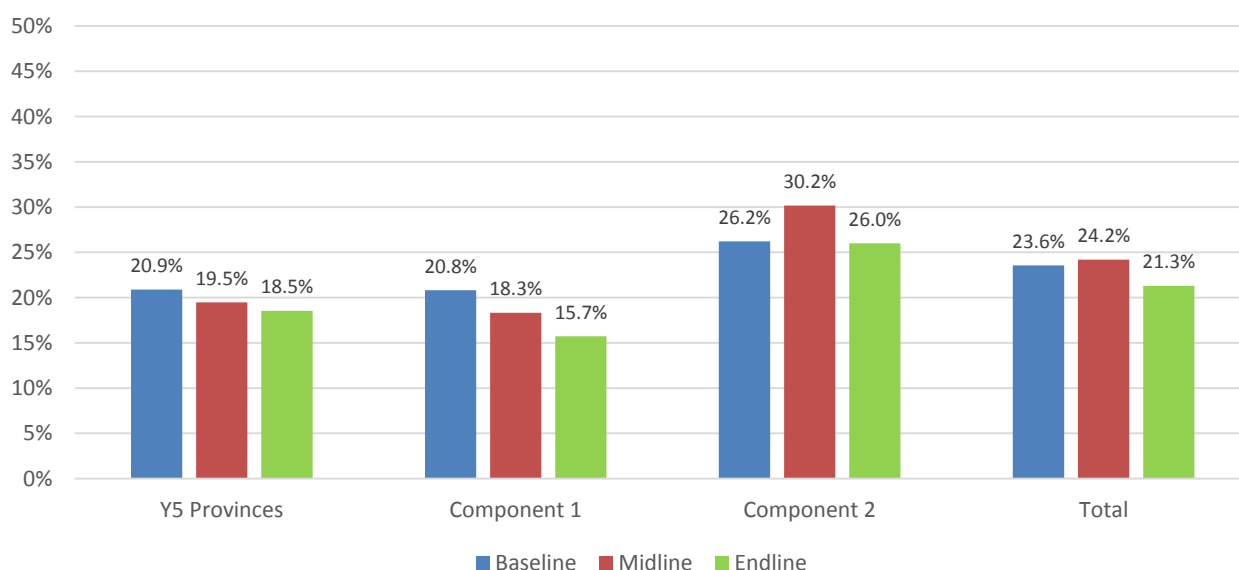


Figure 11: MERI O2.2: Percentage of all WRAs using MCM and any type of LAPM

($n_{\text{base}}=739$; $n_{\text{mid}}=1,017$; $n_{\text{end}}=930$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

The MERI indicator O2.2 results are not presented here for adolescents WRAs as it concerns only a limited number cases, insufficient to provide statistically relevant results. However, Table 12 provides the values of MERI O2.2 for all other levels of disaggregation. As observed above, the rates of WRA, current MCM users and using LAPM, are decreasing for all target groups, and particularly among disabled women as it went from 24.6% at baseline and 30.9% at midline, to 15.8% at endline, almost 50% lower than the midline value.

¹⁷ As per PSL indications, further analysis was conducted on the percentage of WRAs using MCM and Voluntary Surgical Contraception (VSC; male or female sterilisation). This additional analysis can be found in Annex, Figure 40 and Figure 41.

Table 12: MERI O2.1: Percentage of WRAs, MCM users currently using any type of LAPM across the different levels of disaggregation

		Baseline	Midline	Endline
WRAs from ethnic minorities ($n_{base}=151$; $n_{mid}=196$; $n_{end}=259$)	Y5	9.9%	7.1%	6.9%
	C1	9.9%	7.1%	6.7%
	C2			23.5%
	Total	9.9%	7.1%	10.0%
WRAs from poor households ($n_{base}=196$; $n_{mid}=168$; $n_{end}=73$)	Y5**	18.2%	10.6%	6.4%
	C1**	18.9%	9.7%	6.5%
	C2	14.9%	25.9%	18.2%
	Total	17.4%	14.9%	8.2%
WRAs with disability (DISABLE1) ($n_{base}=342$; $n_{mid}=191$; $n_{end}=152$)	Y5**	21.8%	29.2%	14.9%
	C1***	21.5%	29.9%	10.0%
	C2	28.5%	31.9%	24.2%
	Total***	24.6%	30.9%	15.8%

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

WRA who had previously used a family planning method but were not currently were asked the main reason why they stopped. Figure 12 below shows the results from endline¹⁸; the most often cited reason was a fear of complications or effects on health (36.8%). Next more common reason was the fact to want to have a child, mentioned by just over one quarter (26.8%).

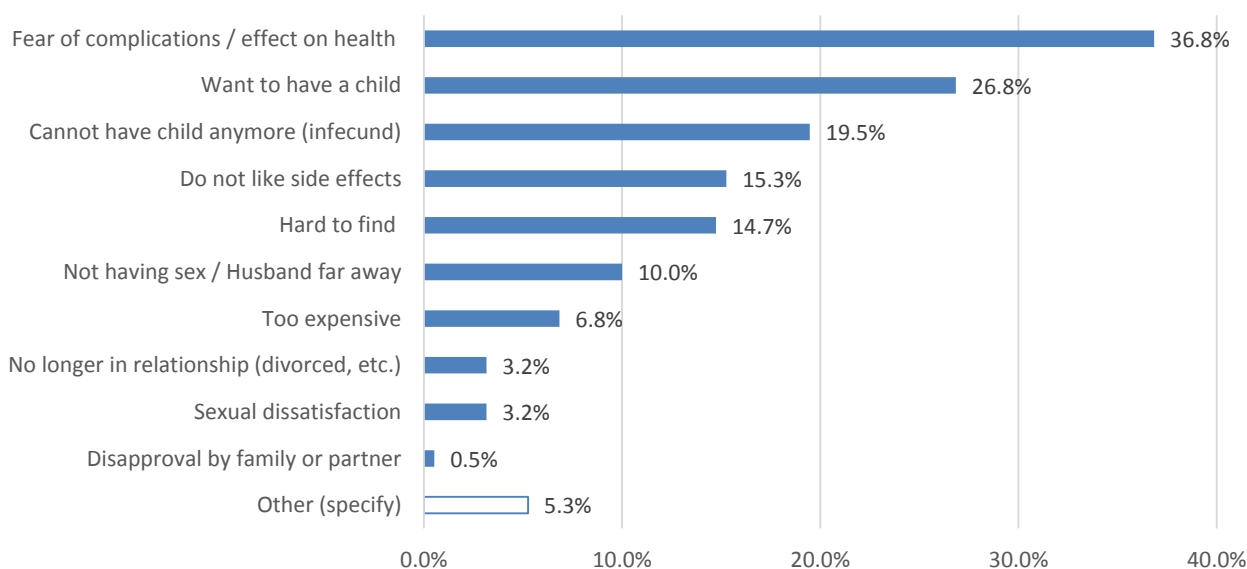


Figure 12: Major reasons to stop using family planning
($n_{end}=190$)

¹⁸ Baseline and midline data was not comparable because of high number of “other” responses.

d) Satisfied demand for modern contraceptive method

This indicator corresponds to the Sustainable Development Goal (SDG) 3.7.1¹⁹ and has for definition the “percentage of women of reproductive age (15-49 years) who desire either to have no (additional) children or to postpone the next child and who are currently using a modern contraceptive method”, or in other words the proportion of WRA who have their need for family planning satisfied with modern methods.

The satisfied demand for MCM was computed among the sexually active women for the PSL endline evaluation, and involves the calculation of the “unmet need” component. The unmet need component corresponds to the percentage of sexually active WRAs, who are not pregnant, who do not want a child within the next 24 months after the survey, but who do not currently use any type of contraception. A module of questions from the CDHS 2014 questionnaire was used to collect the necessary data.

Table 13 below gives the values for the different indicator components, and compares them with their respective values in the CDHS 2014. During the endline survey, 501 out of the 2,400 sexually active WRAs were found to have their needs for modern family planning method unmet. This rate of 20.9% is much higher than the value given in the CDHS. However, the met need (for any contraceptive method; 54.5%) and the met need for MCM (38.8%) are almost identical to the CDHS values (respectively 56.3% and 38.8%). Eventually, the satisfied demand for modern contraceptive method reaches 51.5%, slightly less than the value calculated in the CDHS 2014. This rate means that more than half of the sexually active WRAs in the PSL endline sample have their needs for modern contraceptive method met.

With 20.9% of WRAs with unmet needs (not using contraceptive while they do not want a child any time soon) and 54.5% of WRAs with met needs (using any type of family planning method), the remaining 24.6% of sexually active WRAs are simply those with no contraceptive needs, for example women who cannot have a child, or women who are trying to have a child (in the next 24 months), etc.

Table 13: Satisfied demand for MCM

(n_{end} =2, 400)

	Unmet need	Met need (any FP)	Met need (MCM)	Total demand (any FP)	% demand satisfied (any FP)	% demand satisfied (MCM)
	A	B	C	A+B=D	B/D	C/D
PSL endline	20.9%	54.5%	38.8%	75.4%	72.3%	51.5%
Kratie	30.6%	46.4%	25.6%	77.0%	60.3%	33.2%
Mondul Kiri	11.8%	62.2%	48.0%	74.0%	84.1%	64.9%
Ratanak Kiri	13.9%	62.9%	52.0%	76.8%	81.9%	63.5%
Stung Treng	30.5%	42.0%	19.9%	72.5%	57.9%	27.4%
CDHS 2014	12.5%	56.3%	38.8%	68.8%	81.9%	56.4%

¹⁹ <https://unstats.un.org/sdgs/metadata/files/Metadata-03-07-01.pdf>

3. Pregnancy, Antenatal Care and Delivery

a) Pregnancy Experience

Table 14 below shows the results of pregnancy experience for all WRAs at baseline, midline and endline. There was a significant increase in the number of WRAs who had had at least one pregnancy between baseline (75.8%) and midline (79.5%). However, the average number of pregnancies remains stable across the three rounds of survey. We can observe a slight decrease (though statistically significant) in the number of live births, stillbirths and miscarriages or abortions from baseline to endline.

The percentage of WRAs currently pregnant at the time of the survey (given among all WRAs who had experienced at least one pregnancy) has generally decreased from baseline to endline but the percentage of WRAs with live birth experience in the 24 months preceding the survey has remained approximately the same, around 31%.

Table 14: Pregnancy Experience
($n_{base}=2,762$; $n_{mid}=3,250$; $n_{end}=3,249$)

Key Variables	Baseline	Midline	Endline
WRAs with at least one pregnancy***	75.8%	79.5%	78.7%
Average number of pregnancies/woman (SD)			
All pregnancies	3.6 (2.5)	3.7 (2.5)	3.6 (2.5)
Pregnancies ended in a live birth	2.8 _a (1.9)	2.8 _a (1.9)	2.7 _b (1.8)
Pregnancies ended in a stillbirth	0.2 _a (0.6)	0.2 _a (0.6)	0.1 _b (0.5)
Pregnancies ended in a miscarriage/abortion	0.6 _a (1.1)	0.4 _b (0.8)	0.4 _b (0.8)
WRAs currently pregnant ***	7.7%	8.5%	7.2%
Average length (months) of current pregnancy (SD)	5.4 (2.4)	5.6 (2.4)	5.3 (2.4)
WRAs with live birth experience in the past 24 months	31.4%	31.7%	31.3%

Cells not sharing the same subscript contain statistically and significantly different values, at least at the 90% confidence level (test p-value < 0.1)

** p<0.1; ** p<0.05; *** p<0.01*

b) Adolescent Birth Rate

This indicator corresponds to the SDG indicator 3.7.2²⁰ and has for definition the “annual number of births to females aged 10-14 or 15-19 years per 1,000 females in the respective age group”. The adolescent birth rate is a sub-indicator of the Age-Specific Fertility Rate (ASFR). In order to maintain comparability with the CDHS 2014 and ensure a reliable enough recall period, this rate was calculated over a reference period of three years (36 months) prior to the endline survey. In addition, because the survey target respondents are WRA, from 15 to 49 years old, a reference period of three years implies that it was not possible to fully cover the 10-14 years old category. The adolescent birth rate calculation will thus only consider the 15-19 years old category and will then be noted ASFR₁₅₋₁₉.

²⁰ <https://unstats.un.org/sdgs/metadata/files/Metadata-03-07-02.pdf>

The ASFR₁₅₋₁₉ has for numerator the total number of births to women 15-19 years old within the reference period, and for denominator the total number of person-years in the 15-19 years old age category within the same reference period.

Table 15 below gives the age specific fertility rates for the 15 to 19 years old age category, per 1,000 women. The overall rate reaches 98.8 per 1,000, which is almost twice as big as the national value provided in the CDHS 2014 (57 per 1,000). This is most likely due to the higher ASFR₁₅₋₁₉ observed in component 1 provinces (reaching up to 271.5 per 1,000 in Ratanak Kiri). This is also in line with the CDHS 2014, where North-East provinces have reportedly the highest teenager fertility rates in Cambodia.

Table 15: Adolescent Birth Rate for a reference period of three years before the endline survey
($n_{end}=684$)

	ASFR ₁₅₋₁₉
PSL endline	98.8
Kratie	88.8
Mondul Kiri	200.0
Ratanak Kiri	271.5
Stung Treng	43.4
CDHS 2014 (total)	57
CDHS 2014 (rural)	66

c) Antenatal Care

The MERI Indicator O4.1 measures the percentage of WRA who had given birth in the last two years who had received four or more antenatal consultations with a skilled birth attendant (SBA)²¹. While this indicator did increase in component 1 areas between baseline (47.0%) and endline (60.6%) the difference in difference analysis determined that this was not a significant increase against the counterfactual because component 2 followed a similar rate of increase. DID is +5.3pp at midline and +4.0pp at endline among all WRAs (Figure 13).

For adolescent WRAs in component 1, ANC 4 increased slightly from 43.9% to 55.6%. But because the increase was steeper in component 2, the DID was not found to be significant. DID is of -23.1pp at midline and of -24.1pp endline among adolescents WRAs.

There was also an increase in the percentage of component 1 women who had given birth in the last 24 months receiving four or more ANC consultations from skilled attendants amongst poor households; from 29.9% at baseline to 38.3% at endline. However the corresponding DID was not statistically significant. DID is of +5.9pp at midline and of +9.1pp at endline among WRAs from poor households.

The MERI indicator O4.1 value also increased among WRAs with disability (DISABLE1) and against the counterfactual between baseline (46.4%) and endline (70%), although it was once again not a statistically significant increase. DID is of +10.3pp at midline and of +13.6pp at endline among WRAs with some impairment.

²¹ Doctor, nurse, midwife or other trained health personnel

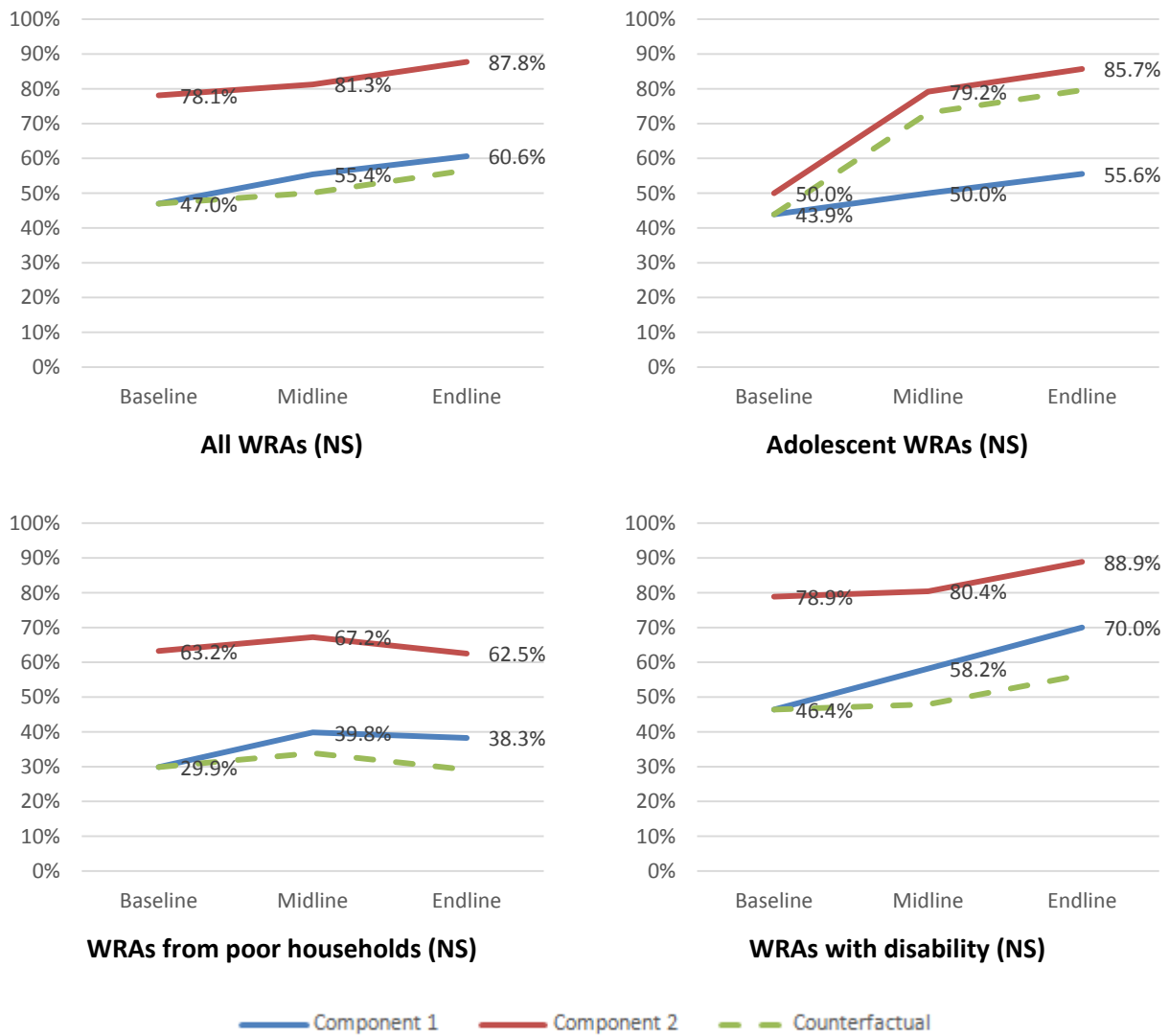


Figure 13: MERI O4.1: DID for WRAs receiving at least 4 ANC consultations

ANC4 value increased among WRAs from ethnic minorities, from 30.6% at baseline, to 46.9% at midline and 59.5% at endline. As mentioned previously in this report, because the baseline and midline survey rounds did not identify any WRAs from ethnic minorities in component 2 provinces, it was not possible to produce any DID result for this population group.

All provinces except for Stung Treng saw an increase in ANC4 between baseline and endline, although this increase was not significant in Koh Kong, Kratie and Sihanoukville. Mondul Kiri province saw the largest and significant increase, moving from 41.2% at baseline to 86.5% at endline.

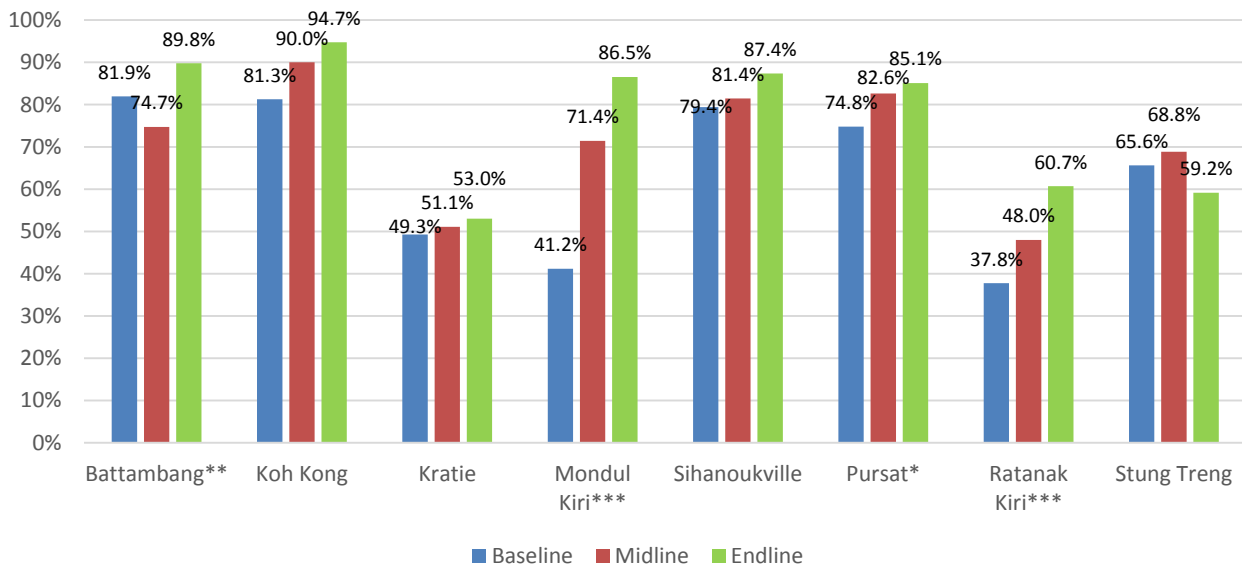


Figure 14: ANC4, by province

($n_{base}=658$; $n_{mid}=819$; $n_{end}=801$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Similarly to ANC4, the ANC2 indicator, which measures the percentage of women who gave birth and received two or more ANC consultations with a skilled birth attendant, witnessed an improvement in component 1 during the study period (Figure 15). This increase corresponds to a statistically significant DID of +9.4pp at midline ($p<0.01$) and of +13.5pp at endline ($p<0.01$).

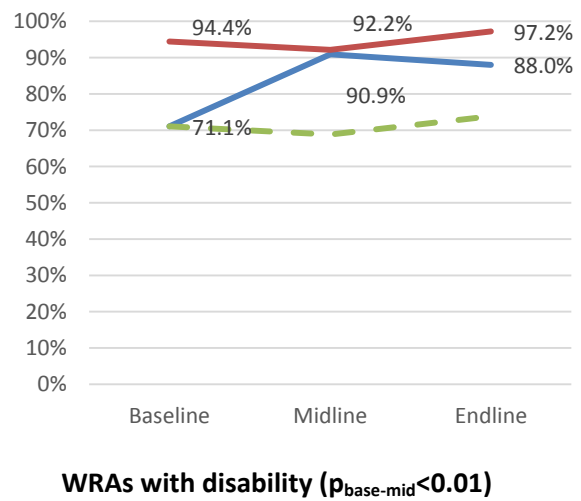
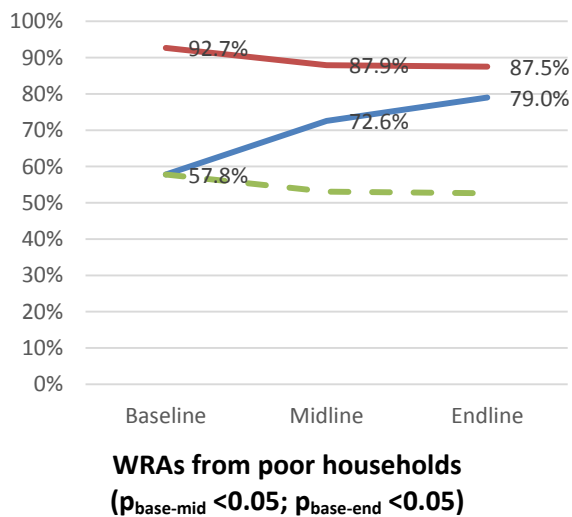
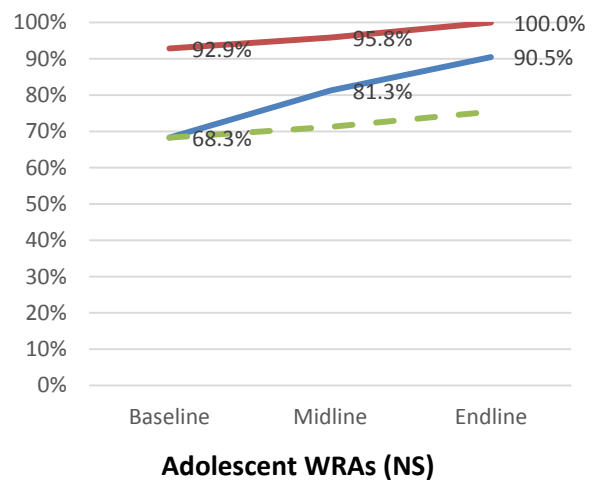
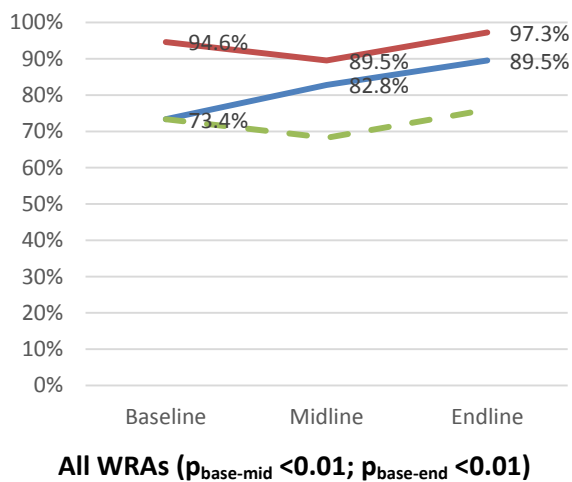
An increase in ANC2 can also be observed among adolescents WRAs, from 68.3% at baseline to 90.5% at endline although the DID was not found to be statistically significant (+10.0pp at midline and +15.0pp at endline).

The increase in ANC2 percentage was however significant among WRAs from poor households, with a DID of +19.5pp at midline ($p<0.05$) and of +26.4pp at endline ($p<0.05$), while the increase among WRAs with disability was only significant between baseline and midline, with a DID of +22.1pp ($p<0.01$) (+14.1pp at endline).

The ANC2 value increased among WRAs from ethnic minorities, from 57.8% at baseline, to 69.2% at midline and 87.3% at endline. Male FGD respondents from ethnic minorities in Kratie province actually mentioned that they were advised by health centre doctors to get prenatal care several times a month, which confirms this trend:

“When we go to do the prenatal care, the doctor told us to check 2 or 3 times per month... When we go to deliver the baby at health centre, the doctors treated us well. The stand-by doctor took care of us and gave the injection. They came to check the mother and baby’s health every day.” – FGD with male respondents from ethnic minorities, Kratie province.

These results show that the PSL project intervention has had a positive, statistically significant impact on the percentage of WRA seeking antenatal care (at least two visits) for their last live birth (within the 24 months before the survey) with a SBA.



— Component 1 — Component 2 - - - Counterfactual

Figure 15: MERI O4.1: DID for WRAs receiving at least 2 ANC consultations

The ANC2 scores rose in all provinces between baseline and endline (Figure 16), but rose significantly in Kratie, Mondul Kiri and Ratanak Kiri only (13.4pp, 17.7pp and 23.9pp increases respectively).

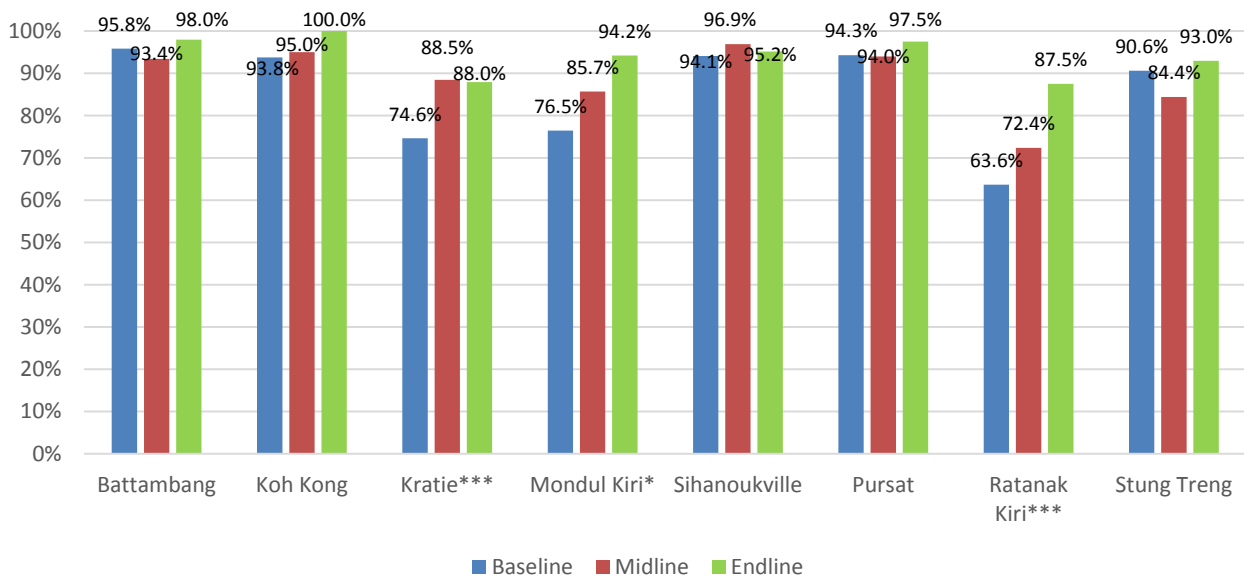


Figure 16: ANC2, by province

($n_{base}=658$; $n_{mid}=819$; $n_{end}=801$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

d) Delivery

Encouragingly, throughout the project study period the percentage of women giving birth at a public health facility increased, while the percentage of women giving birth at home decreased. These results were statistically significantly different, as shown in Figure 17 below.

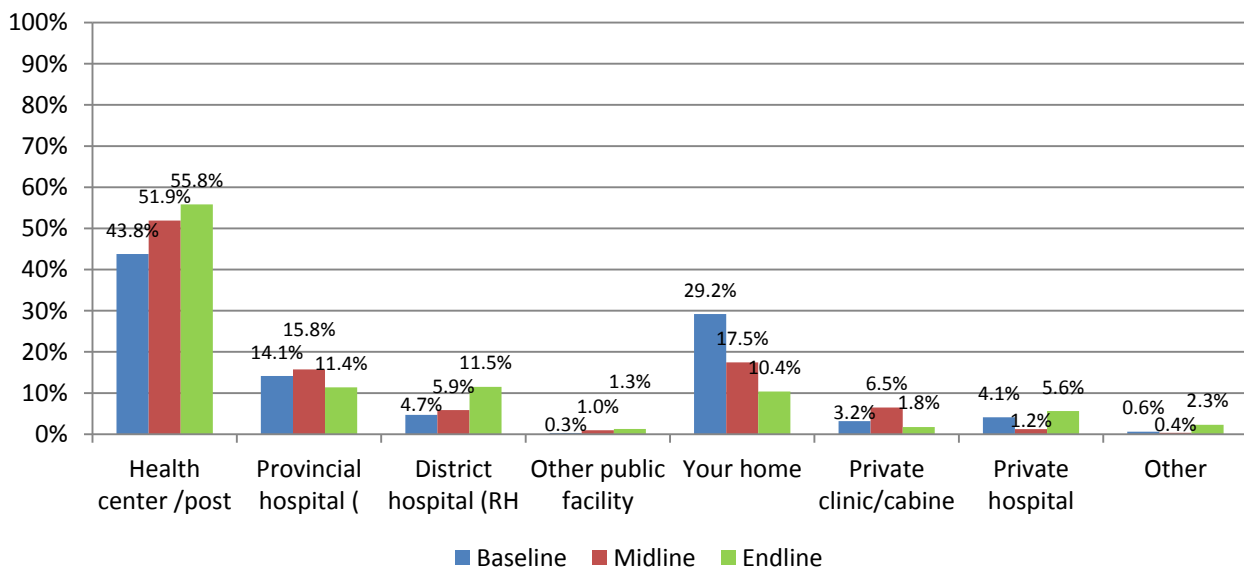


Figure 17: Percentage distribution of births last 12 months

($n_{base}=658$; $n_{mid}=819$; $n_{end}=799$; $p<0.01$)

The MERI indicators O1.4 measures the percentage of WRAs who gave birth in the past 24 months, in a health facility with a SBA. Encouragingly, there was an increase for component 1 between baseline and endline (respectively 55.2% and 78.6%), which corresponds to a statistically significant DID of +11.5pp at midline ($p < 0.01$) and +21.9pp at endline ($p < 0.01$).

Although a slight increase can also be observed for this indicator among adolescents WRAs and against the counterfactual, it is not statistically significant. DID is of +4.3pp at midline and of +8.3pp at endline for this group. A similar conclusion can be made for WRAs from poor households (non-significant DID), although we can observe an increase (still compared to the counterfactual) after the midline, suggesting that the intervention may have had a delayed effect. DID among WRAs from poor households is of +1.3pp at midline and of +18.0pp at endline.

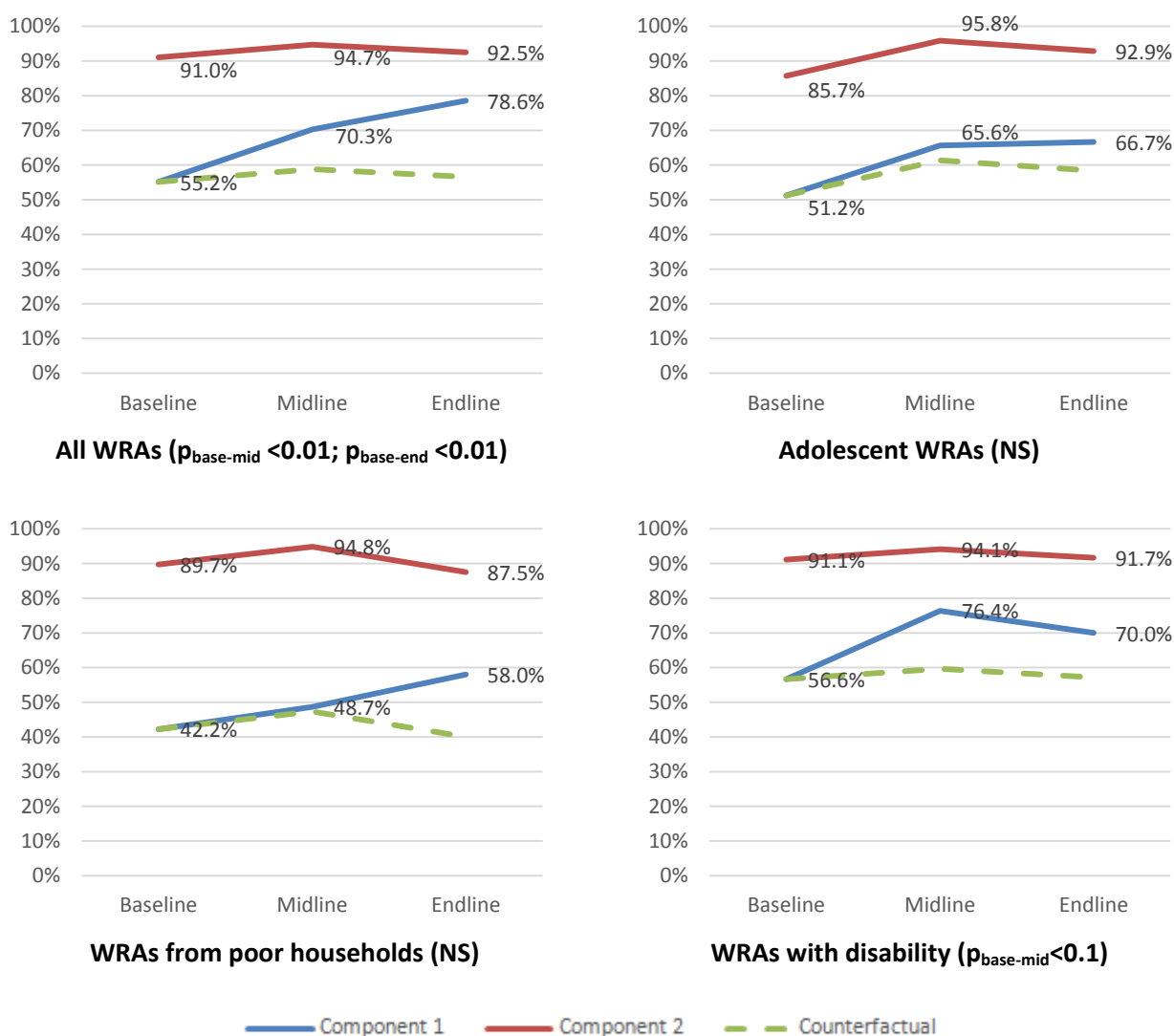


Figure 18: MERI O1.4: DID for WRAs who gave birth in a health facility with a SBA

Finally, there was a significant increase for the MERI indicator O1.4 among disabled WRAs from component 1 at midline only, with a DID of +16.7pp ($p < 0.1$). However, the long-term impact was not found to be significant (DID of +12.8pp).

Unmarried adolescent WRAs in Ratanak Kiri province noted the overall improvement in terms of delivery location, mentioning that pregnant women now resort less to Traditional Birth Attendants (TBA), and more to health facilities in general, as they are seemingly more aware about the level of skills and equipment there:

“It has changed because before, they [women] delivered their baby using traditional birth attendants, but now they [women] deliver their baby at the hospital. They [hospitals] have skilled doctors, a screening machine, and medicine, and when they [women] are pregnant, they [women] can go to get screened 3 or 4 times to know about the fetus health. – FGD with unmarried adolescent women, Ratanak Kiri province.

These results show that the PSL project intervention has had a positive, statistically significant impact on the percentage of WRA giving birth in the last 24 months in a health facility with a skilled birth attendant.

The percentage of WRAs from ethnic minorities who gave birth with a SBA in a health facility also increased significantly along the duration of the PSL project, from 37.4% at baseline, to 53.1% at midline and 63.3% at endline.

When disaggregating the MERI indicator O1.4 results by province, we can observe a similar pattern to the ANC2 and ANC4 indicators where increases were observed in almost all provinces, though these were significant in Kratie, Mondul Kiri and Ratanak Kiri provinces only.

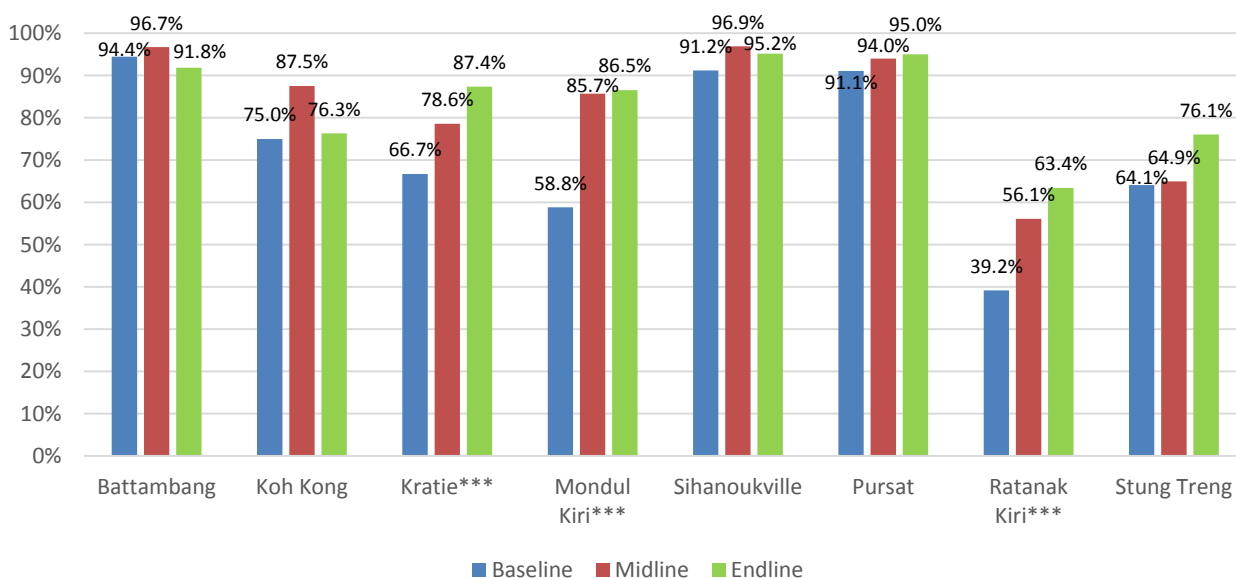


Figure 19: Percentage of WRA giving birth with SBA in health facilities, by province

(n_{base}=658; n_{mid}=819; n_{end}=801)

* p<0.1; ** p<0.05; *** p<0.01

4. Newborn and Postnatal Care

a) Newborn Care

Appropriate immediate newborn care was assessed across both components by three proxy indicators: 1) the newborn was placed on the bare chest of the mother for a few minutes immediately after birth; 2) the newborn was dried or wiped immediately after birth; and 3) the first bath was delayed at least 6 hours after birth. Any newborn given all three types of care was considered as having received appropriate immediate newborn care. All three of these indicators rose significantly at midline (Table 16). The indicator reporting that the baby was placed on his mother’s bare chest immediately after birth kept increasing at endline, while the two other indicators dropped back, approximately down to their baseline level. A similar table is proposed in Annex, Table 28, and focuses on newborn care in component 1 only.

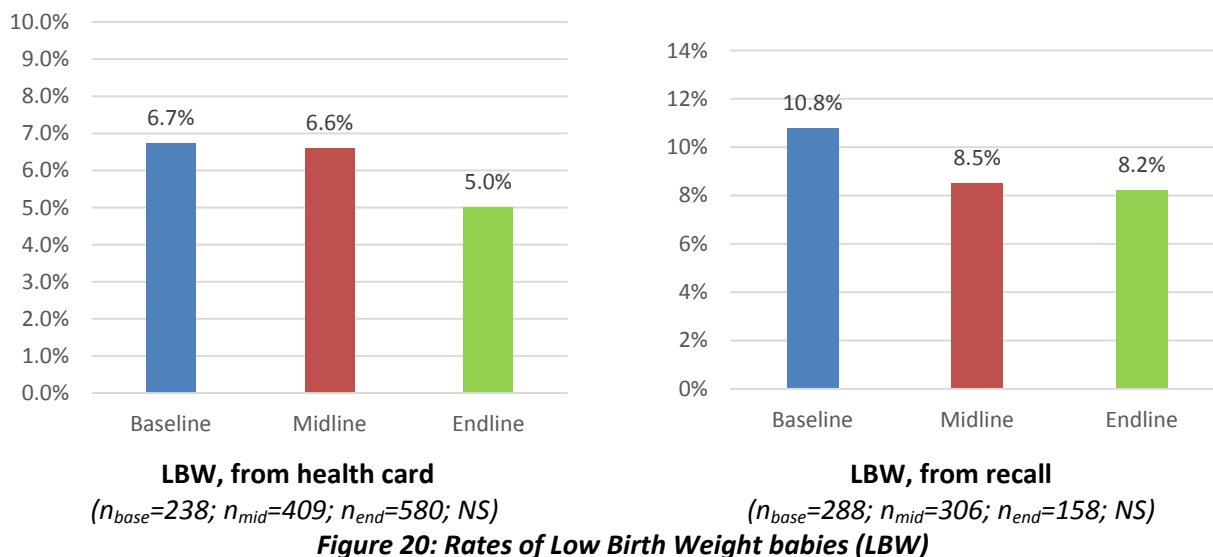
Table 16: Newborn Care

Key Variables	Baseline	Midline	Endline
Placed on bare chest immediately after birth ($n_{base}=658$; $n_{mid}=809$; $n_{end}=799$)***	63.2%	76.0%	80.1%
Wiped / dried immediately after birth ($n_{base}=658$; $n_{mid}=786$; $n_{end}=799$)***	84.4%	92.4%	84.7%
Delay bath at least six hours ($n_{base}=633$; $n_{mid}=812$; $n_{end}=799$)***	68.9%	79.7%	67.4%
All three types of care ($n_{base}=658$; $n_{mid}=819$; $n_{end}=799$)***	43.2%	59.2%	49.1%
Among ethnic minorities WRAs **	25.9%	39.2%	37.0%
Among WRAs with disability ***	37.9%	57.6%	43.0%
Among WRAs from poor HHs ***	36.9%	50.9%	33.0%
Among adolescents WRAs **	43.6%	60.7%	39.6%

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

To measure whether newborns are considered to have a low birth weight (LBW; <2.5kg) respondents were asked to show the interviewers their “yellow card” or health card, which are supposedly issued at birth (assuming birth occurred at a health facility). When the yellow card was not present respondents were asked to recall their approximate child’s birth weight. Figure 20 below shows the LBW rates at each survey round, based on answers collected from respondents’ recall, or from their children’s yellow book. No significant difference could be found between any of the survey round.

Noticeably, at each round of survey, the recall-based LBW rates were higher than the rates calculated from the yellow card, although no significant difference could be calculated.



b) Postnatal Care

The MERI indicator O4.2 is comprised of two measures 1) the percentage of women who received a PNC consultation with a SBA in a health facility within 48 hours after giving birth (PNC1), and 2) the percentage of women who received PNC1 and received at least a second PNC visit within 48 hours to seven days after giving birth, with a SBA in a health facility (PNC2).

Figure 21 below shows the difference in difference analysis conducted on the PNC1 measure. PNC1 increased from 43.3% at baseline, to 66.5% at midline and 71.6% at endline, consistently higher than its counterfactual values for each respective round of survey. This resulted in statistically significant DID of +10.2pp at midline ($p < 0.05$) and +23.2pp at endline ($p < 0.01$), suggesting that PSL activities may have had a positive impact on the percentage of WRAs receiving a postnatal care visit in the first 48 hours after they gave birth.

The PNC1 trends saw a similar pattern among adolescent WRAs and WRAs from poor households, with significant DID obtained at endline: +34.3pp among adolescent WRAs ($p < 0.1$) and +28.8pp among poor WRAs ($p < 0.05$). The DID calculated at midline were not found to be significant though, with values of +6.8pp for adolescent WRAs and +2.8pp for poor WRAs.

Although the PNC1 rates for WRAs with disability increased in component 1 from baseline to midline, a slight decrease can be observed at endline. No significant DID could be calculated here: +15.0pp at midline and +17.8pp at endline.

PNC1 percentages among WRAs from ethnic minorities increased from 31.3% at baseline to 50.0% at midline and 59.5% at endline.

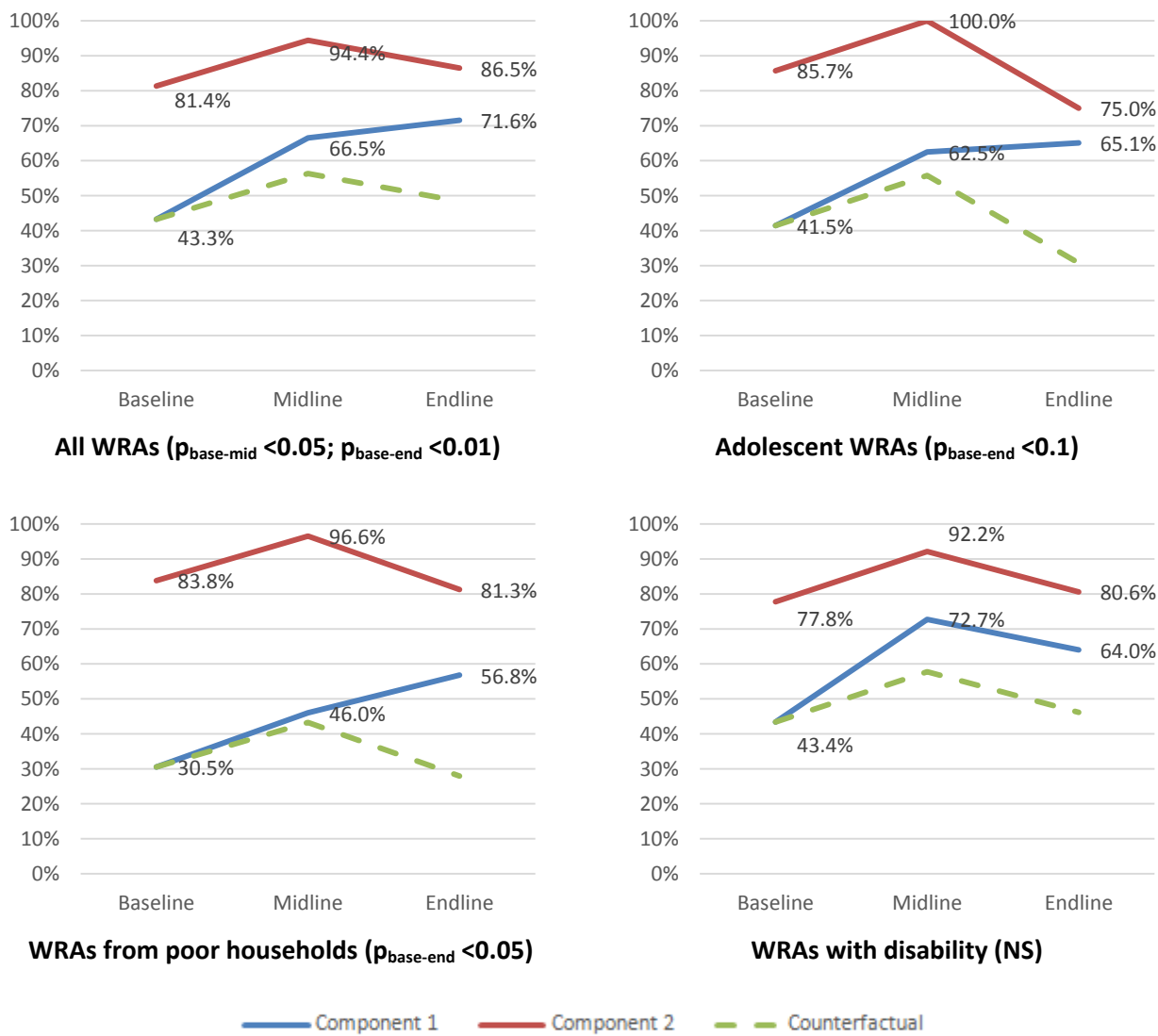


Figure 21: MERI O4.2: DID for WRAs who received PNC1

Figure 22 below shows that PNC1 rates increased significantly from baseline to endline in Battambang, Kratie, Mondul Kiri, Pursat and Ratanak Kiri provinces. The largest increase was observed in Mondul Kiri (+37.7pp). Preah Sihanouk was the only province where endline measurements were found to be significantly lower than baseline.

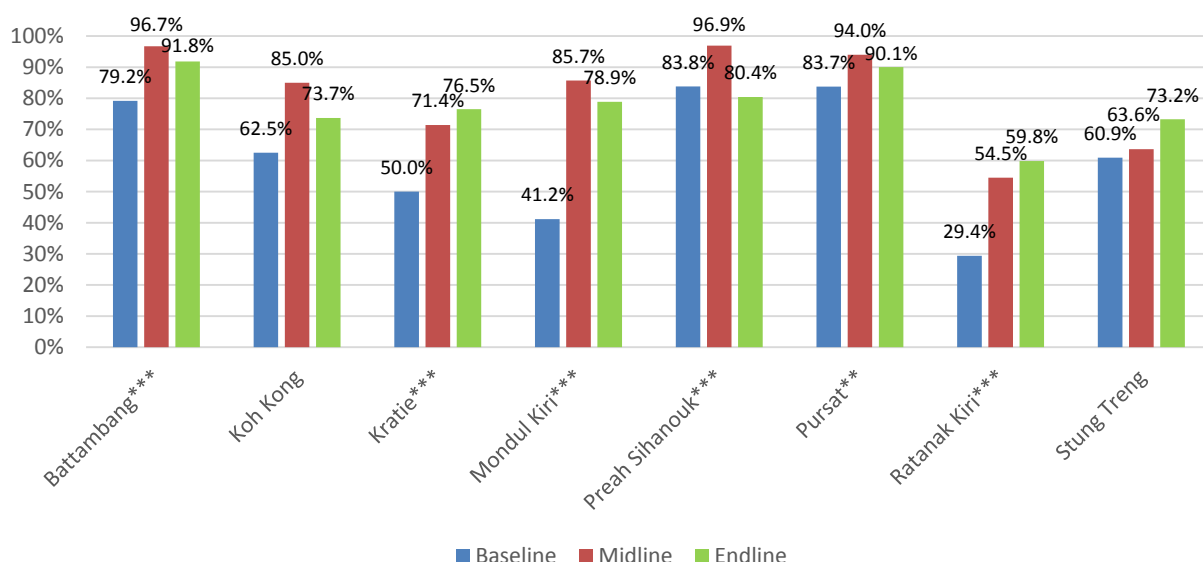


Figure 22: Percentage of WRAs receiving PNC1, by province

($n_{base}=658$; $n_{mid}=819$; $n_{end}=800$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

For the MERI indicator O4.2 PNC2 (percentage of women who received PNC1, and at least a second PNC visit in the 48 hours to 7 days after giving birth, with SBA in a health facility), it was not possible to run the DID analysis as baseline data only informed about the first PNC consultation (while both the midline and endline rounds proposed a full roster of all PNC visits). Table 17 below shows the PNC2 scores for each of the two components at midline and endline. There was a large increase in PNC2 score between midline and endline overall and across all disaggregation categories.

Table 17: Percentage WRAs receiving PNC2 (midline and endline only)

(C1: component 1; C2: component 2)

	Midline		Endline	
	C1	C2	C1	C2
All respondents ($n_{mid}=819$; $n_{end}=800$)	6.8%	8.9%	43.4%	30.6%
Adolescents WRAs ($n_{mid}=56$; $n_{end}=91$)	6.3%	8.3%	33.3%	25.0%
WRAs from poor households ($n_{mid}=171$; $n_{end}=97$)	5.3%	6.9%	38.3%	18.8%
WRAs with disability (DISABLE1) ($n_{mid}=106$; $n_{end}=86$)	7.3%	2.0%	32.0%	19.4%
WRAs from ethnic minorities ($n_{mid}=130$; $n_{end}=184$)	4.6%		30.4%	15.4%

The large improvement in PNC2 was consistent and statistically significant across all provinces, with Stung Treng province remarkably improving from 10.4% to 64.8%. The smallest improvements were seen in Preah Sihanouk and Mondul Kiri provinces (respectively 11.9pp and 14.1pp).

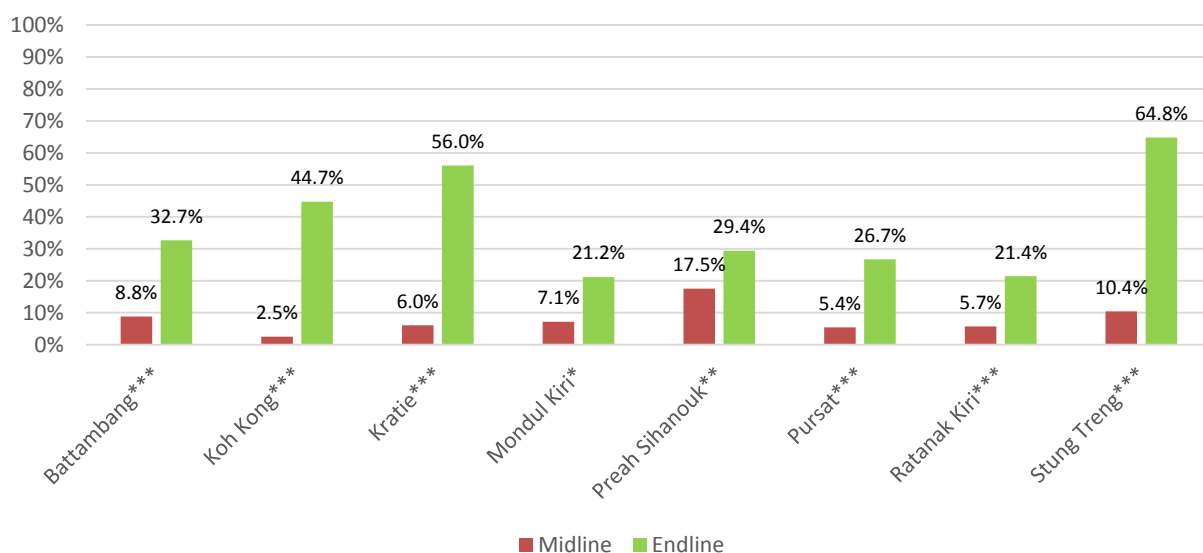


Figure 23: Percentage of WRAs receiving PNC2, by province

($n_{mid}=819$; $n_{end}=800$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Despite FGD moderators' efforts to orientate the discussion towards postnatal care and the potential changes participants may have witnessed in the past few years, FGD respondents rarely mentioned PNC-related statements. When they were asked about the potential RMNH benefits they may have received, married women in Mondul Kiri provinces briefly recognised that they did receive advice on PNC from health centres:

[Moderator:] "Have you ever received any support, or benefitted from any activity related to accessing reproductive, maternal and neonatal health services?"

[FGD respondent:] "Many benefits. First, they [health centre staff] gave us advice about prenatal care, that we need to care about ourselves and about the foetus and then they [health centre staff] told us about what kind of food we should eat to make the baby healthy. Second, they advised us on postnatal care and baby vaccination to prevent disease." – FGD with married women, Mondul Kiri province.

Some FGD respondents also mentioned barriers to accessing prenatal and postnatal care, which may help understanding the limited level of impact observed for the ANC4 indicator:

[Moderator:] "What are the barriers that make them [women] unable to get prenatal care when they are pregnant and postnatal care after delivery? What are the barriers that make them unable to go check and care for those health issues?"

[FGD respondent:] "Because they are careless with their health, have no money and have to travel a long distance while they have nothing to drive. When they borrow from other people, [...] it is difficult." – FGD with married women from ethnic minorities, Stung Treng province.

The MERI indicator O3.2 measures the percentage of WRAs who attended PNC which were offered counselling in modern family planning methods up to seven days after giving birth. Once again, because baseline data only focuses on the first PNC visit ("Did he/she talk to you about family planning methods within 24 hours after birth?") while both the midline and endline survey rounds recorded data on all PNC

visits, the results presented below may be underestimated for baseline values. Indeed, even if WRAs did not report any counselling on MCM during their first PNC visit, they may have received such counselling during their next visits. This data was not collected by the baseline survey. Yet the research team decided to keep the baseline values (relating the first PNC visit only) as a proxy in the following analysis.

Despite a rise in midline measurements, both components dipped at endline to record similar scores to that of baseline. No significant difference was noted here as component 1 followed an almost identical pattern to the counterfactual. DID was of +4.5pp at midline and +3.1pp at endline among all WRAs.

Similarly, no significant DID could be found for this indicator among adolescent WRAs (+2.1pp at midline and -4.2pp at endline) or among WRAs from poor households (DID of +3.8pp at midline and +2.5pp at endline). However, there was a significant increase in the percentage of WRAs with disability who received counselling during their PNC, at endline only (long-term), with a DID of +22.9pp ($p < 0.1$). Although a positive impact could be observed at midline too, it was not great enough to be statistically significant (DID of +7.8pp at midline).

The percentages for MERI indicator O3.2 increased from baseline to midline among WRAs from ethnic minorities (respectively 23.4% to 51.4%), before dropping at endline, down to 31.2%.

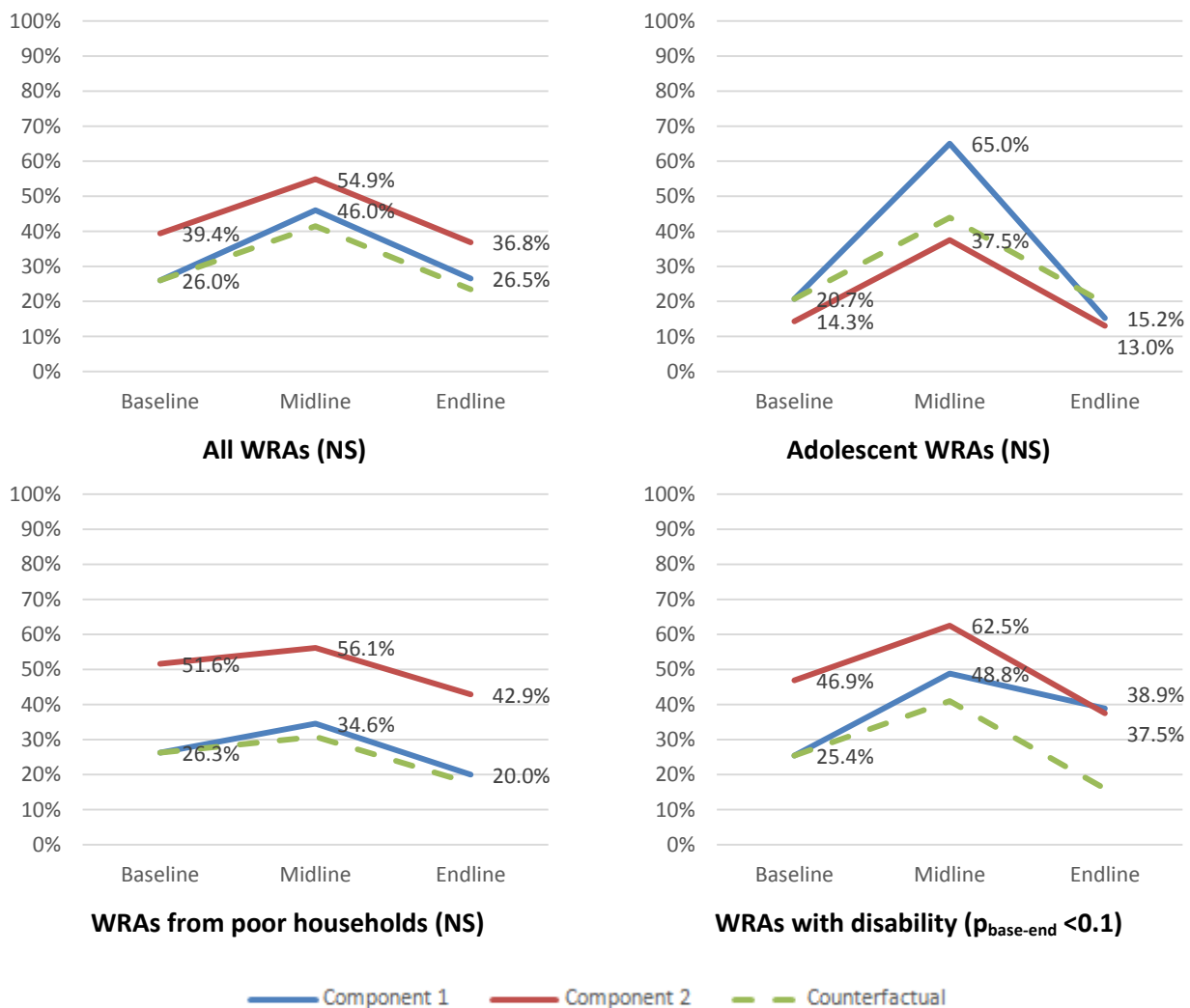


Figure 24: MERI O3.2: DID for WRAs attending PNC and who received counseling in MCM

The overall increase observed at midline for the MERI O3.2 rates was mostly driven by the provinces of Koh Kong, Kratie, Mondul Kiri, Pursat and Stung Treng which all displayed statistically significant increases at midline before experiencing a drop off at endline. The only consistent and significant increase at endline was observed in Ratanak Kiri province.

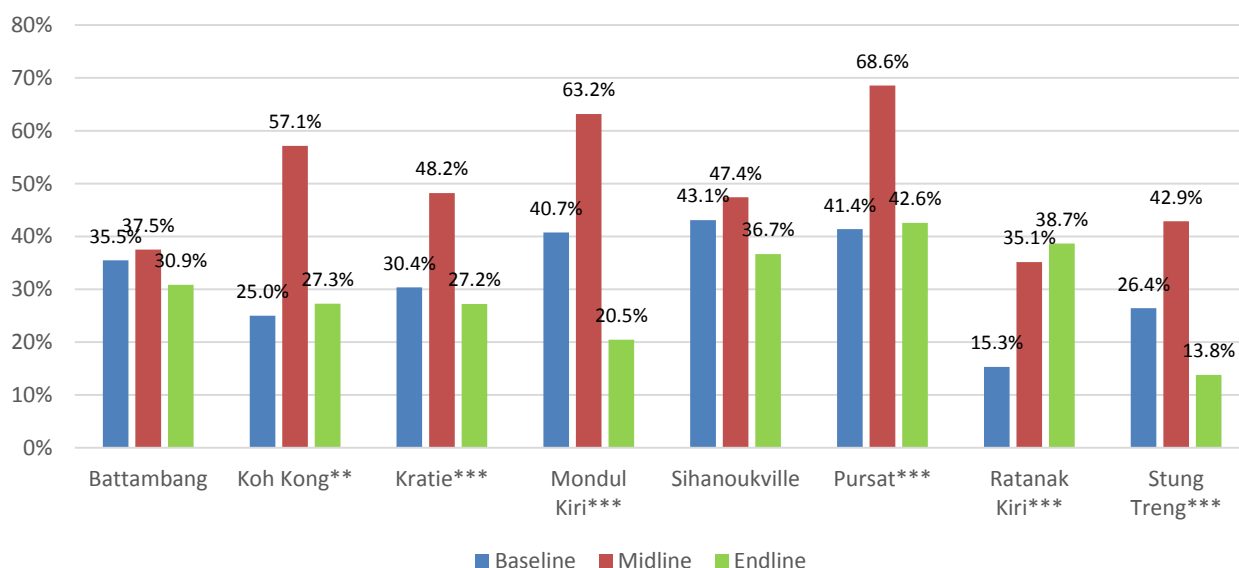


Figure 25: Percentage of WRAs receiving counseling on MCM during PNC visit, by province

($n_{base}=536$; $n_{mid}=679$; $n_{end}=685$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

As mentioned previously, because of the differences in questionnaire design between the baseline and follow-up survey rounds, the baseline values calculated for this indicator may be underestimated. This implies that the difference between the baseline and endline rates may actually be more important than presented above, and may then correspond to a decline in the percentage of WRAs receiving counselling on MCM during their PNC visit over the length of the PSL program implementation.

5. Abortion and Post Abortion Care

Over the course of the program the percentage of WRAs who reported induced abortions (IA) in the past 24 months remained steady (75, 103 and 92 cases respectively for the baseline, midline and endline surveys). However the average number of months of pregnancy when these abortions were induced decreased significantly from 1.8 months at baseline to 1.4 months by endline. The mode (most frequently reported value) of pregnancy length at the time of IA decreased from 2 months at baseline to 1 month during each of the follow-up survey rounds. There was also a significant increase in the percentage of the oral + vaginal pill method (medical abortion) rising from 42.7% at baseline to 67.4% at endline. Traditional methods were not reportedly used at endline.

Table 18: Induced abortion and post abortion care

($n_{base}=2,762$; $n_{mid}=3,250$; $n_{end}=3,249$)

Key Variable	Baseline	Midline	Endline
Percentage of WRAs reporting IA in past 24 months	2.7%	3.2%	2.8%
Avg. pregnancy length at the time of IA (months; SD)	1.8 _a (0.9)	1.6 _b (0.8)	1.4 _c (0.8)
Mode pregnancy length at the time of IA (months)	2	1	1
Percentage of IA by method			
Manual vacuum aspiration	52.0%	41.8%	37.0%
Oral + vaginal pill/tablet***	42.7%	67.0%	67.4%
Traditional methods*	2.7%	0.0%	0.0%
Percentage of WRAs with IA seeking post-abortion care**	32.0%	28.2%	33.7%
Percentage of WRAs knowing where to access safe abortion***	50.4%	58.8%	49.4%

Cells not sharing the same subscript contain statistically and significantly different values, at least at the 90% confidence level (test p -value < 0.1)

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Figure 26 below shows the location where the induced abortion took place. Across the study period there was a slight increase in those receiving their abortion at the public health centre; however the most common locations still were respondents' homes and private providers.

Less than half of all WRAs who had an IA in the 24 months preceding the endline survey (46.7%) sought assistance from a medical trained provider to perform it. This is lower, though non-significantly, than the 49.5% at midline and 62.7% at baseline. Among those who received assistance during their IA, more than 80% WRAs at each survey round reported that a midwife provided this assistance. WRAs who received IA at home were far less likely to seek assistance, with only slightly more than 12%, at each round of survey, reporting that a medical professional provided help for the abortion.

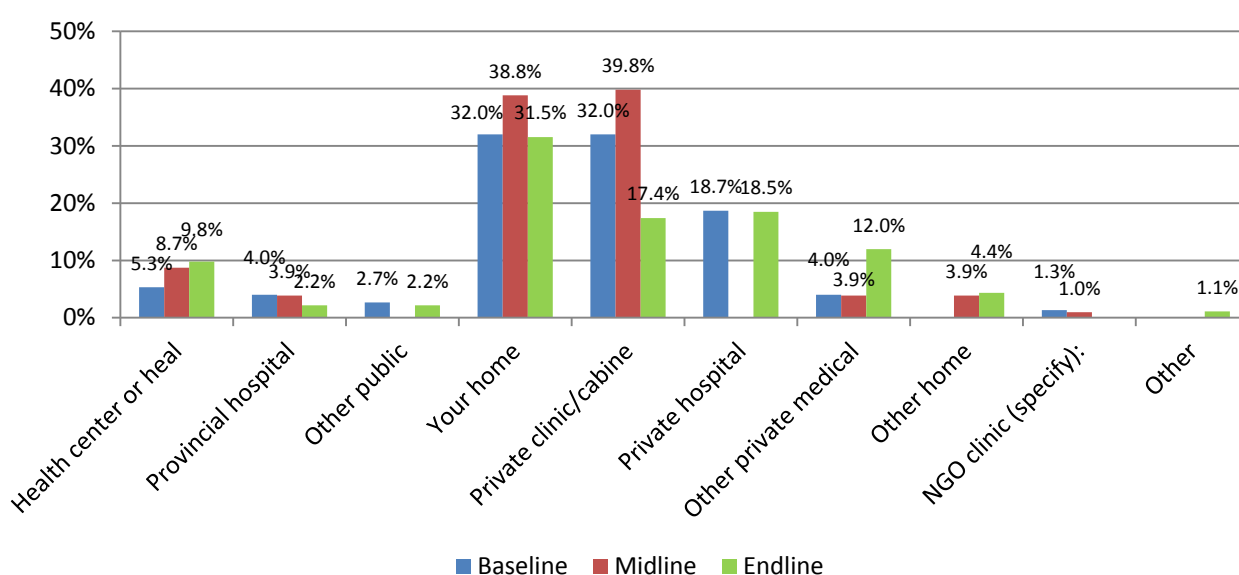


Figure 26: Location for WRAs who received Induced Abortion

($n_{base}=75$; $n_{mid}=103$; $n_{end}=92$; $p < 0.01$)

The MERI indicator I4.4 is a measure of the percentage of WRAs who are aware that abortion is legal in Cambodia. Encouragingly there was a significant rise in this level of awareness overall from 11.7% of respondents at baseline to 14.6% of respondents at endline. There was also a significant increase among WRAs with disability while significant decreases in awareness were observed amongst those from poor households and ethnic minorities.

Table 19: Percentage of WRAs aware about the legal status of abortion in Cambodia

Variable	Baseline	Midline	Endline
% of WRAs who know that abortion is legal*** (<i>n_{base}</i> =2,762; <i>n_{mid}</i> =3,250; <i>n_{end}</i> =3,249)	11.7%	11.3%	14.6%
Adolescent WRAs (<i>n_{base}</i> =416; <i>n_{mid}</i> =463; <i>n_{end}</i> =500)	13.0%	12.1%	15.8%
WRAs from poor households* (<i>n_{base}</i> =726; <i>n_{mid}</i> =500; <i>n_{end}</i> =312)	13.5%	12.4%	11.5%
WRAs from ethnic minorities*** (<i>n_{base}</i> =449; <i>n_{mid}</i> =473; <i>n_{end}</i> =736)	16.0%	16.9%	14.1%
WRAs with disability (DISABLE1)*** (<i>n_{base}</i> =1,215; <i>n_{mid}</i> =597; <i>n_{end}</i> =438)	12.0%	8.5%	14.6%

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The knowledge on where to access safe abortion services was assessed at each round of survey, through the following two questions: “Do you know where a woman can access safe abortion service?” and “If yes, where could you get a safe abortion if you needed it?”. WRAs were considered knowledgeable if they answered “Yes” to the first question, and “Public hospital or health center with trained midwife or doctor or medical assistant”, “Private hospital or clinic with trained midwife or doctor or medical assistant”, “NGO clinic such as MSIC or RHAC” or “Home with trained midwife or doctor or medical assistant” to the second question. The overall percentage of knowledgeable WRAs increased significantly from baseline to midline, before dropping back at endline to similar levels as baseline. More particularly, a significant increase in knowledge was found among WRAs from poor households and from ethnic minorities. On the contrary, a significant decrease can be observed among WRAs with disability.

Table 20: Percentage of WRAs aware of where to access safe abortion services

Variable	Baseline	Midline	Endline
% of WRAs who know where to access safe abortion services*** (<i>n_{base}</i> =2,762; <i>n_{mid}</i> =3,250; <i>n_{end}</i> =3,249)	50.4%	58.8%	49.4%
Adolescent WRAs (<i>n_{base}</i> =416; <i>n_{mid}</i> =463; <i>n_{end}</i> =500)	42.1%	42.6%	45.0%
WRAs from poor households*** (<i>n_{base}</i> =726; <i>n_{mid}</i> =500; <i>n_{end}</i> =312)	41.3%	48.0%	53.5%
WRAs from ethnic minorities*** (<i>n_{base}</i> =449; <i>n_{mid}</i> =473; <i>n_{end}</i> =736)	35.0%	52.4%	49.3%
WRAs with disability (DISABLE1)*** (<i>n_{base}</i> =1,215; <i>n_{mid}</i> =597; <i>n_{end}</i> =438)	54.3%	60.0%	48.4%

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

6. Satisfaction with RMNH services, financial and referral mechanisms

This section initial analysis revealed clear and consistent differences between the midline survey results and the results from the two other survey rounds. The PSL partners, after consultation and thorough results review, made the decision to exclude the midline data from this section analysis, in an attempt to improve its overall relevance and reliability. The following statistics will thus only tackle the trends and DID results from baseline to endline, as per PSL request.

a) Satisfaction with RMNH Services

WRAs who had used any of the five RMNH services (family planning, abortion or post abortion care, ANC, delivery and PNC) in public health facilities within the 12 months preceding the survey were asked about their level of satisfaction with the service(s) they received. The MERI indicator O3.3 measures the percentage of these women who said they were “highly satisfied”.

Figure 27 presents the rates of highly satisfied WRAs across the different levels of disaggregation. A statistically significant DID of -10.2pp ($p < 0.05$) was calculated among all WRAs from baseline to endline, implying that PSL may have had a negative effect on WRAs' level of satisfaction towards the RMNH services they received in public facilities. However, a similar analysis, run for women who mentioned that they were highly satisfied or satisfied (Annex, Figure 42), showed that there was no statistical change from baseline to endline (non significant DID of +1.9pp), with the percentages of satisfied WRAs reaching more than 95% over the project implementation period. In other words, although the percentages of highly satisfied WRAs dropped at endline, almost all of the surveyed WRAs who received any of the five RMNH services in the public sector reported that they were generally satisfied.

Non-significant DID results were observed among adolescent WRAs (+10.8pp), WRAs from poor households (-12.7pp) and WRAs with disability (-1.9pp). The percentage of highly satisfied WRAs increased among WRAs from ethnic minorities, from 46.9% 51.3%.

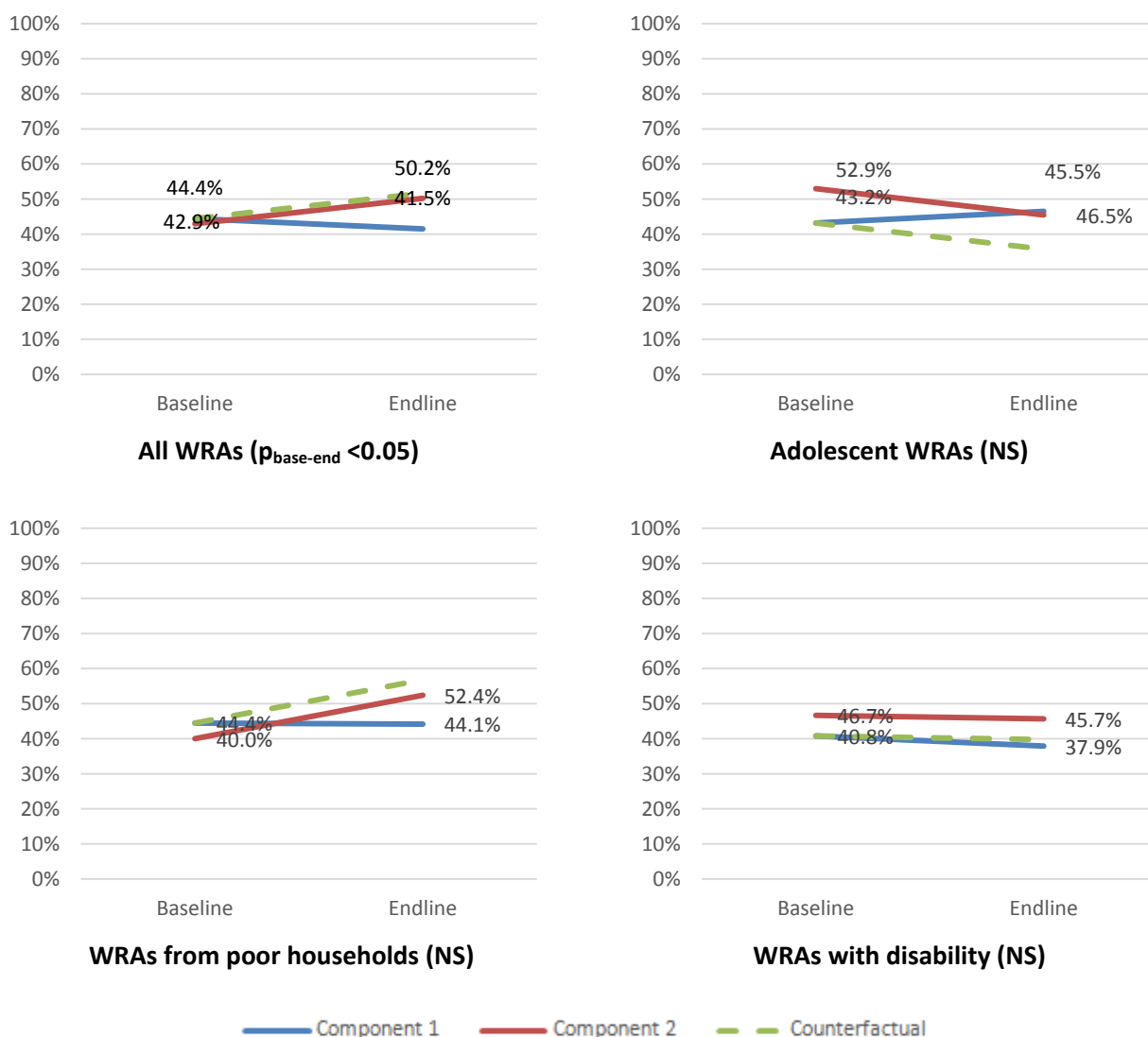


Figure 27: MERI O3.3: DID for WRAs who were highly satisfied with RMNH services

WRAs could be unsatisfied with RMNH services in the public sector for a number of reasons: FGD respondents mentioned, among others, discriminatory behaviour against poor patients, condescending or venal attitude as illustrated below:

“We went to provincial hospital; if we did not have money to give them then they did not treat us. Like my niece, she had a miscarriage at the health centre and then they referred her to the provincial hospital. They did not treat us; unless we have 100,000 Riel to give them then they inject the medicine immediately.” – FGD with married women, Pursat province.

“The doctors were bad because when we got there [unclear whether it refers to health centre, referral or provincial hospital], they were not so friendly to us, spoke badly to us, and did not care us well and the speech was not nice to listen.” – FGD with unmarried adolescent women, Ratanak Kiri province.

However it should be noted that findings from FGDs were mixed on the issue of experiences and satisfaction with health services, as other WRAs and families were much more positive, as illustrated in the

quotes below. It was not possible to undertake analysis of qualitative and quantitative responses related to specific health facility catchments which may have also contributed to these mixed results.

“Doctors [at public health centre] are active when delivering the baby; they have 24 hours service to welcome us. Even at midnight or at 1:00am, they still come. They have emergency service for 24 hours. I am satisfied with their work.” – FGD with male respondents, Ratanak Kiri province.

“When I go [to the health center], they are so friendly and they have good attitude.” – FGD with married women, Kratie province.

“Before, when they [at the health centre] saw our Phnong people, they were not friendly to us. They discriminated us, but now they don’t do anymore.” – FGD with married women from ethnic minorities, Mondul Kiri province.

b) Financial Support

The MERI indicator I3.1 corresponds to the percentage of WRAs who accessed RMNH services in the 12 months before the survey and benefitted from a financial support mechanism²². Between baseline and endline, financial support mechanisms became more widely used rising from 7.5% to 9.8%. Likewise, there were significant increases for poor WRAs and WRAs from ethnic minorities in use of financial support.

Table 21: Percentage of WRAs who benefitted from financial support mechanisms

Variable	Baseline	Endline
% of WRA benefitting from financial support mechanism** (<i>n_{base}</i> =1,264; <i>n_{end}</i> =1,928)	7.5%	9.8%
Adolescent WRA (<i>n_{base}</i> =71; <i>n_{end}</i> =121)	8.5%	14.9%
WRA from poor household*** (<i>n_{base}</i> =360; <i>n_{end}</i> =186)	8.1%	19.9%
WRA from ethnic minority*** (<i>n_{base}</i> =245; <i>n_{end}</i> =441)	2.9%	9.3%
WRA with disability (DISABILITY1) (<i>n_{base}</i> =566; <i>n_{end}</i> =257)	6.7%	9.0%

* *p*<0.1; ** *p*<0.05; *** *p*<0.01

Two quotes, both taken from the same FGD in Preah Sihanouk province, made clear mentions of IDPoor cards, which relates to the access to health equity fund. In these quotes, FGD respondents complain about the public health centres which reportedly do not always welcome IDPoor beneficiaries, while on the contrary in the second quote, the respondent was well taken care of at the provincial hospital. This may reflect disparities in the service quality provided at different levels of the public health sector, in Preah Sihanouk province at least.

²² Vouchers, commune investment plans, health equity funds, supply-side financing, community saving schemes, referral slips and conditional cash transfers

“The doctors over there [at the health centre], if we have money to pay for them, they welcome us quickly. But if we have poor card, they rarely welcome us.” – FGD with adolescent women, Preah Sihanouk province.

“Mostly the hospital in here [health centre] always wants money, but at the hospital over there [Chamkar Chek Provincial Hospital], I just gave the ID card and wrote down the code of the poor card to them. They asked us about the code number, our house location, and number of siblings, poor or rich. Then they gave us money for travelling back home. Chamkar Chek Hospital gave us around 2\$ [...] and they also provided food for lunch and dinner.” – FGD with adolescent women, Preah Sihanouk province.

As presented in Figure 28, financial support mechanisms were most often accessed in Battambang (17.4% at endline), followed by Mondul Kiri and Stung Treng (each 12.9%). The province with the least utilization of financial support mechanisms was Ratanak Kiri with only 4.5% at endline. The rates of WRAs benefitting from financial support mechanisms were higher at endline for all provinces (significantly higher in Battambang and Stung Treng provinces only), except for Pursat and Preah Sihanouk.

The end of PSL financial barriers intervention after the midline survey and the change in management of HEF at the sub-national level may have also influenced the rates of financial support mechanisms utilisation in the target sample.

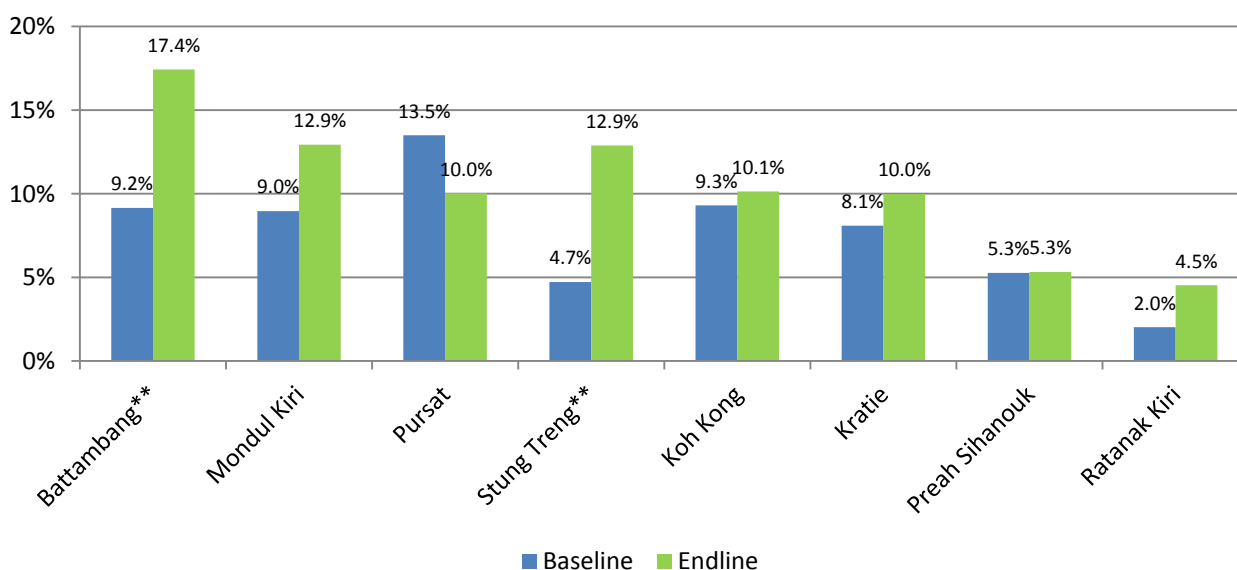


Figure 28: Percentage of WRAs benefitting from financial support mechanism

$(n_{base}=1,264; n_{end}=1,928)$

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

a) Community Referral

The MERI indicator I2.1 measures the percentages of WRAs attending RMNH services in public facilities in the past 12 months who accessed it through a community referral mechanism²³. A statistically significant DID of +3.4pp could be observed at endline ($p < 0.05$). This suggests that the PSL project intervention had a significant and positive impact on WRAs accessing RMNH services through the promoted community referral mechanisms.

For adolescents the trend was very similar to the overall trend but the calculated DID was not statistically significant, with a value of +10.9pp at endline among adolescent WRAs, possibly because of the low number of cases this result was obtained from.

A positive and statistically significant effect was observed at endline among WRAs from poor households, with a DID of +12.5pp ($p < 0.1$), and among disable WRAs with a DID of +7.5pp ($p < 0.1$).

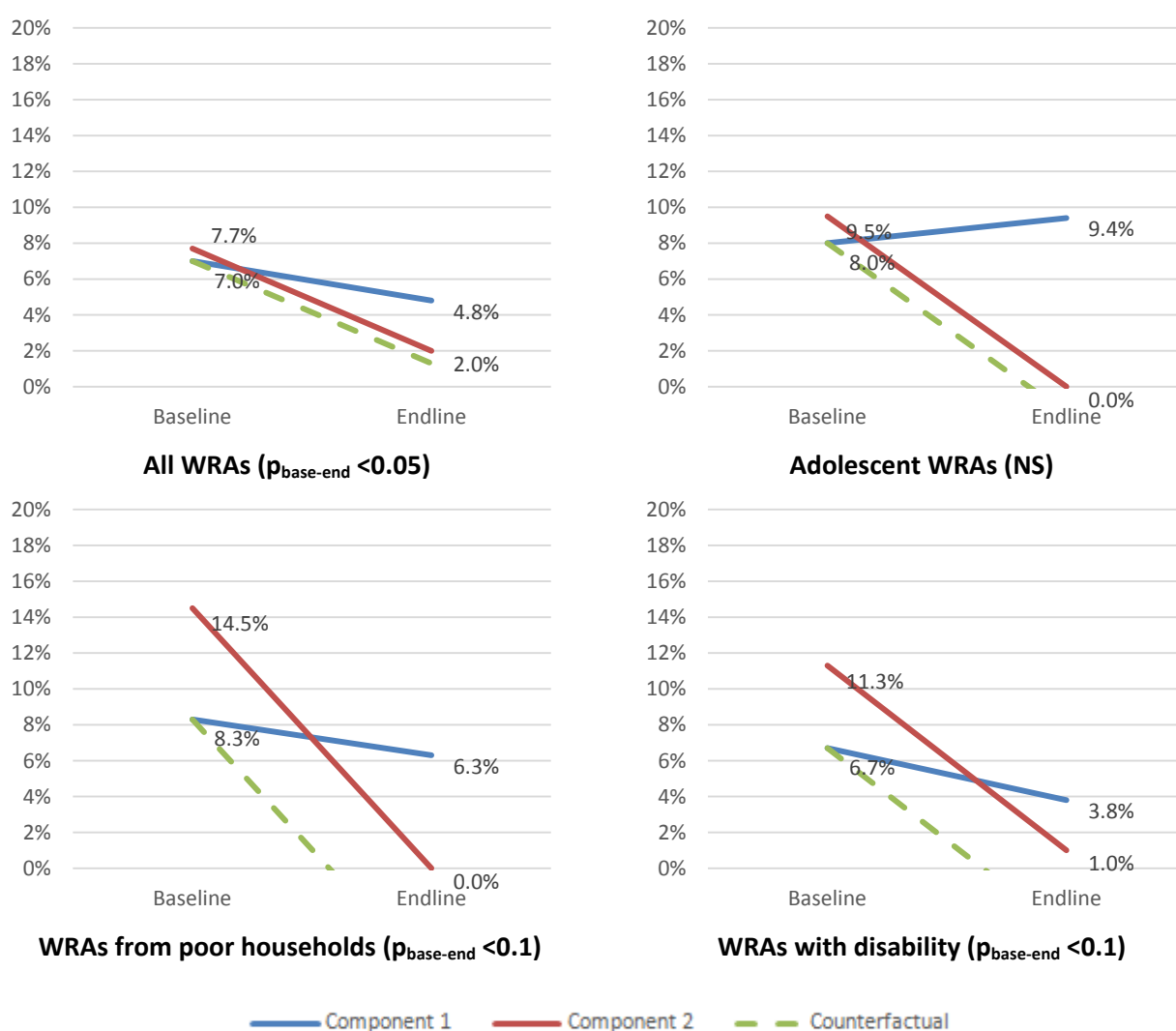


Figure 29: MERI I2.1: DID for WRAs referred through community referral

²³ Women's clubs or pregnancy clubs, Men's club, Listening and dialogue groups, Village Savings and Loans Associations (VSLAs), VHSGs, Community Based Distribution (CBDs), Commune Council (CC) or Commune Committee for Women and Children (CCWC), TBA and community health promotion (radio broadcasting, mobile phone messages, hotline)

The rates of community referral mechanisms among WRAs from ethnic minorities increased from baseline to endline (5.3% to 8.3%).

Although FGDs did almost not make mention of referral mechanisms, some respondents from ethnic minorities in Stung Treng did recognise that they learned through the pregnancy club that they should go to the health centre in case they experience any danger sign:

“I participated in the pregnancy club discussions [...]. Then when we got back home, our siblings asked about what they have taught. Then I told them that they taught us to go to health centre when we get flue or shacking body then they would welcome us.” – FGD with married women from ethnic minorities, Stung Treng province.

The most common source of referral at endline was family or relatives who were responsible for 23.0% of referrals. Next most common was the health facility staff (11.6%) and friends or neighbours, responsible for 8.9% of referrals. While some of the community referral mechanisms promoted by PSL had significantly lower rates at endline (VHSG, Community Based Distributors (CBD)), others had on the contrary significantly higher rates, such as the Community Health Promotion activities (CHP; radio broadcasts, mobile phone messages, hotline), Commune Council or Commune Committee for Women and Children (CC or CCWC).

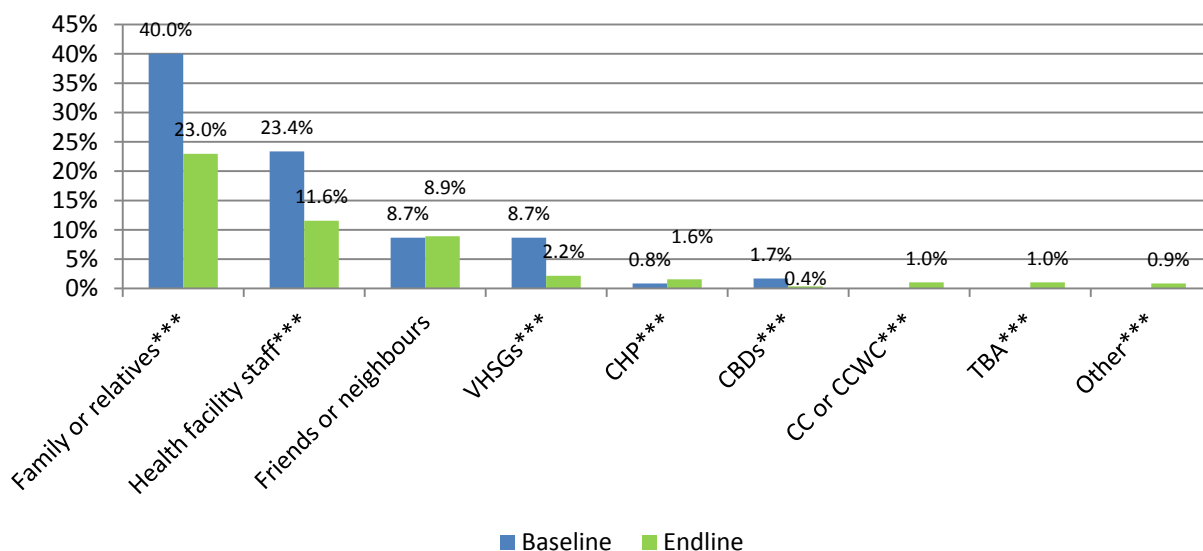


Figure 30: Percentage of WRAs referred through different mechanisms at endline

($n_{base}=830$; $n_{end}=1,159$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

b) Out of Pocket Expenses

Data on the total out-of-pocket expenditure on RMNH services in the past 12 months, which includes service fees and transport cost, were collected in Cambodian Riels (KHR) and subsequently converted to USD for analysis, using an exchange rate of USD 1 = KHR 4,000. No adjustments were made for possible inflation over time. Table 22 presents median values instead of the mean values, as medians are not skewed by extreme values and offer in this case a better reflection of the actual amounts spent on RNMH services.

Table 22: Out of pocket expenditures (USD) by RMNH service

($n_{base}=982$; $n_{end}=1,339$)

Variable (in past 12 months)	Baseline	Endline
Median total exp. on all RMNH services	11.3	15.0
Median total exp. on FP	4.5	5.5
Median total exp. on ANC	5.4	11.3
Median total exp. on delivery	21.3	69.3
Median total exp. on PNC	15.0	38.5
Median total exp. on abortion	29.8	31.9

The median amounts of all expenditures recorded rose over the course of the study. The median for all services increased from USD 11.3 at baseline to USD 15.0 at endline. A large increase can be observed for ANC related expenditures (USD 5.4 to USD 11.3), which is in line with the increased frequency of ANC visits received by WRAs, as seen previously in this report. Similarly, WRAs reported spending a much greater amount of money on delivery services (USD 21.3 to USD 69.3), which is also in line with the aforementioned finding about the significant increase in the percentage of WRAs giving birth in health facilities (instead of giving birth at home). Finally, expenditures on PNC services also more than doubled over the course of the project (USD 15.0 to USD 38.5), which is once again well in line with the PNC1 and PNC2 trends described in this report.

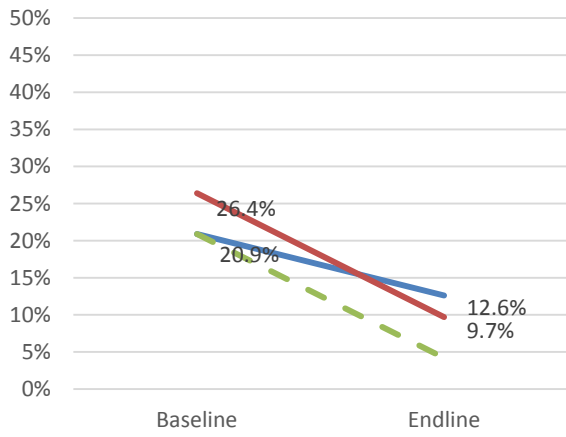
7. RMNH Knowledge and Self-Efficacy

a) Knowledge of danger signs – pregnancy

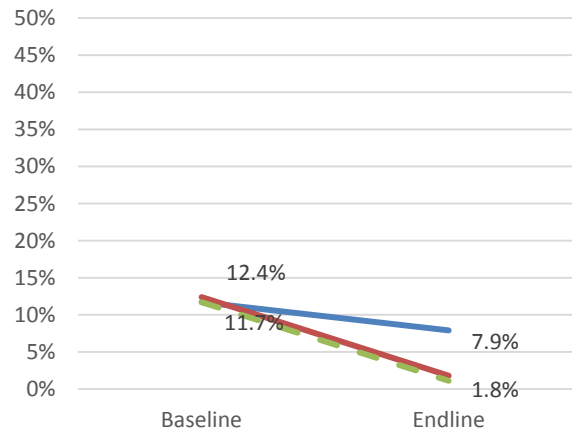
The MERI indicator I4.1 measures the percentage of WRA who can identify three or more signs of danger during pregnancy. Despite an overall decrease in component 1 between baseline (20.9%) and endline (12.6%), the indicator's value in component 1 provinces remains higher than the counterfactual at endline, thus resulting in a significant DID of +8.5pp ($p<0.01$). This implies that the PSL project intervention may have resulted in a better knowledge of WRAs about the danger signs during pregnancy.

The same trend can be observed among adolescent WRAs, with another significant impact from the PSL intervention at endline: +6.9pp ($p<0.1$). The knowledge of pregnancy danger signs also increased amongst respondents from poor households, with a significant DID of +20.5pp at endline ($p<0.01$).

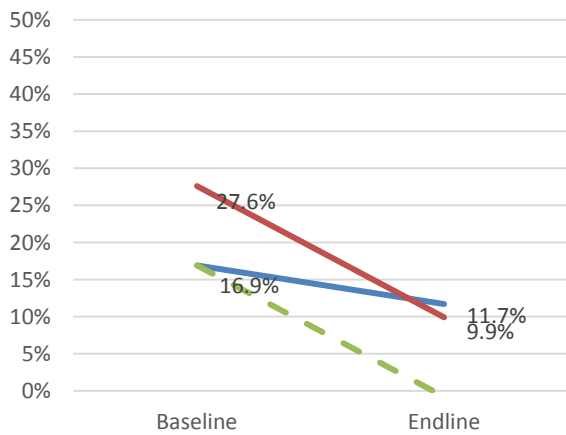
No significant effect of the PSL intervention could be observed among WRAs with disability. DID is of +6.1pp at endline. Finally, the level of awareness about danger signs during pregnancy dropped from 15.6% at baseline to 12.5% at endline among WRAs from ethnic minorities.



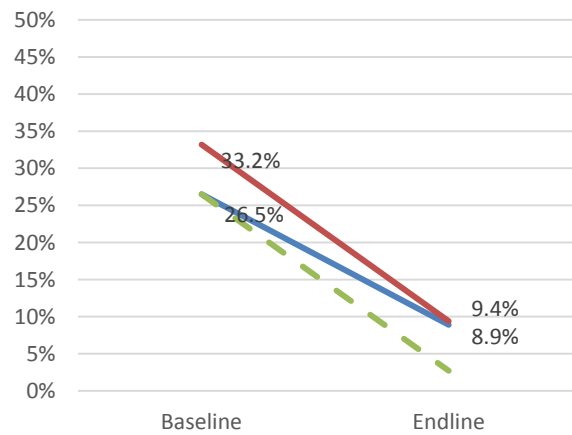
All WRAs ($p_{\text{base-end}} < 0.01$)



Adolescent WRAs ($p_{\text{base-end}} < 0.1$)



WRAs from poor households ($p_{\text{base-end}} < 0.01$)



WRAs with disability (NS)

— Component 1 — Component 2 - - - Counterfactual

Figure 31: MERI I4.1: DID for WRAs aware of danger signs (pregnancy)

The indicator disaggregation by province shows that the knowledge of danger signs significantly dropped from baseline to endline for all provinces, except for Mondul Kiri. Ratanak Kiri is the province with the most mitigated decrease. The generally low rates of knowledge can be partly explained by the fact that the PSL promotion and awareness raising activities only occurred in a few of the surveyed villages (in component 1 exclusively).

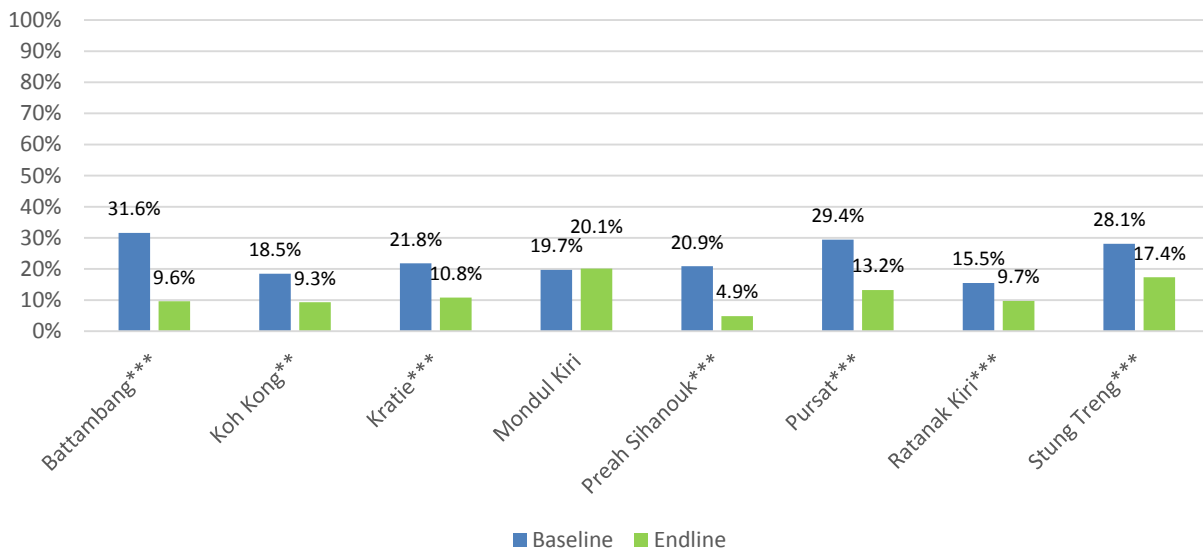


Figure 32: Percentage of WRAs aware of at least three danger signs during pregnancy, by province

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Although the quantitative analysis showed that the percentages of knowledgeable WRAs dropped for both components and across all levels of disaggregation, some of the IDI respondents mentioned on the contrary that they believed in an improved level of awareness among pregnant women:

“It has changed because women now understand about prenatal care. The number of women coming to receive prenatal care is rapidly increasing and they [the pregnant women] understand a lot on dangerous signs. That is why the number of women who come to receive prenatal care has been increasing like this.” – IDI with OD MCH supervisor in Stung Treng OD, Stung Treng province.

b) Knowledge of danger signs – neonatal distress

Respondents’ knowledge was also measured for neonatal signs of distress (MERI indicator I4.2); the percentage of WRA who could name at least three signs of distress. WRAs’ knowledge on neonatal distress presented a similar pattern to knowledge on pregnancy danger signs across the survey rounds, with an decrease between baseline and endline. DID was of +5.5pp at endline and was statistically significant ($p<0.01$), thus implying that the PSL intervention may have increased WRAs’ awareness of the danger signs in the intervention areas.

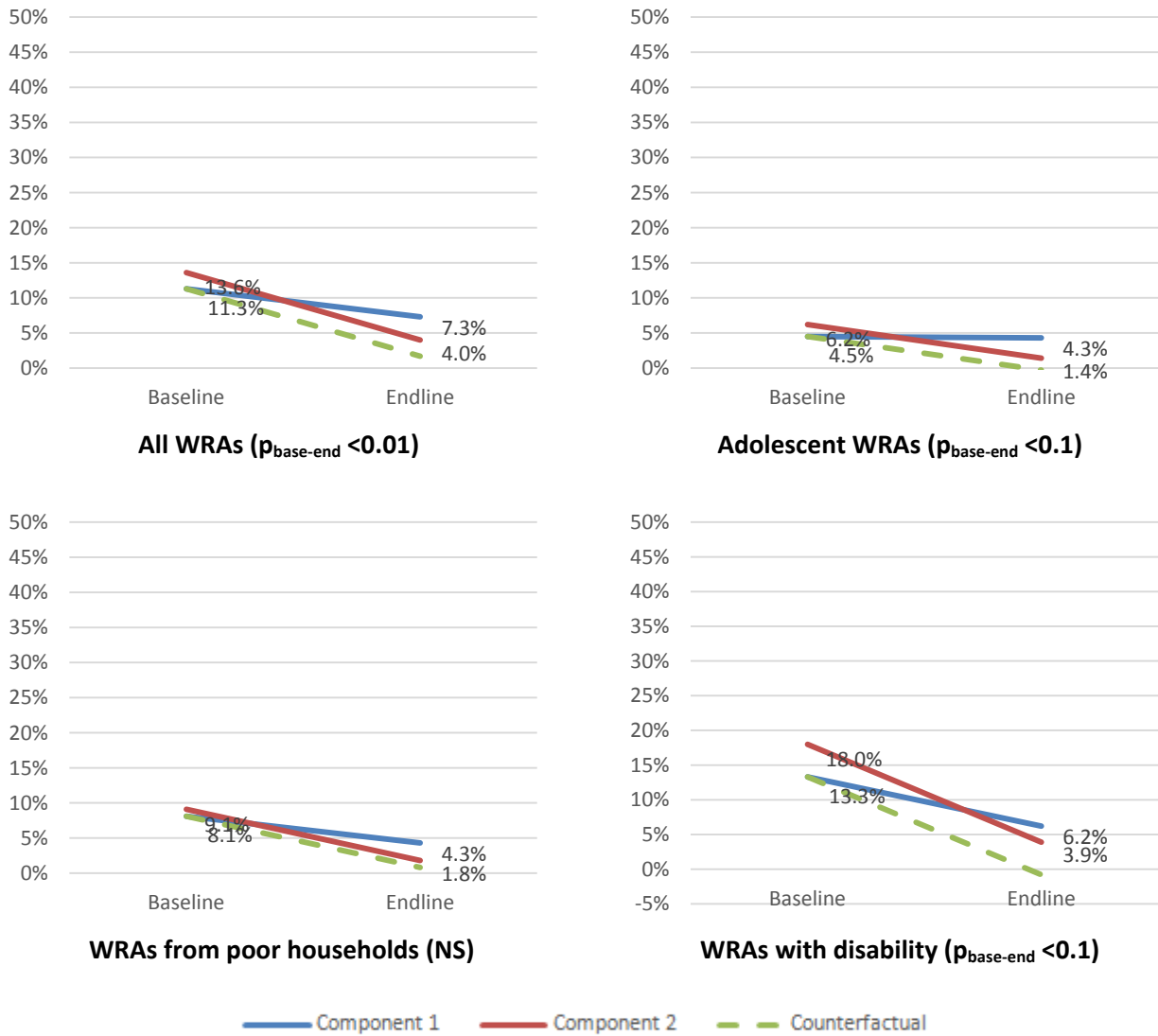


Figure 33: MERI I4.2: DID for WRAs aware of danger signs (neonatal distress)

Similar findings can be observed at endline among adolescent WRAs, with a statistically significant DID of +4.7pp at endline ($p < 0.1$), and among WRAs with some disability, with a DID of +6.9pp ($p < 0.1$).

No significant effect could eventually be observed among poor WRAs. DID is of +3.5pp at endline. The level of awareness followed the same trend among WRAs from ethnic minorities, dropping from 7.8% at baseline to 4.6% at endline.

Figure 34 here below shows the percentages of WRAs' awareness on neonatal distress danger signs by province. Once again, the rates are significantly lower at endline for all provinces, except for Mondul Kiri and Stung Treng.

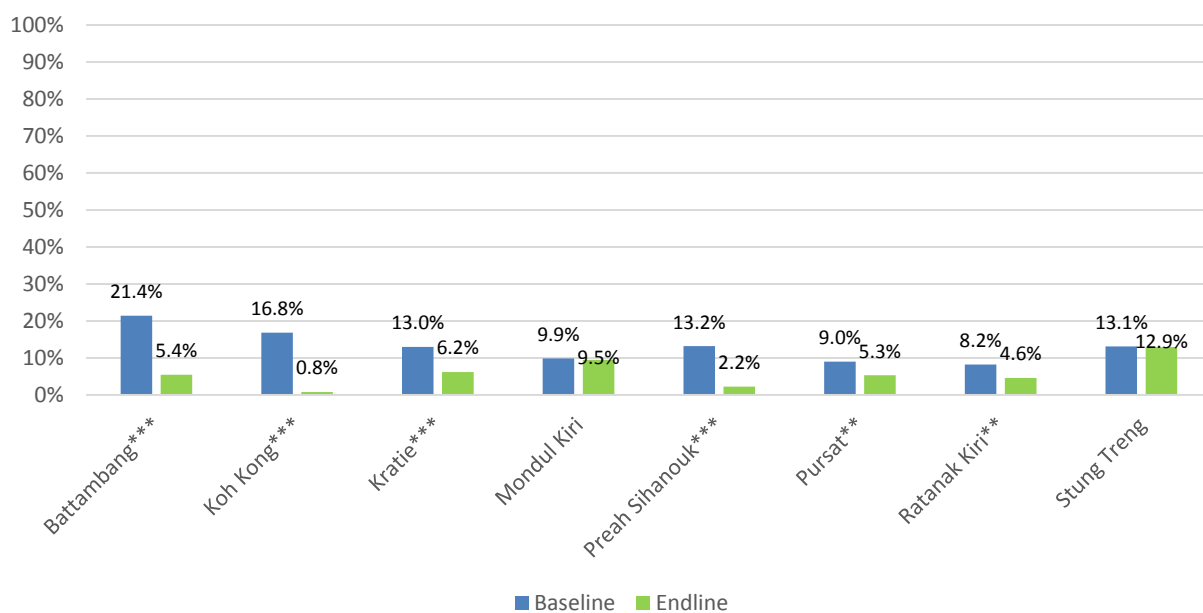


Figure 34: Percentage of WRAs aware of at least three danger signs for neonatal distress, by province

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

c) Self-Efficacy

Questions using a five-point scale (5 = completely sure; 4 = somewhat sure; 3 = neither sure/unsure; 2 = somewhat unsure; 1 = not at all sure) were administered to all WRAs to measure their self-efficacy or confidence on negotiating and using family planning and refusing sex in a number of different situations – four situations (questions) for negotiating and using FP. The MERI indicator I4.3 is measured by the percentage of WRAs who answered “completely sure” to all four questions. The detailed frequencies for each of the four questions is proposed in Annex, Figure 43 to Figure 46. As shown below in Table 23: , there was a significant decrease in empowerment with modern family planning over the course of the PSL program implementation and in all disaggregation groups. However, some FGD respondents gave a more optimistic view:

“He [the FGD respondent’s husband] understands more than before. We talked with him and explained him that I wanted to use the IUD. Before he used to ask “why do you need to use it?” and was afraid that it [the IUD] would hurt me. He also used to say that there was no need to take the pill. He was afraid of bleedings after taking it (the pill), and that we would not have money to treat it. Doctors came to explain everything, and he could understand more.” – FGD with married women, Pursat province.

Table 23: Percentages of WRAs empowered with modern family planning

($n_{base}=2,762$; $n_{end}=3,249$)

Variable	Baseline	Endline
Percentage of WRAs empowered with modern FP***	25.3%	14.4%
Adolescent WRAs***	15.1%	9.2%
WRAs from poor households***	21.5%	10.9%
WRAs from ethnic minorities***	21.6%	13.3%
WRAs with disability (DISABLE1)***	22.8%	13.0%

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

This decrease in confidence by endline was common across all of the surveyed provinces, although it was not significant in Mondul Kiri and Pursat provinces; at endline the province with the highest confidence was Battambang with 21.4%.

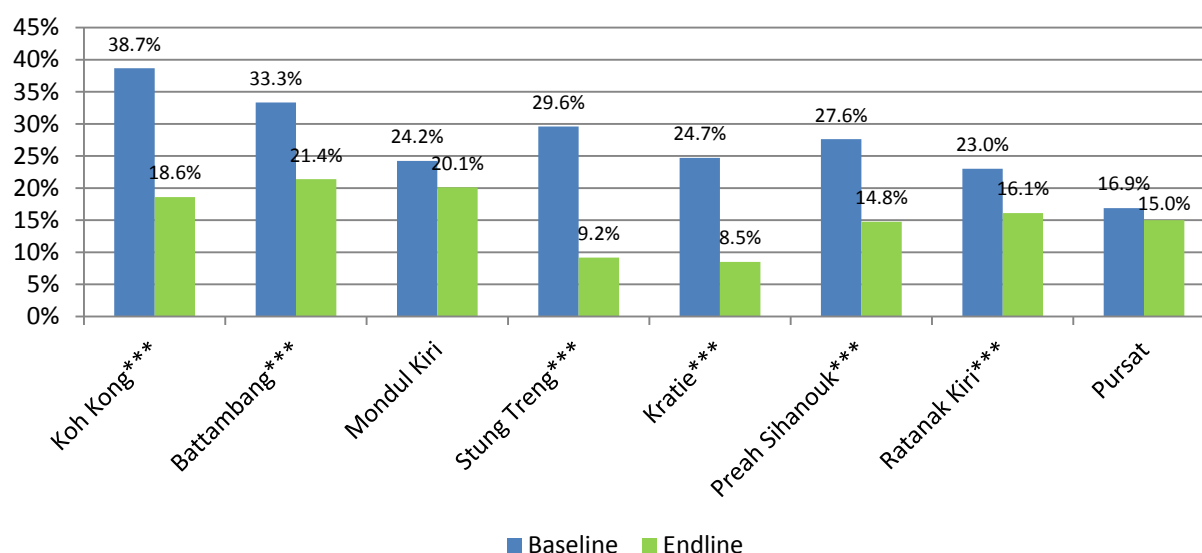


Figure 35: WRAs' level of empowerment with modern FP, by province

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

In addition to the MERI indicator I4.3 four variables, five more questions were asked on self-efficacy in refusing sex. Table 24 below displays the percentages of WRAs who reported being “completely sure” that they could refuse to have sex with their husband or partner in different conditions. Although the rates are significantly lower at endline for the first three conditions, there are significantly more WRAs at endline who felt confident they could refuse sex even if their husband or partner would threaten them (physically, or to have sex with another woman). Figure 47 to Figure 51, in Annex, propose the distribution detail for the different levels of confidence, while Figure 52 to Figure 56 display the percentages of self-efficacy in refusing sex disaggregated by province.

Table 24: Self-efficacy in refusing sex

(n_{base}=2,762; n_{end}=3,249)

Variable	Baseline	Endline
Self-efficacy in refusing to have sex with husband or partner...		
“When you don’t want to have sex but he does?”***	57.6%	49.3%
“If you were feeling tired?”***	73.2%	62.1%
“If he gets angry with you if you don’t want to have sex?”***	47.4%	46.1%
“If he threatens to hurt you if you don’t have sex?”***	43.0%	46.6%
“If he threatens to have sex with other women if you don’t have sex with him?”***	45.7%	49.8%

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

8. In-depth-interview results

a) BEmONC assessments

The research team conducted eight Basic Emergency Obstetric and Newborn Care assessments in the same medical facilities that were identified during the previous survey rounds: six health centres and two referral hospitals²⁴ in component 1 provinces. The assessment involved a series of questions about seven signal functions:

- 1- Administer parenteral antibiotics;
- 2- Administer uterotonic drugs (e.g. parenteral oxytocin, misoprostol);
- 3- Administer parenteral anticonvulsants (e.g. magnesium sulfate);
- 4- Perform manual removal of placenta;
- 5- Perform removal of retained products (MVA, misoprostol);
- 6- Perform assisted vaginal delivery (e.g. vacuum extractor);
- 7- Perform neonatal resuscitation (e.g. with bag and mask).

The questions covered for each BEmONC signal function include the following: 1) availability of trained staff and authorised cadres to perform the function; 2) availability of necessary supplies and equipment to perform the function; 3) frequency of cases requiring performing the function (ever and in the last three months); and, 4) reasons for the function to not be performed in the last three months (see questionnaire in annex). Based on the answers given to these questions, scores were computed for each facility, out of a total of 35 points. The MERI indicator O1.3 corresponds to the number of fully functioning BEmONC facilities, which receive a score of 35. Table 25 here below presents the BEmONC assessment scores at each round of survey.

Scores at endline ranged from 30 to 35, with an average score of 33, higher than the midline average score of 31 and than the average baseline score of 28. At baseline, no facility was found a fully functioning BEmONC facility, while at midline one facility (Bor Keo referral hospital) was rated as fully functional. This facility lost two points at endline on signal functions three (administer parenteral anticonvulsants) and five (perform removal of retained products), as no case applied in the reference period²⁵. However, two

²⁴ Snoul health centre was upgraded to referral hospital between the midline and endline surveys.

²⁵ It is worth reminding that in order to achieve full score for a given signal function, it is essential that the facility presents any need for it, that any case applies to it.

facilities at endline achieved a score of 35/35: Koh Nhek health centre and Snoul referral hospital. Sre Krasang and Bor Keo are the only two facilities whose BEmONC score decreased from midline to endline.

Table 25: BEmONC assessment against the seven signal functions, by health facility

	Baseline								Midline								Endline							
	1	2	3	4	5	6	7	All	1	2	3	4	5	6	7	All	1	2	3	4	5	6	7	All
Sambo	5	5	0	5	4	3	5	27	5	5	3	5	4	3	3	28	4	5	5	4	4	3	5	30
Snoul (RH)	5	5	2	5	4	5	4	30	5	5	3	3	5	5	5	31	5	5	5	5	5	5	5	35
Chambak	4	4	2	4	4	5	5	28	5	5	3	4	5	4	5	31	5	5	4	5	5	5	5	34
Sre Krasang	4	5	2	5	5	2	5	28	5	5	3	5	5	5	5	33	4	5	3	5	5	4	5	31
Siem Pang	5	5	3	4	4	2	4	27	3	5	4	5	4	2	4	27	5	5	3	5	5	5	5	33
Koh Nhek	3	5	3	5	3	2	5	26	5	5	4	5	4	3	4	30	5	5	5	5	5	5	5	35
Keo Seima	5	5	3	3	5	2	5	28	5	5	4	5	5	5	4	33	5	5	4	5	5	5	5	34
Bor Keo (RH)	4	5	3	3	5	3	5	28	5	5	5	5	5	5	5	35	5	5	4	5	4	5	5	33
Average	4.4	4.9	2.3	4.3	4.3	3	4.8	28	4.8	5	3.6	4.6	4.6	4	4.4	31	4.8	5	4.1	4.9	4.8	4.6	5	33.1

The BEmONC signal functions with the lowest scores at endline were the numbers three (administer parenteral anticonvulsants) and six (perform assisted vaginal delivery), the same as at baseline and midline, almost every time because of the absence of applied cases for these two functions. This can be explained by two reasons: 1) there has been no case where patient would need such procedure; or, 2) midwives may have lacked confidence or skills to perform the procedure and thus preferred to refer the case to the referral hospital, CEmONC facility.

All facilities reported using oxytocin for **signal function two** (administer uterotonic drugs), with one facility also reportedly using ergometrine. Misoprostol was still reported in use for obstetric indications in only one facility. Among the two facilities which reported performing **signal function three** (administer parenteral anticonvulsants), both magnesium sulfate and diazepam were used as anticonvulsants. Six of the eight facilities reported using vacuum aspiration for **signal function five** (perform removal of retained products), and one facility still used the dilatation and curettage method. Only one facility still had no vacuum extractor to perform **signal function six** (perform assisted vaginal delivery), against two facilities at midline.

b) PSL perceived outcomes

The research team interviewed 10 OD (or PHD) MCH supervisors, eight midwives (one in each BEmONC facility, see above) and 12 VHSG volunteers to inquire about the PSL project outcomes, in terms of achievements and shortcomings. This section will detail these IDIs' main outcomes.

Trained midwives save lives

Most OD MCH supervisors in component 1 provinces noticed a significant improvement in midwives' overall level of skills, experience and confidence in performing the tasks they are assigned. This improvement is perceived to be due to efficient training, particularly during the regular Midwifery Coordination Alliance Team (MCAT) meetings:

“They [midwives, in that case in the BEmONC facility] have Midwifery Coordination Alliance Team meetings every three months and have the opportunity to share experience as well as talk about the issues or obstacles that have happened at their health centre. They solve it [these issues] together with the health centre, provincial hospital or operational district staff after the meeting is over.” – IDI with OD MCH supervisor in Banlung OD, Ratanak Kiri province.

“There is change. Previously, there was no safe delivery, but now they [midwives, in that case in the BEmONC facility] are aware about how to deliver babies and perform resuscitation. The reason is because they [...] receive training courses and have Midwifery Coordination Alliance Team meetings. They have received much experience which helps them reducing the maternal and neonatal mortality rate.” – ID with OD MCH in Kratie OD, Kratie province.

Midwives in component 1 provinces are now considered to be fully capable of performing all BEmONC signal functions, thus ensuring a safe and more comfortable delivery for the mother and the newborn. In particular, the OD MCH supervisors noted that midwives are now more confident in performing emergency neonatal care, (such as newborn resuscitation with bag and mask) and basic newborn care (such as placing the newborn on the mother's bare chest immediately after birth, etc.). Because midwives are more knowledgeable, they can identify the danger signs faster and are more efficient in the decision-making process, either performing the relevant and suitable procedure themselves, or referring the case, if deemed necessary, to a referral or provincial hospital. Building capacity among midwives is considered a key point in the effort to decrease maternal and newborn mortality.

Improved health worker behaviour helps to convince women to receive RMNH services in the public health sector

Overall improvement in the level of skills, attitude and ethical commitment also creates image of the public health sector for beneficiaries: pregnant women, for example, are more confident and feel safer giving birth in public health facilities, instead of at home with traditional birth attendants:

“Before, villagers delivered with traditional midwife, which caused them many troubles because it is easy for the baby or the mother to get infected, as traditional midwives do not know about doctor profession. [...] Now, it has changed as they [women] go to deliver at the health centre more often than before. Because there are many health centres and they have a better service than before. Midwives are more professional than before and have a better attitude.” – FGD with married women, Mondul Kiri province.

This is particularly true among the most vulnerable groups, as VHSG volunteers noticed a decrease in discriminatory behaviour against people with disability and ethnic minorities, synchronous of an increase in their visit frequency to the public health facilities. OD MCH supervisors, VHSG volunteers and BEmONC interviewees actually all reported a general increase in the number of deliveries happening in public health facilities and a decrease in the number of deliveries happening at home.

BCC activities can change people's perceptions of RMNH services

Respondents frequently mentioned that the PSL BCC activities, and especially the activities involving local authorities and community representatives (e.g., VHSG, TBAs), were most likely responsible for the increased number of women receiving antenatal and postnatal care. Two of the OD MCH supervisors and seven of the VHSG volunteers in component 1 provinces actually recognised that the promotion tools were

particularly efficient in reaching people from ethnic minorities, and reported higher FP use, ANC and PNC frequencies among these groups:

“Over the past 5 years, the situation has improved a lot. The doctors come to the village lot more than before. They come to raise awareness among the ethnic minorities on contraception.” – FGD with women from ethnic minorities in Kratie province.

“Before, we have one child a year. But now, we can get one child per 5 or 10 years. Formerly, my mother got 11 children because of not having contraception. Now we have access to contraception like pill, injection, implant and IUDs and we take them following the instructions of the doctor.” – FGD with married women from ethnic minorities, Stung Treng province.

Although the increase in the number of ANC visits was mentioned by most of component 1 provinces' respondents, the PSL intervention effect on the number of PNC visits seems more moderate when focusing on qualitative data review only. Indeed, OD MCH supervisors mentioned that WRAs might be too busy to attend PNC (mothers may need to get back to work soon after the delivery) or may have a low level of understanding on PNC. As seen previously in the PNC section, FGD respondents identified the distance and cost related issues as potential barriers to accessing postnatal care.

PSL BCC activities were thought to be helpful in teaching the target population about the danger signs and in convincing them to utilise the public health sector for all other RMNH services (family planning, delivery and safe abortion). Three VHSB volunteers reported that the youth participating in the awareness raising meetings had a better understanding of the RMNH services in general. A change in behaviour was noticed among men, whose RMNH knowledge and understanding seemingly improved thanks to PSL BCC, and who are now more likely to bring their wives to the health centre for ANC and delivery.

“I see that people nowadays understand more than before about going to receive service at health centres including reproductive service, vaccination service, prenatal diagnosis service and delivery.” – FGD with male respondents, Ratanak Kiri province.

“I brought my wife to the hospital in order to know whether the foetus was inside or outside the uterus. We went screening to know whether the baby was a boy or a girl, and so doctors could advise us and provide medicine to protect the foetus.” – FGD with male respondents, Ratanak Kiri province.

Most useful, relevant and important PSL interventions

After five years of PSL project implementation, OD MCH supervisors were asked about the most important of the PSL interventions with attention to those most likely to be sustained after the project ends. In all provinces (components 1 and 2), people's sensitisation on family planning, health facilities' equipment and drugs supply and health staff training on modern contraception methods were considered as an essential part of the project success. Component 1 provinces' respondents added the importance of the MCAT meetings in improving the ANC/PNC service quality, and in ensuring safe delivery. The improved level of skills on newborn resuscitation was cited as one of the major PSL achievements to limit newborn mortality. After the PSL project ends, OD MCH supervisors wish to maintain a high level of skills among midwives through continued and regular MCAT meetings. They also insisted on the importance of the RMNH

awareness raising activities and on keeping community representatives (VHSG, TBA, CC or CCWC) involved in the potential future BCC interventions.

On the other hand, PSL safe abortion-related interventions were perceived as less relevant, as people are still thought to be too shy to resort to the public sector for such procedures, and often prefer to turn to the private sector or self-medication. The midwives interviewed during the BEmONC assessments, however reported a clear improvement of their skills related to safe abortion procedures.

Remaining challenges; and solutions to address them

All respondents mentioned that further training is needed for all health staff in public facilities. Some interviewees noted that although doctors, nurses or midwives are initially well trained, the lack of practice might make them less efficient in performing certain specific procedures. Continuous and regular training was suggested to keep the health staff as skilled and confident as possible. Training on good behaviour and ethics was also recommended to maintain a positive image of the public health sector. One OD MCH supervisor also proposed to set regular skills and behaviour evaluations among health staff, in order to assess their gaps and better adapt the training objectives.

Awareness raising campaigns among the population were also deemed necessary: BEmONC and OD MCH respondents mentioned several times that if people were able to identify the danger signs, they could react faster and help save more lives. Additional BCC activities would also help convincing more pregnant women to give birth at the public health facilities instead of at home.

Challenges related to the lack of budget, equipment and infrastructure were also commonly reported by OD MCH supervisors. An increased budget would for example help encourage and incentivise midwives to participate in training sessions more frequently,²⁶ as distance and related costs are often cited as discouraging factors for midwives to participate in training. Although most respondents recognised the positive impact of PSL equipment supplies, they also mentioned that some material is currently still missing (e.g., vacuum extractor for BEmONC procedures or infant radiant warmer). Two respondents told the research team that an ambulance would be helpful to better deal with emergency cases (including deliveries) and that building additional infrastructure (waiting room, additional wards, etc.) would help accommodating patient needs better. This need for medical and transportation equipment was also mentioned by FGD respondents:

“I would like PSL to collaborate with public health service. If possible, I want to suggest something related to public health issues such as delivery material: I want to request more delivery materials and delivery beds. And also I would like PSL to help with transportation.” – FGD with male respondents, Ratanak Kiri province.

Finally, respondents reported a need for better coordination between the facility, the community workers, the local authorities and the other health sector stakeholders. VHSG volunteers mentioned that their trust relationship with health centre staff may be hampered because of the seeming lack of communication from the health centre. Conversely, one OD MCH respondent doubted the relevance of involving community representatives (such as VHSG volunteers) into the referral system, suggesting that their level of skills and understanding was still too low to bring a significant positive impact. Several respondents called for regular

²⁶ Respondents in component 2 provinces specifically mentioned a “travelling package” provided to midwives for them to join training, under Marie Stopes International’s support.

meetings between all of the involved stakeholders to strengthen coordination, identify solutions to specific issues, and to respond to patients' needs better. These meetings would also give more opportunities to involve the local authorities, specifically the Commune Council and its Commune Committee for Women and Children, into the decision-making process. Indeed, most of the component 1 provinces' OD MCH respondents were either unaware or doubted that the activities promoted and implemented by PSL would be integrated into the Commune Development Plan or Commune Investment Plan.

How to address the vulnerable groups' needs

OD MCH supervisors made a few suggestions on how to reach adolescents, people from ethnic minorities and people with disability better, including the need for confidentiality and better attitude (no discrimination). Although they felt that adolescents and young adults were more knowledgeable about RMNH services, they also considered them as shy and still reluctant to the idea of sharing health issues (especially RMNH related) with public health workers. OD MCH respondents suggested using the already existing youth associations to reach young individuals better during the promotion campaigns, and to use separate buildings or rooms to ensure confidentiality during consultation at the health facility:

[Interviewer:] "How could health centers and referral hospitals better meet the reproductive, maternal and neonatal health needs of adolescents and youth?"

[Respondent:] "We need to have a separate building for youth because they are very shy and they want to keep the discussion confidential." – IDI with OD MCH supervisor in Banlung OD, Ratanak Kiri province.

[Respondent:] "There are youth club and training on contraception and ANC." – IDI with OD MCH supervisor in Chlong OD, Kratie province.

Most respondents recognised much improvement in answering the RMNH services needs of people from ethnic minorities. WRAs from ethnic minorities themselves mentioned during FGDs:

[When asked about any change related to RMNH in the past five years]

[Respondent A:] "For me, there are many changes because before, we don't have hospital. The hospital is far and we have nothing to travel there. We don't have money to get there. But now, it is easy because we have a nice road and also a health centre in our Samot Village. Samot health centre may lack doctors but there are many doctors at Bor Keo [referral hospital]."

[Respondent B:] "Now, our referral hospital [Bor Keo] has improved a lot: it has many different parts and also has many payment services. It also has a screening machine and other services, but I don't remember them all." – FGD with married women from ethnic minorities in Mondul Kiri province.

Involving the communities' elders or representatives into the promotion campaign was considered a key point of success for referring ethnic minorities' people to the public health sector. One OD MCH respondent, who actually identified herself as of Jarai ethnicity, also suggested that incentives such as gratuity on certain health services would actually further encourage people from ethnic minorities to come to the health centre. They also suggested training people from these communities and hiring them at the closest health centre. This would supposedly encourage other members of the community to come and receive RMNH services at the health centre, with the insurance that they would get a better understanding and a more suitable service from their peers.

A number of ideas to enable people with disability were identified: free transport service, home-based visits by health centre staff or priority access at the health centre. The OD MCH supervisor interviewed in Stung Treng province, Stung Treng OD, who was identified as having a disability himself, simply suggested to guarantee the gratuity of services for people living with a disability, and insisted on the effort needed against discrimination in public health centers.

D. Conclusion

1. Discussion

The final evaluation of the PSL intervention in the eight provinces clearly identified a list of significant impacts from the PSL project:

- 1- Practice and behaviour-related, as the intervention significantly increased the percentage of women giving birth with SBA in health facilities, or the percentage of women receiving at least two antenatal consultations with SBA. These findings were supported by the qualitative results and were also valid among the most vulnerable groups (including youths, ethnic minorities and people with disability);
- 2- Knowledge-related, as the evaluation demonstrated that the project had a positive impact on danger signs awareness (for pregnancy and neonatal distress) and on the percentage of women who knew that abortion is legal in Cambodia;
- 3- Service-related, as a positive and significant intervention effect was identified for the percentage of women accessing RMNH services through any community referral mechanism. Although no statistical test could be performed for the BEmONC indicator, the evaluation further revealed that the eight facilities' BEmONC mean scores kept increasing along the three survey rounds and that two eventually received fully functioning BEmONC facility status. This may indicate that BEmONC procedures (signal functions) have become more commonly available to mothers and newborns.
- 4- Equity-related: This study demonstrated that many women in target areas, including adolescents, poor women, women with disabilities, and women from ethnic minorities, are benefitting from an improved set of RMNH services and are less subjected to discrimination since the PSL intervention started. However, the quantitative data shows that efforts are still needed to consistently and better address the RMNH needs of the most vulnerable.

These findings need to be carefully considered, as the DID analysis is merely a comparison of trends over time between a comparison group and an intervention group, and do not really consider the indicator's absolute value at endline. Whilst some indicators clearly demonstrate positive trends across the project intervention period (for example, facility based delivery with SBA), in the case of the danger signs indicators, rates of knowledgeable women were found to have dramatically dropped in both components over time. However, because the drop was less pronounced in component 1 than in component 2, the DID value was positive (and significant). In other words, the intervention effect would better be described as: "the PSL intervention had a significant impact on limiting the general drop in danger signs knowledge". A similar comment can be made about the intervention effect on the use of community referral mechanisms. The percentages of women referred to RMNH services through community-based mechanisms decreased significantly over the three survey rounds, and the positive and significant DID can then only be interpreted as: "the PSL intervention had a significant impact on limiting the general drop in the percentage of women referred to RMNH services through community-based mechanisms". Reduction of these indicators over time across all intervention and comparison provinces suggests other important factors at work influencing community level beyond PSL project interventions.

The evaluation also identified a few project shortcomings: some of the indicators did not show a significant improvement with the PSL intervention based on the quantitative data analysis. Specifically, the family planning related indicators did not improve significantly (e.g., percentage of women using modern contraceptive methods and percentage of women using long acting or permanent methods), nor did the indicator on family planning counselling during PNC, or the indicators related to accessing RMNH services

with financial support mechanisms. The qualitative data analysis, however, suggested that the PSL project resulted in some level of improvement in each of these areas, especially in the case of FP and PNC, as all key respondents mentioned a better knowledge and increased usage of contraception in general, and observed an increase in the number of women receiving postnatal care consultations. Further inquiry would be recommended for these indicators in order to determine the full effect of the project.

Finally, the evaluation identified two possibly negative indicator outcomes: 1) on self-efficacy, as the percentage of women who felt empowered with modern FP was significantly lower at endline than at baseline, whilst the percentage of women who felt empowered to refuse sex with their partner across a number of scenarios showed mixed results; and, 2) on the rate of women highly satisfied with RMNH services. Concerning the satisfaction rates, more than 40% of the women declared themselves highly satisfied at endline, which is slightly lower than the 44% of baseline. However, because the increase was more substantial in component 2 provinces, the computed DID was found to be negative. Though statistically significant, this negative effect still needs to be mitigated as numerous qualitative respondents reported that they were satisfied with the RMNH services they benefitted from, and especially with the improved level of quality that they observed for these services since the PSL project started (see Section 8). Besides the analysis of the overall level of satisfaction (satisfied and highly satisfied respondents, see Annex) showed no significant change, with almost all WRAs declaring themselves satisfied with the quality of the RMNH services they had received. Similar to the satisfaction indicator, qualitative data revealed on self-efficacy contrasted with survey findings, in that many female respondents felt more empowered on RMNH-related decision-making, and now had the support and more understanding from their husband. However, the apparent negative trends observed in response to a number of scenarios for self-efficacy for use of family planning as well as refusal of sex is concerning and warrants further validation and examination as it may indicate that the manner of implementation has inadvertently served to create an environment of less confidence for women, or may signal a broader social phenomenon.

In addition to the abovementioned quantitative data analysis findings, IDIs and FGDs produced an extra set of qualitative outcomes. The qualitative data review clearly recognised that midwife capacity building and the community BCC activities had been key components of the PSL intervention. These activities were said to have contributed significantly in the overall higher level of quality of RMNH services in the public health sector (in terms of staff behaviour and medical skills), and also in a better general knowledge on RMNH related topics (especially on contraception and danger signs).

Although the quantitative data shows that much effort is still needed to better answer the needs of the most vulnerable, this study demonstrated that adolescent WRAs, poor WRAs, disabled WRAs and WRAs from ethnic minorities already benefit from an improved set of RMNH services and are less subject to discrimination.

The quantitative and qualitative results of this evaluation indicate that PSL has contributed towards achieving some of the project target outcomes, in particular 1) improved quality RMNH services for target populations, 2) greater equity of access to appropriate RMNH services for target populations and 4) improved RMNH behaviours amongst target populations. These outcomes also all contribute in the ultimate goal to reduce mortality among mothers and newborns, as part of the MoH Fast Track Initiative Roadmap to Reduce Maternal and Newborn Mortality (FTIRM).

2. Recommendations

Even though the PSL project is reaching the end of its implementation phase, a few general recommendations have been made so that PSL partners and other stakeholders in the RMNH sector can build on its progress.

Providing capacity building opportunities for health staff (especially midwives) was unanimously identified as the main short-term recommendation by the endline survey key respondents. Building on the quality improvement system supported by PSL, health staff should be given refresher trainings and more opportunities to practice, in order to build more self-confidence and deliver higher quality services. Peer-to-peer opportunities, such as MCAT meetings, were very well perceived. All participants appreciated the opportunity to exchange skills and experience in these meetings. Providing more training for community representatives, such as VHSG volunteers, would not only empower them but also reinforce the referral and communication mechanisms.

Community engagement and BCC promotional activities should be pursued; it is recommended that future projects define specific information channels and messages for various groups (e.g., adolescents may not have the same media preferences/access as poor people or people from ethnic minorities). These activities can also target new topics, as ANC and deliveries seem to have already successfully been tackled. For example, sensitisation could focus on PNC and abortion, for which the indicators still lag behind other RMNH services.

Additional budget, equipment and drug supplies, infrastructure and human resources are still needed in public health facilities, and would definitely contribute to improving the care environment for RMNH patients. In fact, some medical staff rightfully mentioned that trainings are of arguable relevance if staff do not have the necessary materials and equipment to perform the same procedures in their medical facility.

Some other major initiatives from both the public and the private sector are also tackling RMNH issues in Cambodia, and are worth considering in complement to – or in support of – PSL program activities and achievements.

The Social Accountability Framework Implementation Plan (I-SAF) is one of these initiatives, co-jointly led by the government with civil societies, and is expected, among others, to contribute to the effort for better service delivery in public health facility, including RMNH services. I-SAF also focuses on vulnerable groups, such as women and children, adolescents, poor people and people from ethnic minorities.

Besides, the Ministry of Health new monitoring system, the National Quality Enhancement Monitoring (NQEM) system, is expected to sustain regular service quality assessment in health facilities, and to provide regular training and coaching for health staff.

The Service Delivery Grants being introduced under the Cambodia Health Equity and Quality Improvement Project (H-EQIP) will also allow some PSL activities to be directly supported by provincial health departments, operational districts or facilities' budgets.

Annexes

Annex 1: Villages sample selection for PSL Lot 1 Endline Survey

“Comp.” refers to the project component: “component 1” corresponds to the North-East provinces of Kratie, Mondul Kiri, Ratanak Kiri and Stung Treng, while “component 2” corresponds to Battambang, Koh Kong, Preah Sihanouk and Pursat.

The five highlighted villages are those within the survey sample that received the BCC activities.

Census ID	Province	District	Commune	Village	Comp.
2120307	Battambang	Kamrieng	Ou Da	Lumphat	2
2120309	Battambang	Kamrieng	Ou Da	Samraong	2
2120601	Battambang	Kamrieng	Ta Krei	Damnak Sala	2
2120405	Battambang	Kamrieng	Trang	Lvea Te	2
2130111	Battambang	Koas Krala	Thipakdei	Boeng Reang	2
2110411	Battambang	Phnum Proek	Barang Thleak	Hong Tuek	2
2110311	Battambang	Phnum Proek	Bour	Anlung Sdei	2
2110308	Battambang	Phnum Proek	Bour	Phnom 7	2
2110299	Battambang	Phnum Proek	Pech Chenda	Anlong Mean	2
2110205	Battambang	Phnum Proek	Pech Chenda	Ou Ta Pon	2
2100103	Battambang	Sampov Lun	Sampov Lun	Kaoh Touch	2
2100402	Battambang	Sampov Lun	Santepheap	Kilou Lekh Dabbei	2
2100404	Battambang	Sampov Lun	Santepheap	Ou Kandaol	2
9040103	Koh Kong	Khemara Phoumin	Smach Mean Chey	Phum Ti Bei	2
9040301	Koh Kong	Khemara Phoumin	Stueng Veaeng	Stueng Veaeng	2
9020301	Koh Kong	Kiri Sakor	Preaek Khsach	Preaek Khsach	2
9050102	Koh Kong	Mondol Seima	Pak Khlang	Pak Khlang Pir	2
9070602	Koh Kong	Thma Bang	Thma Doun Pov	Preaek Svay	2
10060102	Kratie	Chetr Borei	Bos Leav	Bos Leav Leu	1
10060202	Kratie	Chetr Borei	Changkrang	Kasang	1
10060704	Kratie	Chetr Borei	Sambok	Sambok	1
10060901	Kratie	Chetr Borei	Thma Kreae	Ruessei Char	1
10061007	Kratie	Chetr Borei	Thmei	Thmei	1
10010101	Kratie	Chhloung	Chhloung	Chhney	1
10010204	Kratie	Chhloung	Damrei Phong	Prey Kou	1
10010501	Kratie	Chhloung	Kanhchor	Chheu Teal Phluoh Leu	1
10010705	Kratie	Chhloung	Pongro	Tnaot	1
10021005	Kratie	Kracheh	Ou Ruessei	Srae Sdau	1
10021102	Kratie	Kracheh	Roka Kandal	Ti Pir	1
10030103	Kratie	Prek Prasab	Chambâk	Chroy Ampil 1	1
10030205	Kratie	Prek Prasab	Chrouy Banteay	L'iet	1
10030401	Kratie	Prek Prasab	Koh Ta Suy	Chong Koh	1
10030507	Kratie	Prek Prasab	Preaek Prasab	Preaek Prasab Kraom	1
10030701	Kratie	Prek Prasab	Saob	Boeng Chraeng	1
10030802	Kratie	Prek Prasab	Ta Mao	Kraham Ka Kraom	1

Census ID	Province	District	Commune	Village	Comp.
10040103	Kratie	Sambour	Boeng Char	Kaoh Dambang	1
10040404	Kratie	Sambour	Kaoh Khnhaer	Kaoh Chbar	1
10040505	Kratie	Sambour	Ou Krieng	Ou Preah	1
10040804	Kratie	Sambour	Sandan	Sangkum	1
10041004	Kratie	Sambour	Voadthonak	Ta Nguon	1
10050302	Kratie	Snuol	Snuol	Kbal Snuol	1
10050403	Kratie	Snuol	Srae Char	Mak Kandal	1
10050406	Kratie	Snuol	Srae Char	S'at	1
10050508	Kratie	Snuol	Svay Chreah	Rumpuk	1
11010401	Mondul Kiri	Kaev Seima	Srae Khtum	Ou Am	1
11020202	Mondul Kiri	Kaoh Nheaek	A Buon Leu	A Buon	1
11020607	Mondul Kiri	Kaoh Nheaek	Srae Sangkum	Reangsei	1
11030103	Mondul Kiri	Ou Reang	Dak Dam	Pu Chhab	1
11040402	Mondul Kiri	Pech Chreada	Bu Sra	Pu Reang	1
11050403	Mondul Kiri	Saen Monourom	Romonea	Pu Lung	1
18040303	Preah Sihanouk	Kampong Seila	Ou Bak Roteh	Stueng Samraong	2
18010303	Preah Sihanouk	Preah Sihanouk	Bei	Phum Bei	2
18010301	Preah Sihanouk	Preah Sihanouk	Bei	Phum Muoy	2
18010302	Preah Sihanouk	Preah Sihanouk	Bei	Phum Pir	2
18010404	Preah Sihanouk	Preah Sihanouk	Buon	Phum Buon	2
18010402	Preah Sihanouk	Preah Sihanouk	Buon	Phum Pir	2
18020202	Preah Sihanouk	Prey Nob	Boeng Ta Prum	Boeng Ta Prum	2
18020405	Preah Sihanouk	Prey Nob	Cheung Kou	Trapeang Mul	2
18020601	Preah Sihanouk	Prey Nob	Ou Oknha Heng	Bat Kokir	2
18020801	Preah Sihanouk	Prey Nob	Ream	Ong	2
18020805	Preah Sihanouk	Prey Nob	Ream	Thma Thum	2
18021003	Preah Sihanouk	Prey Nob	Samrong	Samrong Kraom	2
18021203	Preah Sihanouk	Prey Nob	Tuek Thla	Preaek Sangkae	2
18021301	Preah Sihanouk	Prey Nob	Tuol Totueng	Tuol Totueng Ti Muoy	2
18021403	Preah Sihanouk	Prey Nob	Veal Renh	Veal Thum	2
18030102	Preah Sihanouk	Stueng Hav	Kampenh	Phum Pir	2
18030302	Preah Sihanouk	Stueng Hav	Tumnob Rolok	Phum Pir	2
15020406	Pursat	Kandieng	Kanhchor	Tuol Totueng	2
15021009	Pursat	Kandieng	Kaoh Chum	Ampil Kanhchrinh	2
15020611	Pursat	Kandieng	Srae Sdok	Thlea Ampil	2
15030408	Pursat	Krakor	Chheu Tom	Dangkieb Kdam	2
15030505	Pursat	Krakor	Kampong Luong	Phum Ti Pram	2
15030608	Pursat	Krakor	Kampong Pou	Sna Reach	2
15030701	Pursat	Krakor	Kbal Trach	Totueng	2
15030704	Pursat	Krakor	Kbal Trach	Trapeang Rumdenh	2
15030906	Pursat	Krakor	Sna Ansa	Sarovoan	2
15031005	Pursat	Krakor	Svay Sa	Boeng Smok	2
15031113	Pursat	Krakor	Tnaot Chum	Ta Kaev Leu	2
15040101	Pursat	Phnum Kravanh	Bak Chenhchien	Ou Rumchang	2
15040207	Pursat	Phnum Kravanh	Leach	Krouch Chhmar	2

Census ID	Province	District	Commune	Village	Comp.
15040308	Pursat	Phnum Kravanh	Phteah Rung	Phteah Rung	2
15040310	Pursat	Phnum Kravanh	Phteah Rung	Sdok Khtum	2
15040402	Pursat	Phnum Kravanh	Prongil	Ou Srav	2
15040707	Pursat	Phnum Kravanh	Samraong	Samraong Pir	2
15040601	Pursat	Phnum Kravanh	Santreae	Kol Totueng	2
15050104	Pursat	Pursat	Chamraeun Phal	Doun Ei	2
15050306	Pursat	Pursat	Lolok Sa	Voat Luong	2
15050404	Pursat	Pursat	Phteah Prey	Dangkear	2
15050501	Pursat	Pursat	Prey Nhi	Bak Roteh	2
15050608	Pursat	Pursat	Roleab	Roleab	2
15050702	Pursat	Pursat	Svay At	Krang Pophleak	2
15060303	Pursat	Veal Veang	Anlong Reab	Chamka Chrey Khang Cheung	2
16010104	Ratanak Kiri	Andoung Meas	Malik	Laom	1
16010303	Ratanak Kiri	Andoung Meas	Nhang	Muy	1
16020499	Ratanak Kiri	Ban Lung	Boeng Kansaeng	Phum 3	1
16020401	Ratanak Kiri	Ban Lung	Boeng Kansaeng	Tes Anlung	1
16030105	Ratanak Kiri	Bar Kaev	Kak	Yeun	1
16030503	Ratanak Kiri	Bar Kaev	Saeung	Chaet	1
16040404	Ratanak Kiri	Koun Mom	Teun	Kam Bak	1
16050502	Ratanak Kiri	Lumphat	Ba Tang	Pruok	1
16050402	Ratanak Kiri	Lumphat	Lbang Pir	Ka Chanh	1
16050604	Ratanak Kiri	Lumphat	Seda	Samot Leu	1
16060506	Ratanak Kiri	Ou Chum	Ou Chum	Tang Pleng	1
16070204	Ratanak Kiri	Ou Ya Dav	Lum Choar	Un	1
16070705	Ratanak Kiri	Ou Ya Dav	Ya Tung	Sam	1
16080205	Ratanak Kiri	Ta Veang	Ta Veang Kraom	Phyang	1
16090402	Ratanak Kiri	Veun Sai	Ka Choun	Ka Choun Kraom	1
16090702	Ratanak Kiri	Veun Sai	Kok Lak	Rak	1
16090901	Ratanak Kiri	Veun Sai	Phnum Kok	Phnum Kok Lav	1
19010404	Stung Treng	Sesan	Samkhuoy	Hang Savat	1
19020202	Stung Treng	Siem Bouk	Kaoh Sampeay	Damrei Phong	1
19020601	Stung Treng	Siem Bouk	Siem Bouk	Siem Bouk	1
19020702	Stung Treng	Siem Bouk	Srae Krasang	Kaoh Krouch	1
19030101	Stung Treng	Siem Pang	Preaek Meas	Khes Svay	1
19040203	Stung Treng	Stueng Traeng	Srah Ruessei	Srae Pou	1
19040199	Stung Treng	Stueng Traeng	Stueng Traeng	Preak	1
19040104	Stung Treng	Stueng Traeng	Stueng Traeng	Spean Thma	1
19050599	Stung Treng	Thala Barivat	Anlong Chrey	Veal Denh	1
19050602	Stung Treng	Thala Barivat	Ou Rai	Pong Tuek	1
19050705	Stung Treng	Thala Barivat	Ou Svay	Kaoh Hib	1

Annex 2: Endline survey data collection instruments



PSL Endline - HH -
Lot 1_ENG_FINAL.doc



PSL Endline - WRA -
Lot 1_ENG_FINAL.doc



PSL Endline - IDI
VHSG - Lot 1_ENG_FI



PSL Endline - IDI OD
MCH Supervisors - Lo



PSL Endline -
BEmONC - Lot 1_ENG



PSL Endline - Case
Study - Lot 1_ENG_FI



PSL Endline - FGD -
Lot 1_ENG_FINAL.doc

Annex 3: Additional tables and figures

Table 26: Background variables differences between component 1 (C1) and component 2 (C2) provinces at each round of survey ($p = p$ -value)

Variable	Baseline			Midline			Endline		
	C1	C2	p	C1	C2	p	C1	C2	p
Household level variables									
Average number of HH members	5.3	5.1	***	5.6	5.1	***	5.2	4.8	***
Average number of HH female members	2.7	2.6	***	2.7	2.6	***	2.7	2.5	***
Wealth groups (%)			***			***			***
Poorest	6.5	1.6		4.9	1.1		3.9	0.2	
2	20.9	13.2		19.0	7.6		13.6	2.9	
3	30.0	22.7		28.3	20.8		25.9	10.1	
4	25.7	33.3		26.7	38.6		30.6	44.5	
Better off	17.0	29.2		21.1	32.1		26.1	42.3	
IDPoor/PAC card ownership (%)	32.0	28.8	NS	29.1	28.3	NS	29.3	25.5	**
WRA level variables									
Average age (years)	29.9	29.9	NS	29.8	30.3	*	29.7	30.4	**
Highest education level (%)			***			***			***
No education at all	28.8	17.9		26.3	17.0		23.9	13.5	
Primary or equivalent	43.9	48.4		45.3	50.1		44.5	49.8	
Lower secondary or equivalent	16.9	22.2		18.6	22.5		21.8	22.9	
Upper secondary or equivalent	8.8	9.3		8.5	8.7		8.4	10.4	
Higher	1.6	2.2		1.1	1.8		1.4	3.5	
Religion (%)			***			***			***
Buddhist	74.4	91.9		80.6	92.4		79.9	93.5	
Muslim	3.5	7.6		3.4	6.9		2.5	6.3	
Christian	1.3	0.6		2.4	0.6		2.7	0.1	
Religion from ethnic minorities	20.6	0.0		13.6	0.0		14.3	0.0	
Other	0.2	0.0		0.1	0.0		0.6	0.1	
Marital status (%)			***			***			***
Single and NOT in a relation	10.1	19.9		15.4	17.3		14.1	17.9	
Single with boyfriend	8.4	4.3		0.9	0.9		2.4	1.1	
Single living with a partner	0.1	0.1		0.5	0.1		0.4	0.3	
Married	74.8	70.2		78.2	76.6		77.6	75.2	
Divorced/separate	3.3	3.0		2.5	3.3		3.8	3.5	
Widowed	3.4	2.6		2.5	1.7		1.7	2.0	
WRAs with disability (DISABLE1; %)	49.4	38.4	***	18.1	18.7	NS	16.0	11.0	***

$p = p$ -value; HH = household

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; NS: non-significant

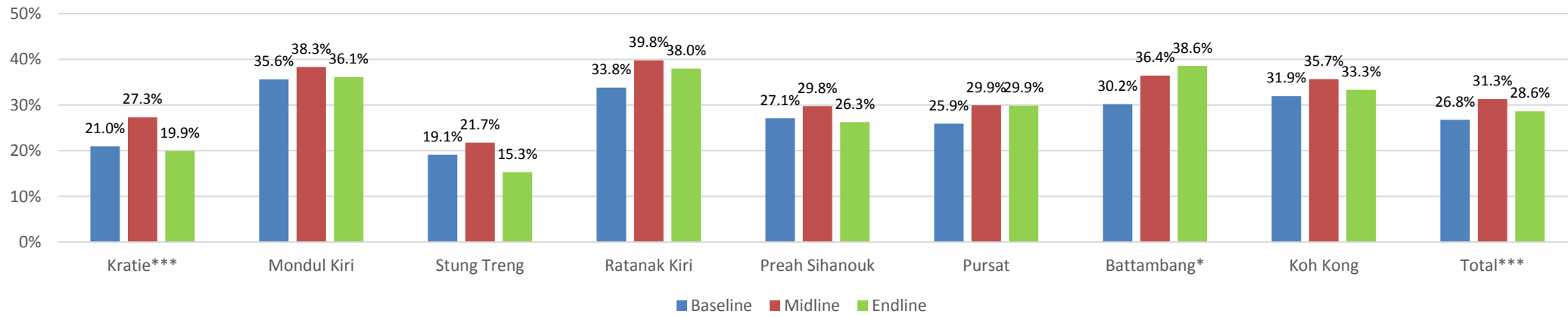


Figure 36: MERI O2.1: Percentage of all WRAs currently using any type of MCM, by province (n=9,261)

* p<0.1; ** p<0.05; *** p<0.01

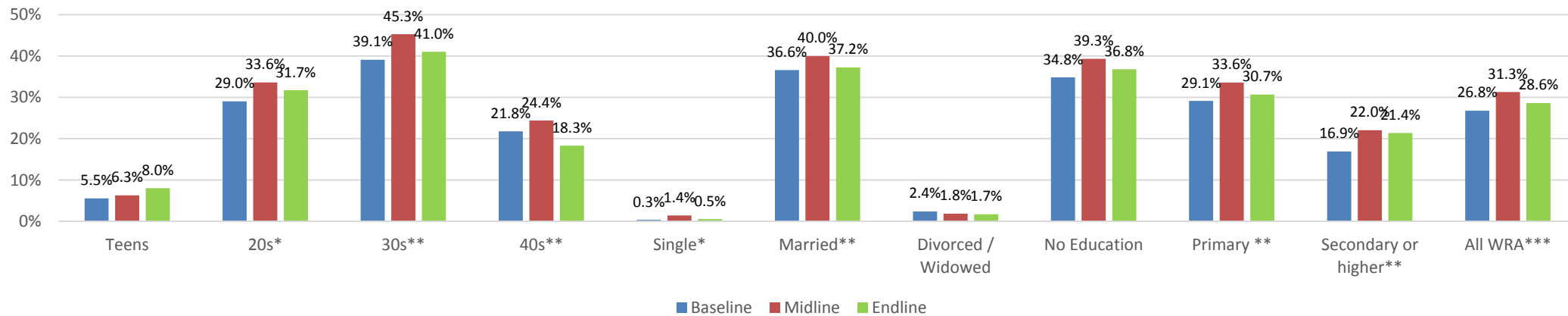


Figure 37: MERI O2.1: Percentage of all WRAs currently using any type of MCM, by socio-economics (n=9,261)

* p<0.1; ** p<0.05; *** p<0.01

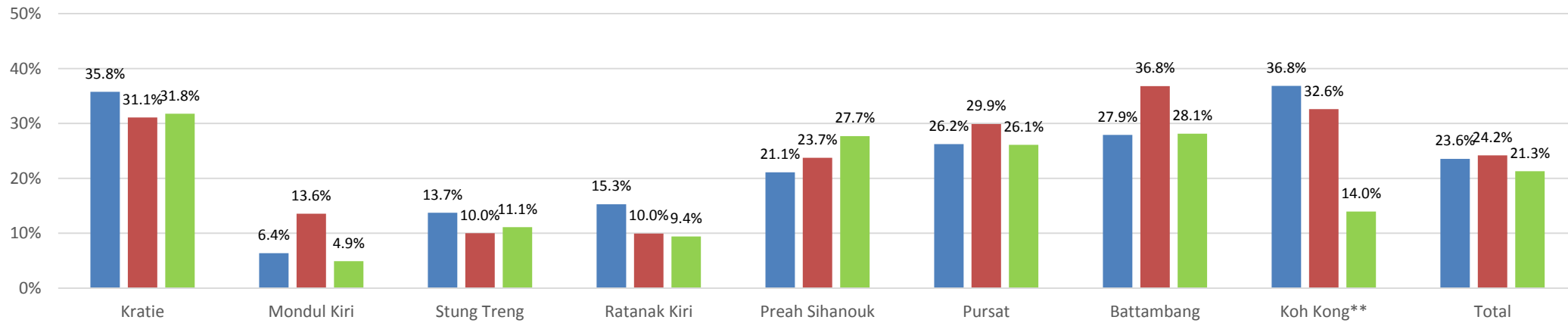


Figure 38: MERI O2.2: Percentage of all WRAs using MCM and any type of LAPM, by province (n=2,686)

* p<0.1; ** p<0.05; *** p<0.01

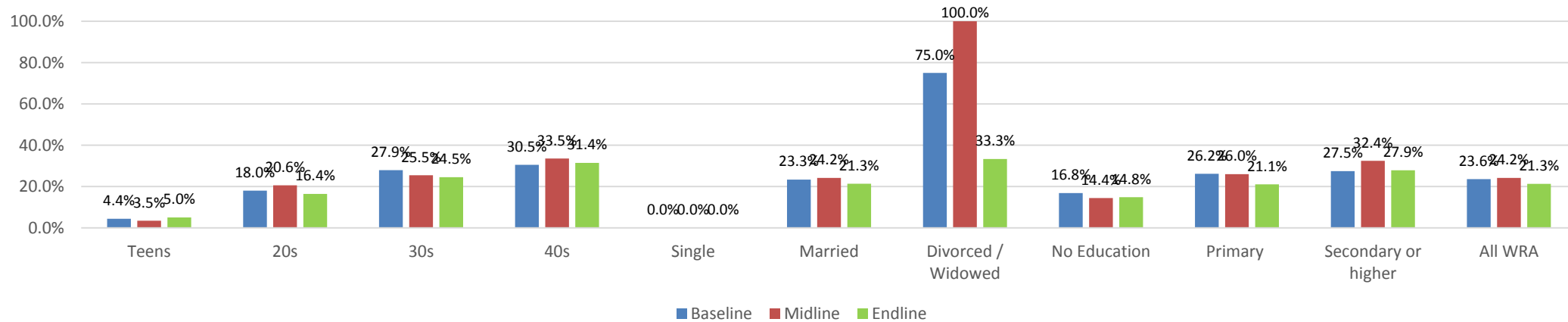


Figure 39: MERI O2.2: Percentage of all WRAs using MCM and any type of LAPM, by socio-economics (n=2,686)

* p<0.1; ** p<0.05; *** p<0.01

PSL provided support on Voluntary Surgical Contraception in three provinces (“VSC provinces”): Battambang, Kratie and Pursat. Figure 40 and Figure 41 below respectively compare the percentages of WRAs using MCM and LAPM and VSC, in VSC provinces or in the other provinces which did not receive the VSC support. A first chi-square test was conducted to identify the possible significant differences across the three survey rounds. The only significant difference was found on the

percentage of WRAs who mentioned they received VSC in VSC provinces: the endline rate (4.8%) is indeed significantly lower than the midline and baseline values (respectively 8.2% and 8.3%).

A second set of chi-square tests looked more closely into possible significant differences between VSC provinces and non-VSC provinces, in terms of LAPM usage and VSC usage. The rates of LAPM users were found to be statistically and significantly higher in VSC provinces than in other provinces at each round of survey ($p < 0.01$). These tests also showed that the percentage of WRAs using VSC was significantly higher in VSC provinces than in other provinces ($p < 0.05$) at baseline and midline (no significant difference at endline).

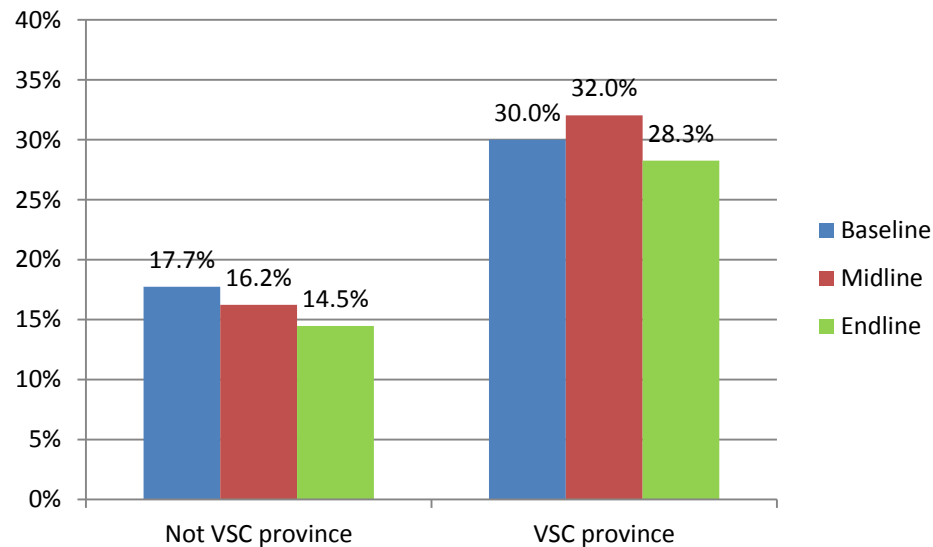


Figure 40: Percentages of WRAs using MCM and any type of LAPM

($n_{\text{base}}=739$; $n_{\text{mid}}=1,017$; $n_{\text{end}}=930$)

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

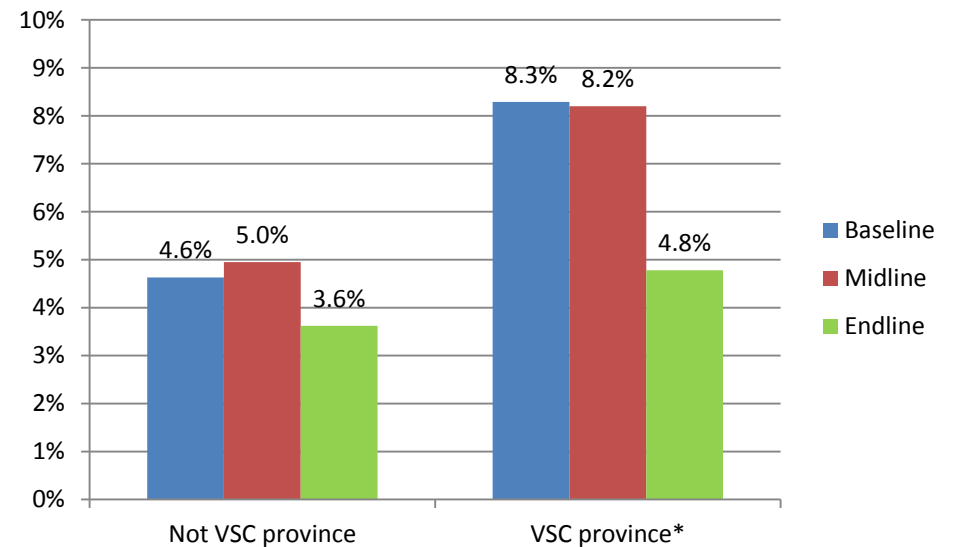


Figure 41: Percentages of WRAs using MCM and VSC

($n_{\text{base}}=739$; $n_{\text{mid}}=1,017$; $n_{\text{end}}=930$)

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

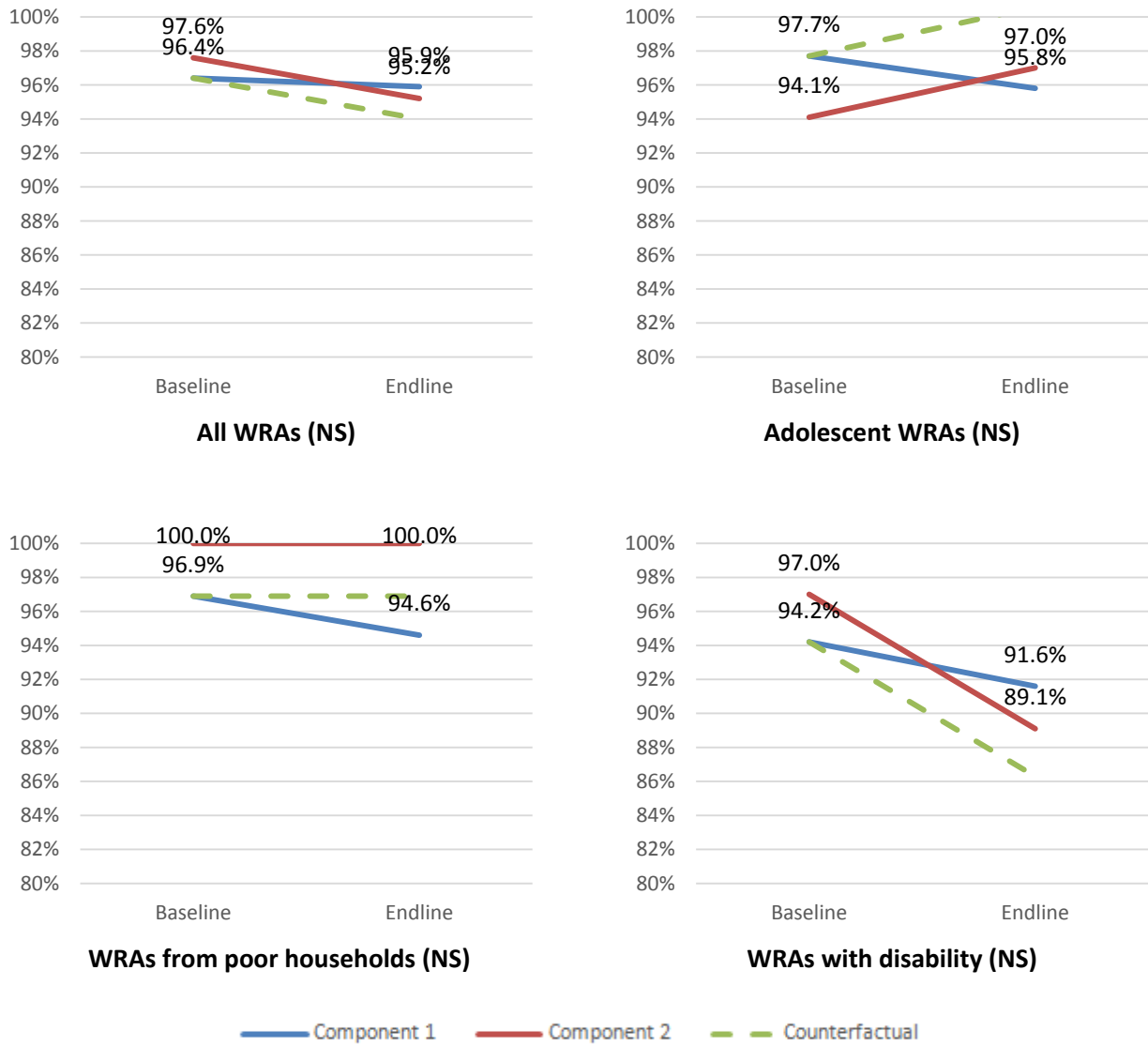


Figure 42: MERI O3.3: DID for WRAs who were satisfied or highly satisfied with RMNH services

The rates of highly satisfied and satisfied WRAs from ethnic minorities decreased slightly from 95.9% at baseline to 95.0% at endline.

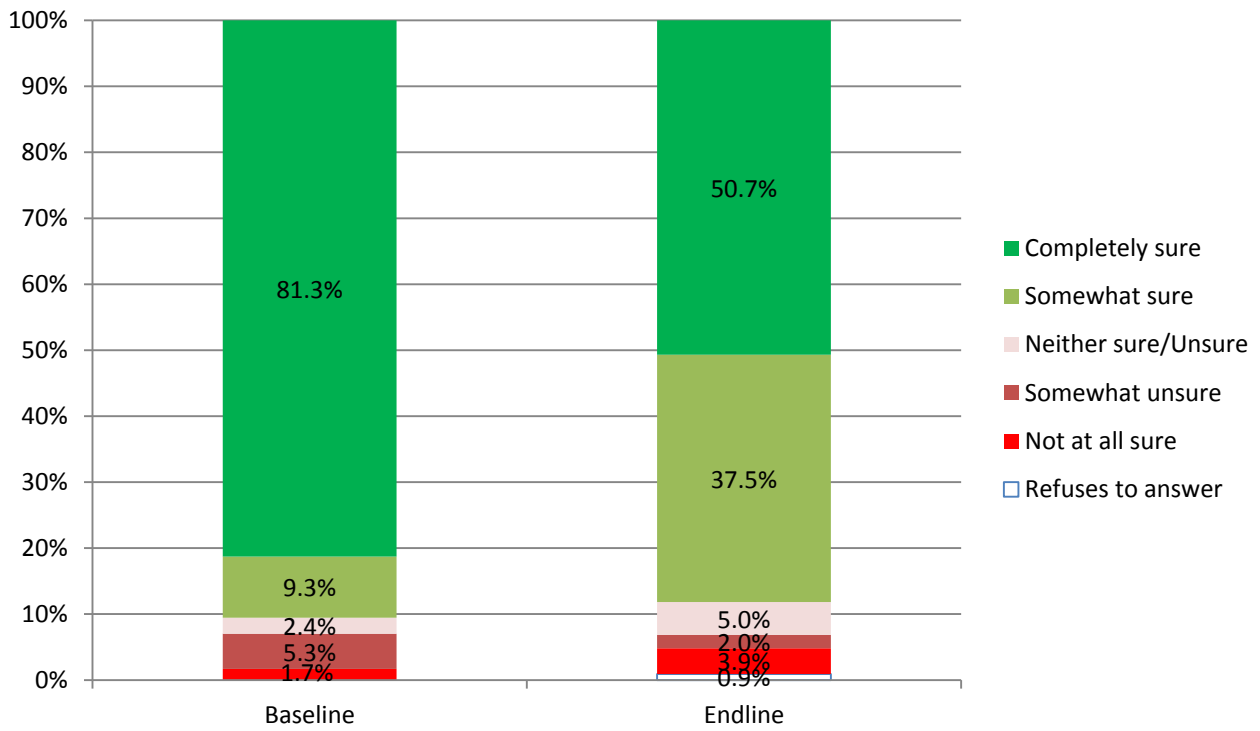


Figure 43: “How sure are you that you could bring the topic of FP with your husband or partner?”
($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

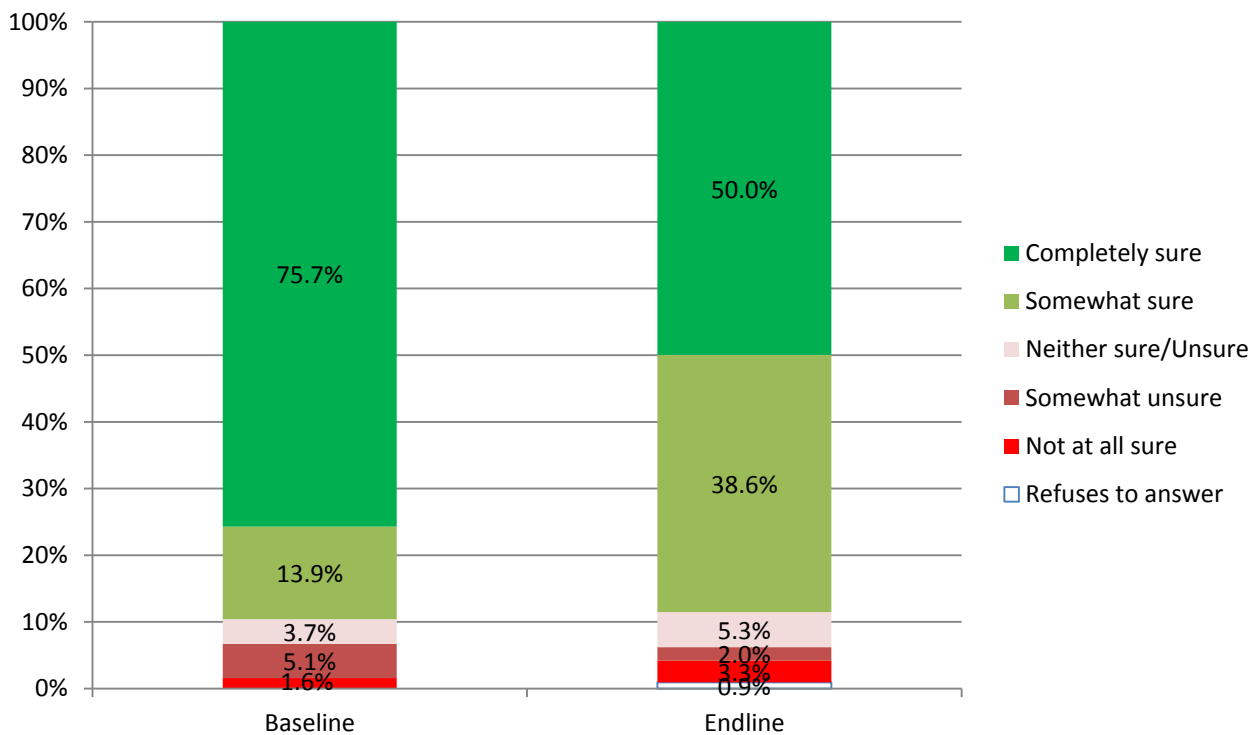


Figure 44: “How sure are you that you could tell your husband or partner that you want to use FP?”
($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

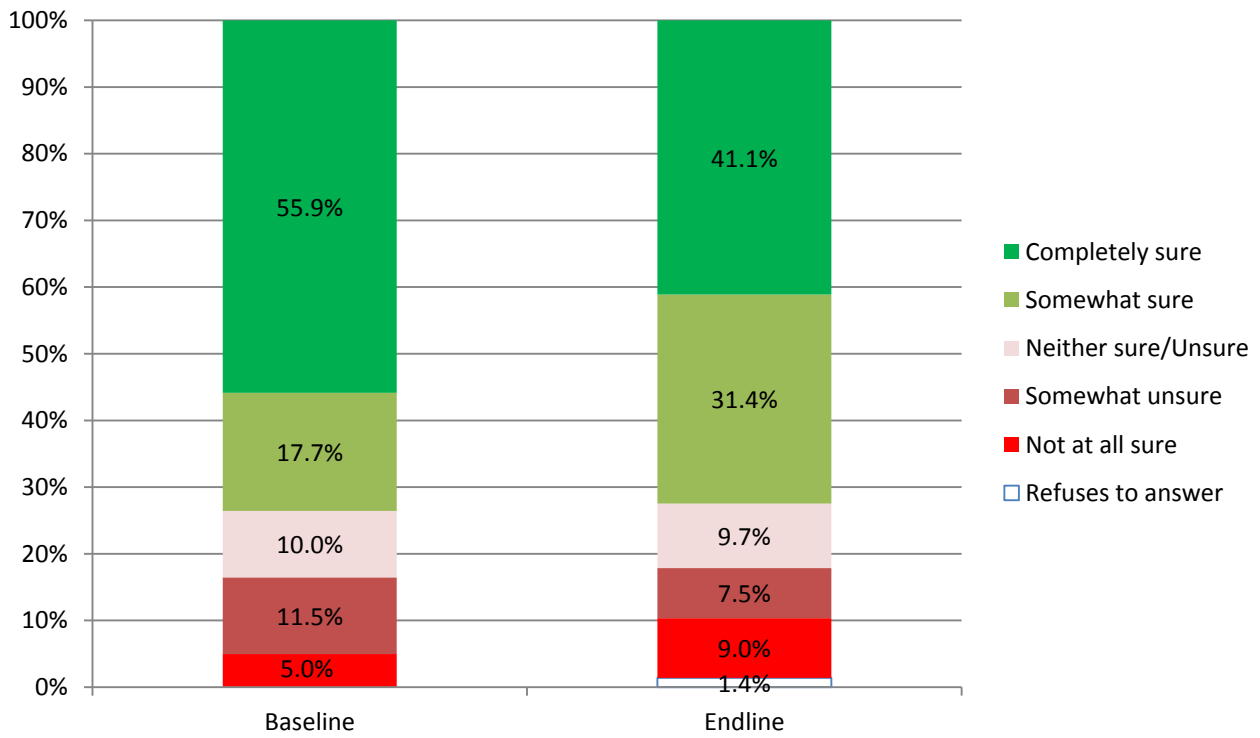


Figure 45: “How sure are you that could use FP?”
 ($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

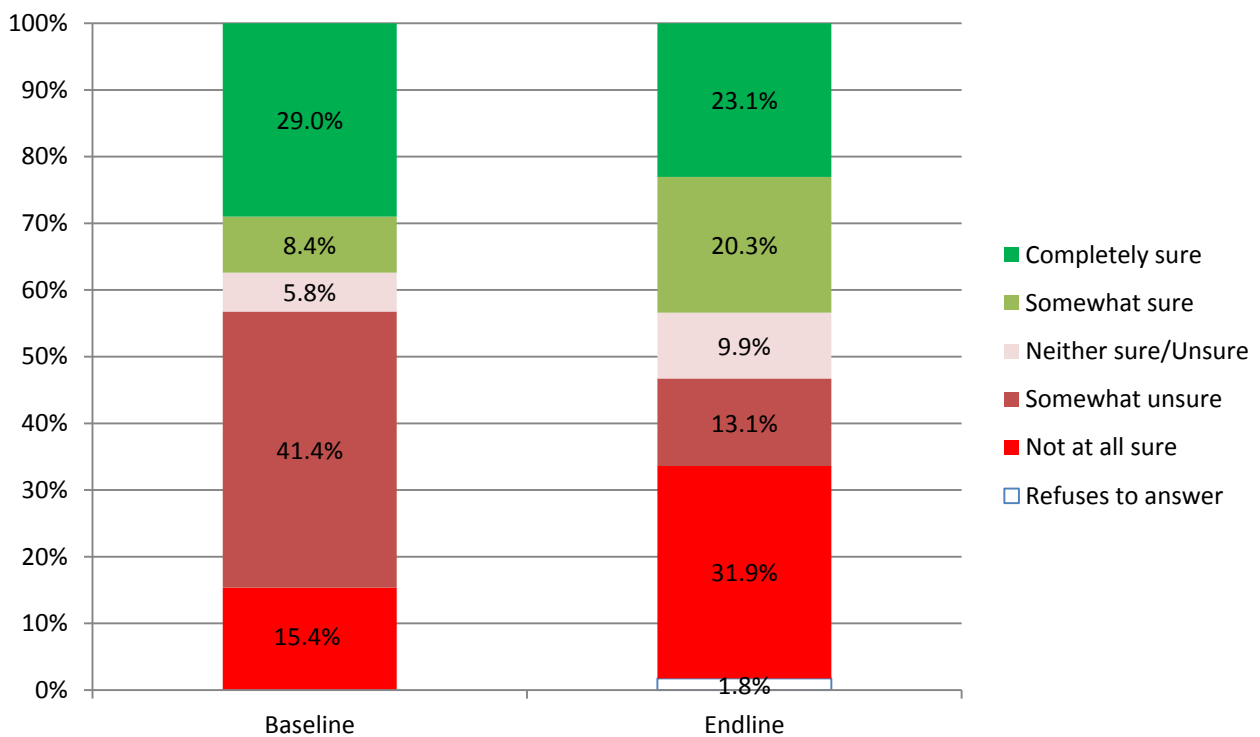


Figure 46: “How sure are you that you could use FP even if your husband or partner does not want to?”
 ($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

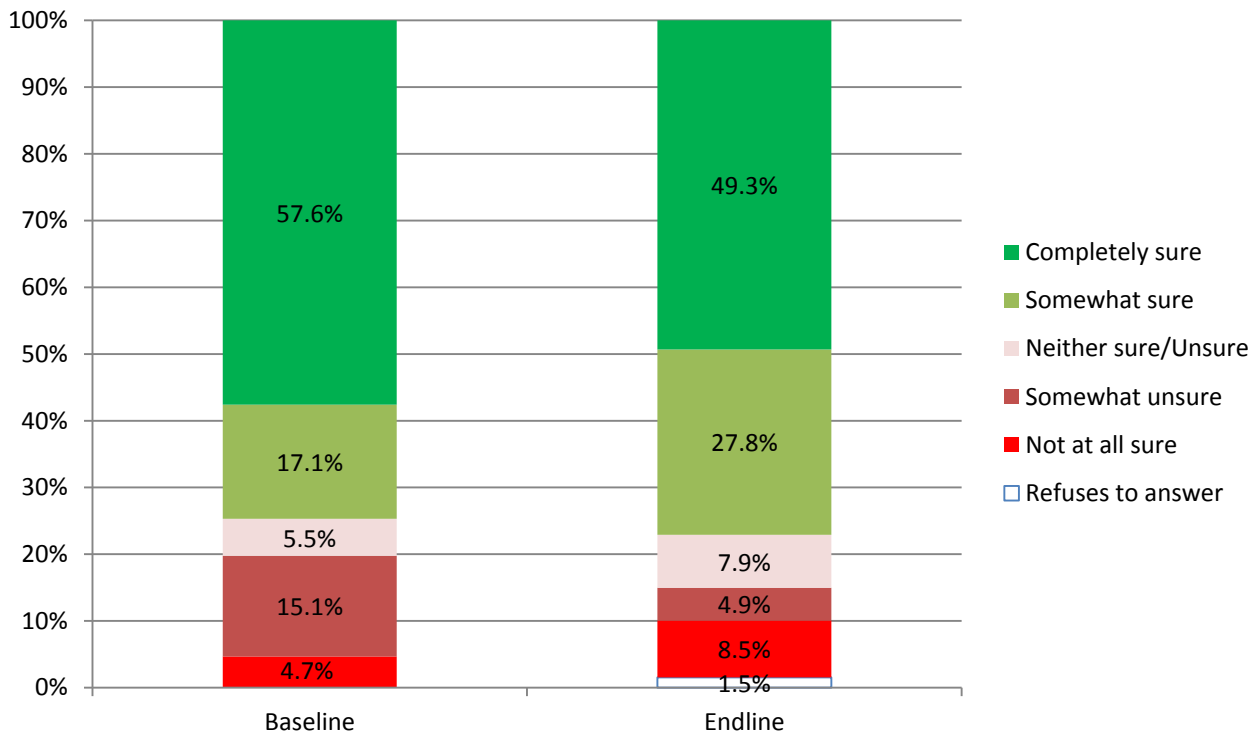


Figure 47: Self-efficacy in refusing sex “when you don’t want to but your husband or partner does?”
 ($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

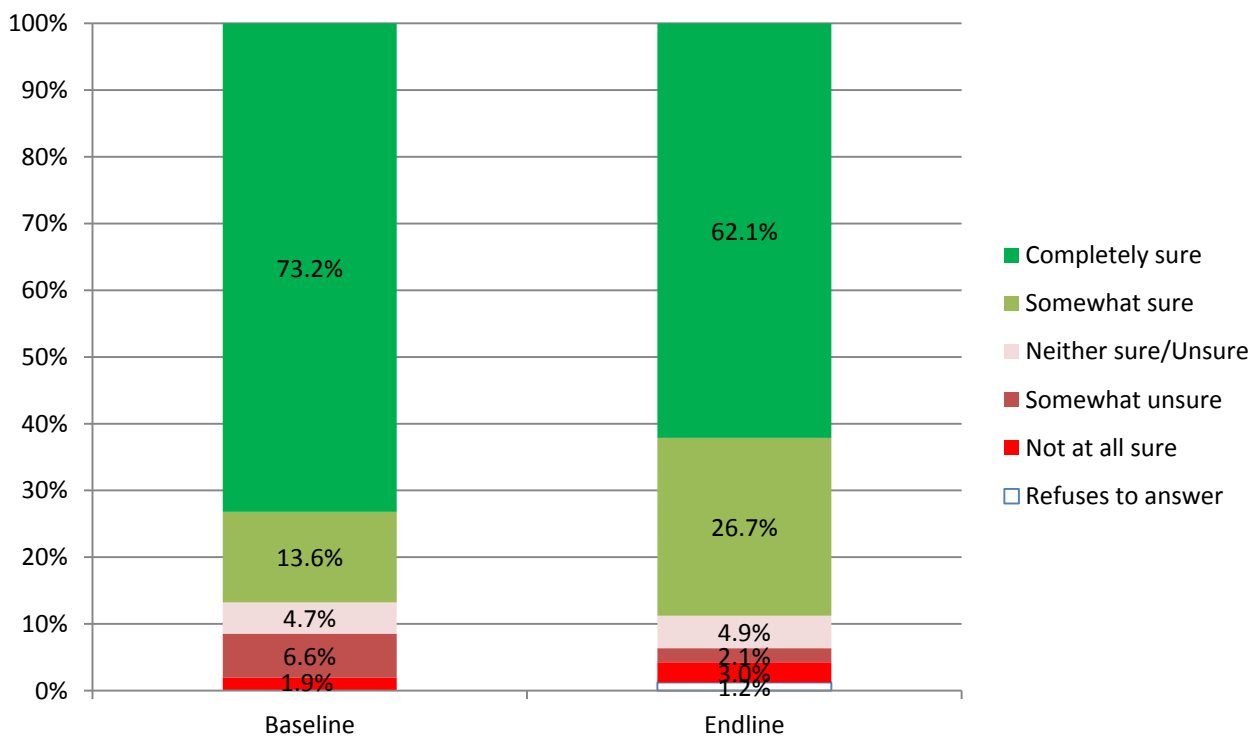


Figure 48: Self-efficacy in refusing sex “if you were feeling tired?”
 ($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

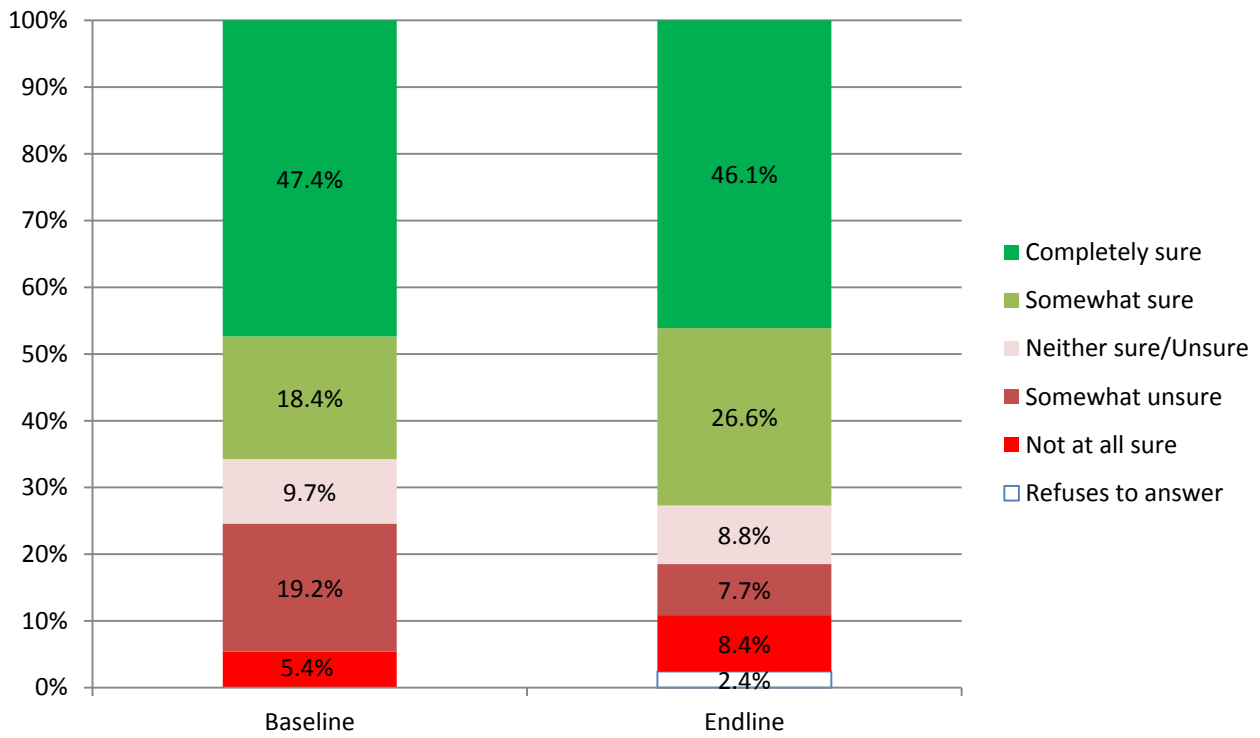


Figure 49: Self-efficacy in refusing sex “when he gets angry with you if you don’t want to?”
 ($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

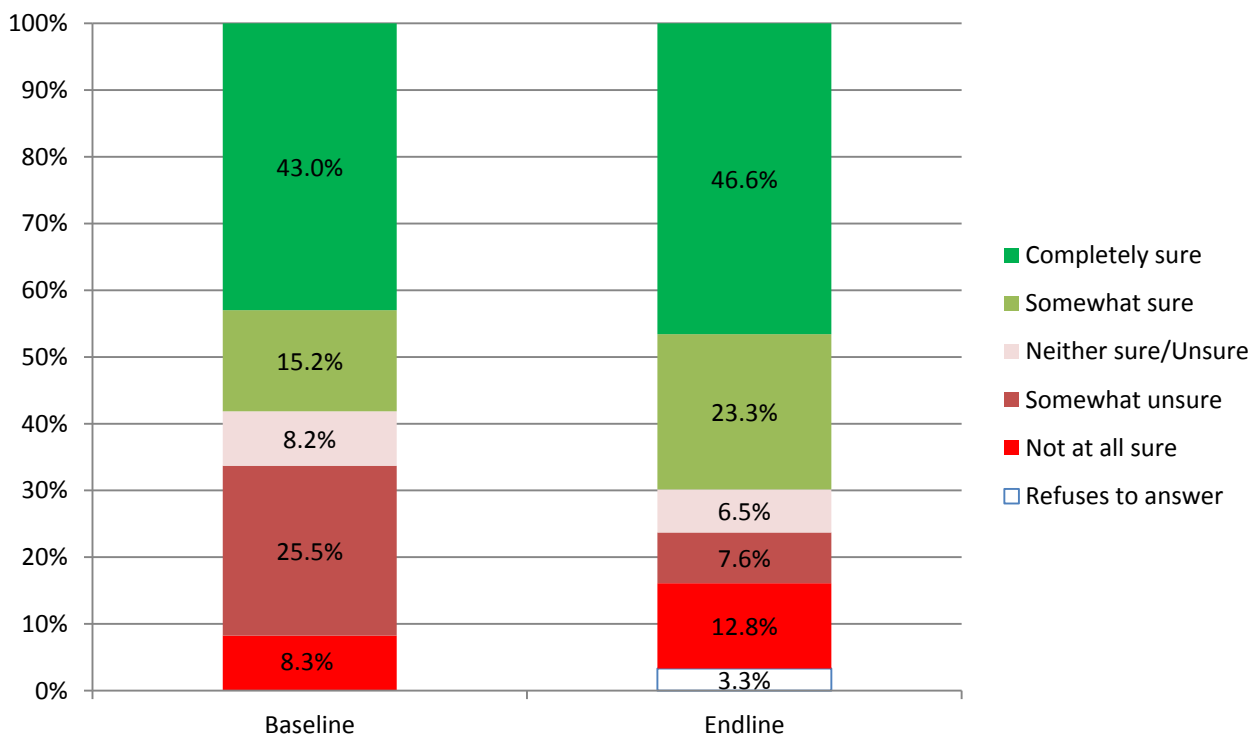


Figure 50: Self-efficacy in refusing sex “when he threatens to hurt you if you don’t want to?”
 ($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

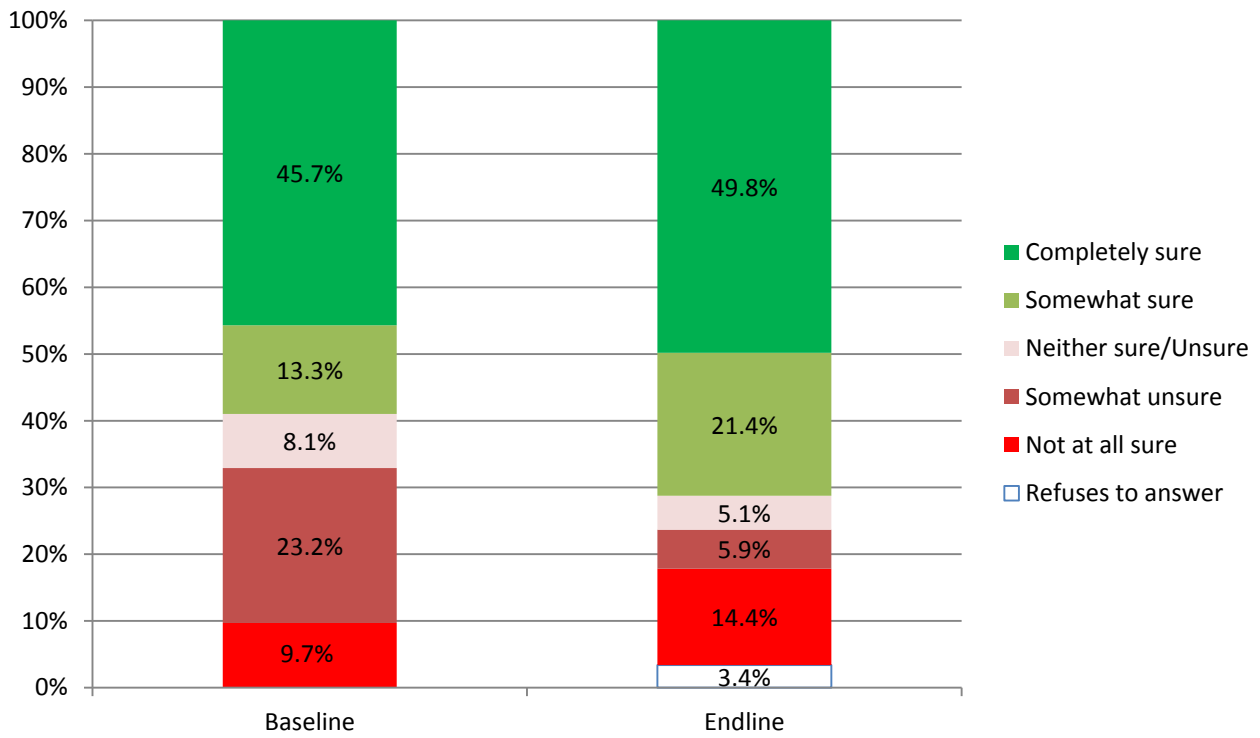


Figure 51: Self-efficacy in refusing sex “when he threatens to have sex with another woman if you don’t want to?”

($n_{base}=2,762$; $n_{end}=3,249$; $p<0.01$)

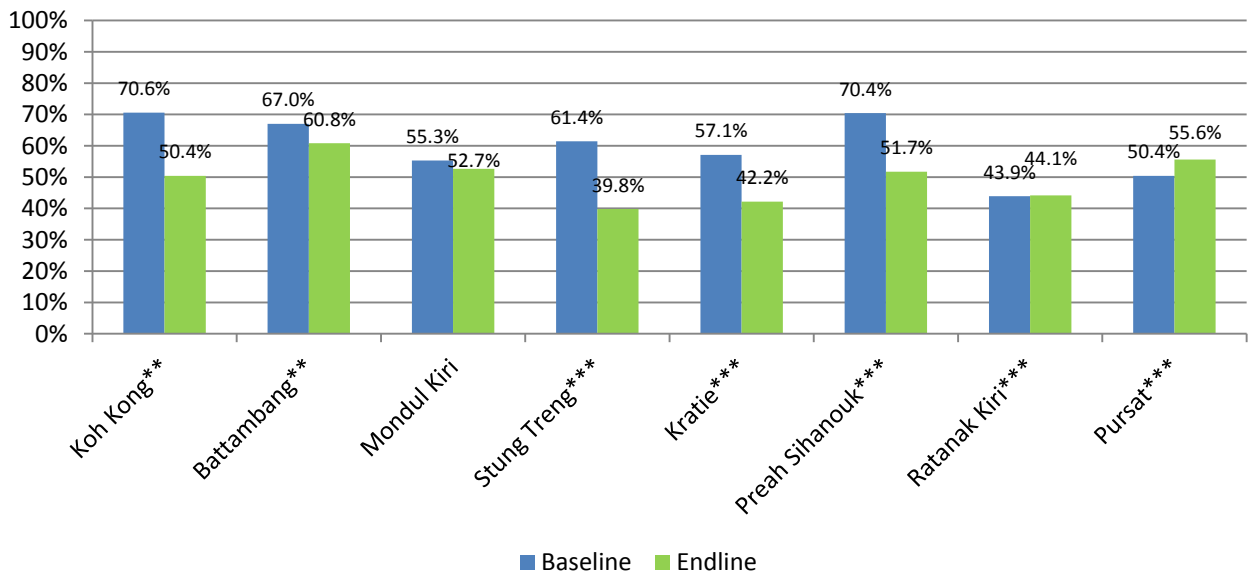


Figure 52: Self-efficacy in refusing sex “when you don’t want to but your husband or partner does?”

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

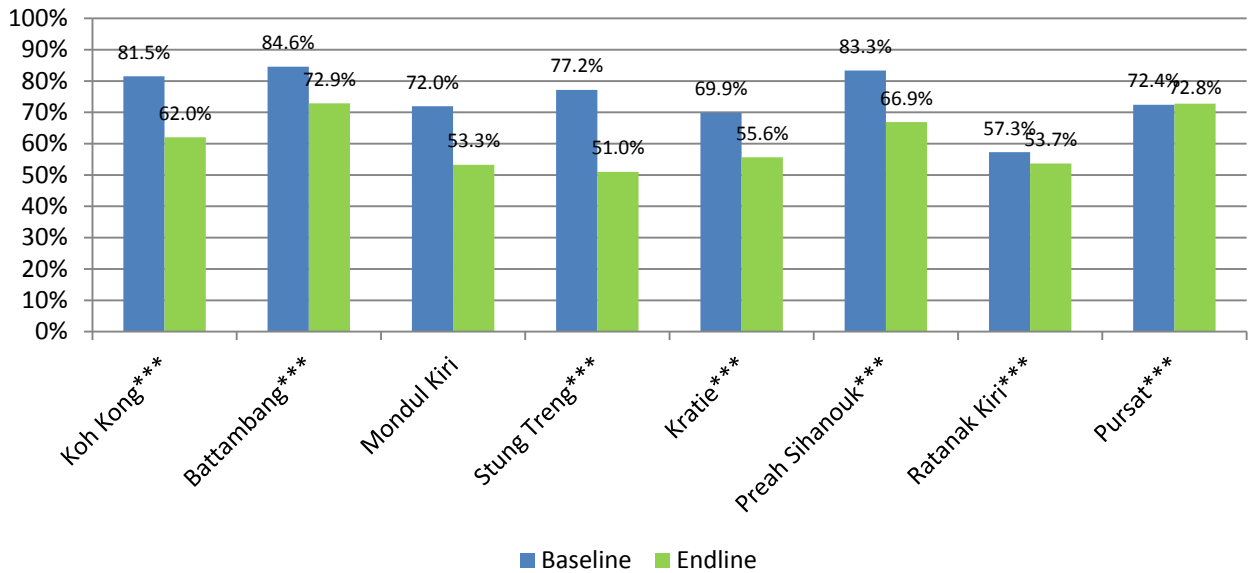


Figure 53: Self-efficacy in refusing sex “if you were feeling tired?”

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

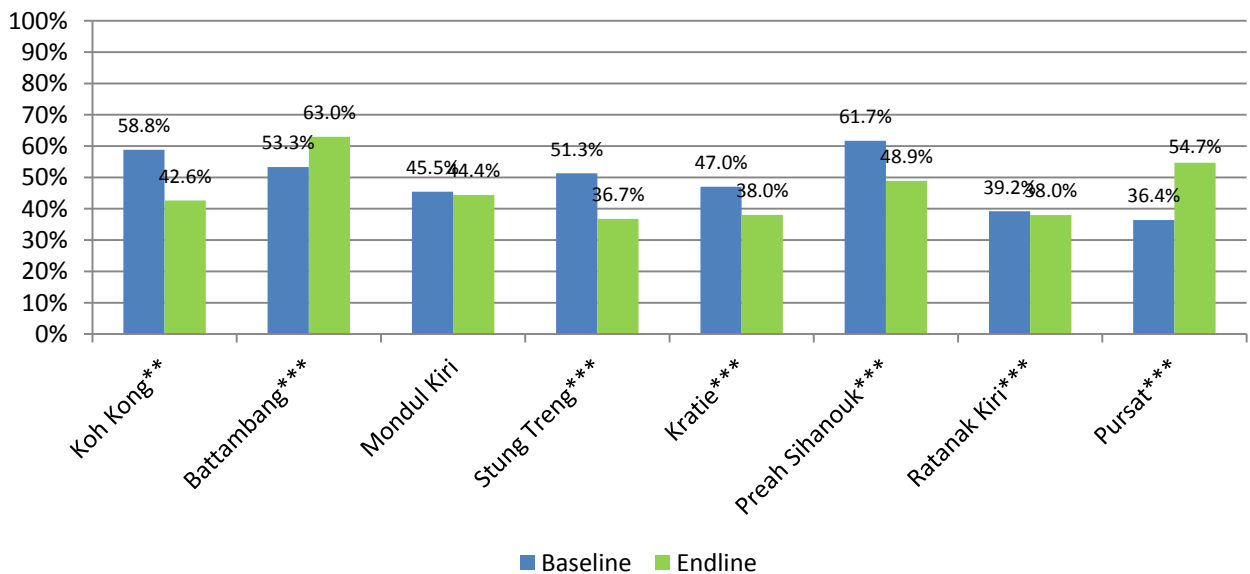


Figure 54: Self-efficacy in refusing sex “when he gets angry with you if you don't want to?”

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

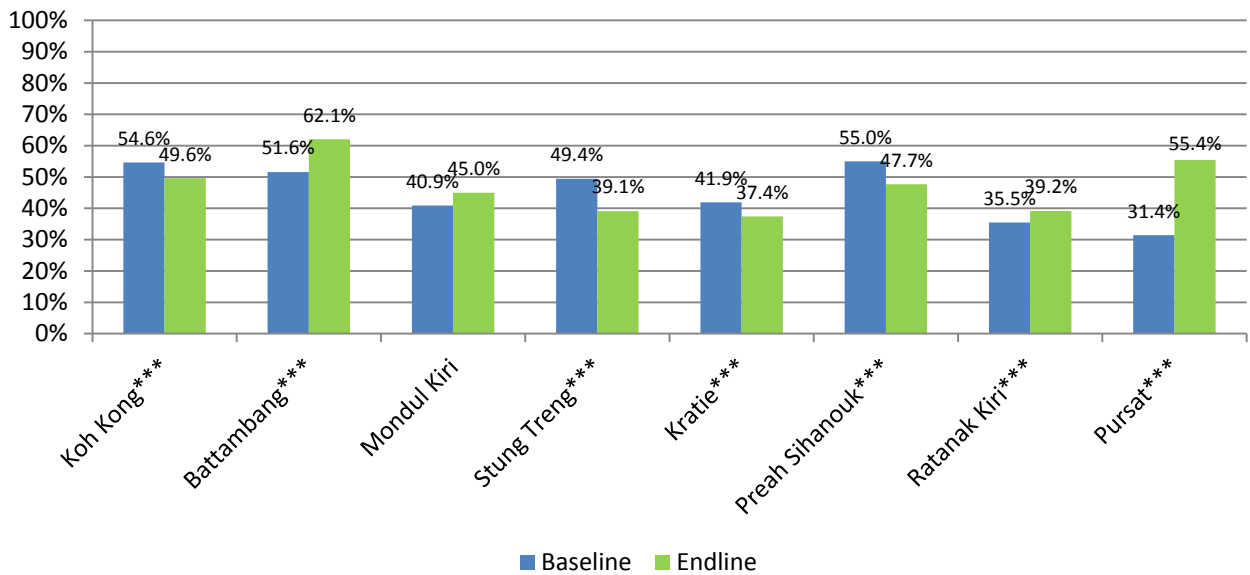


Figure 55: Self-efficacy in refusing sex “when he threatens to hurt you if you don’t want to?”

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

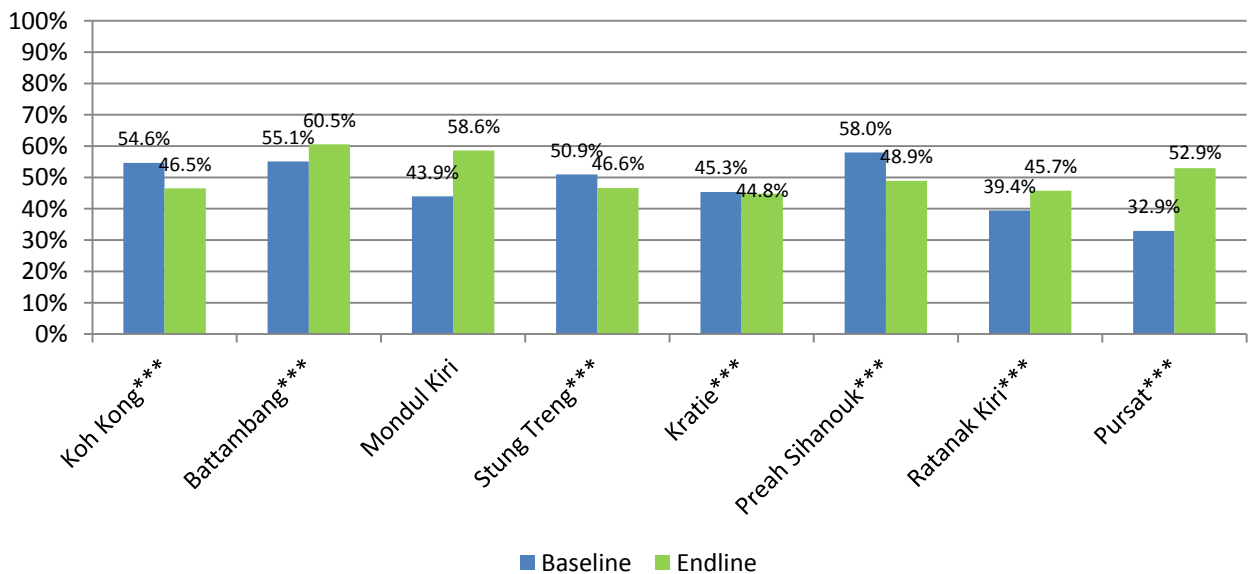


Figure 56: Self-efficacy in refusing sex “when he threatens to have sex with another woman if you don’t want to?”

($n_{base}=2,762$; $n_{end}=3,249$)

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 27: DID analysis adjusted for covariates

Variable	DID _{Baseline-Midline}	DID _{Baseline-Endline}
MERI O4.1 – ANC4	+4.9pp (NS)	+6.8pp (NS)
MERI O4.1 – ANC2	+9.2pp ***	+15.1pp ***
MERI O1.4 – Delivery in health facility with SBA	+10.4pp ***	+22.6pp ***
MERI O4.2 – PNC1	+9.2pp **	+23.6pp ***
MERI O3.2 – PNC + FP counseling	+5.5pp (NS)	+2.9pp (NS)
MERI O3.3 – Highly satisfied with RMNH (very satisfied only)		-10.1pp **
MERI O3.3 – Highly satisfied with RMNH (very satisfied + satisfied)		+1.7pp (NS)
MERI I2.1 – Referral community mechanism		+3.4pp **
MERI I4.1 – Danger signs during pregnancy		+8.7pp ***
MERI I4.2 – Danger signs for newborn distress		+5.7pp ***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 27 above displays the DID results calculated over the whole WRAs population (without disaggregation by vulnerable group), taking into account the possible effect of confounding background variables (also called covariates). A descriptive analysis of the background variables (Table 26), completed by a set of linear regressions and correlation tables, permitted to choose five covariates to be included in the adjusted DID calculations: wealth group, total number of household members, education level (kept categorical), religion (made binary, with 0 for “Buddhist” and 1 for “Other”) and marital status (made binary, with 0 for “Non-married or living alone” and 1 for “Married or living with partner”). For a reminder, the DID was not calculated for the baseline-midline period, for the satisfaction, referral mechanism and danger signs indicators.

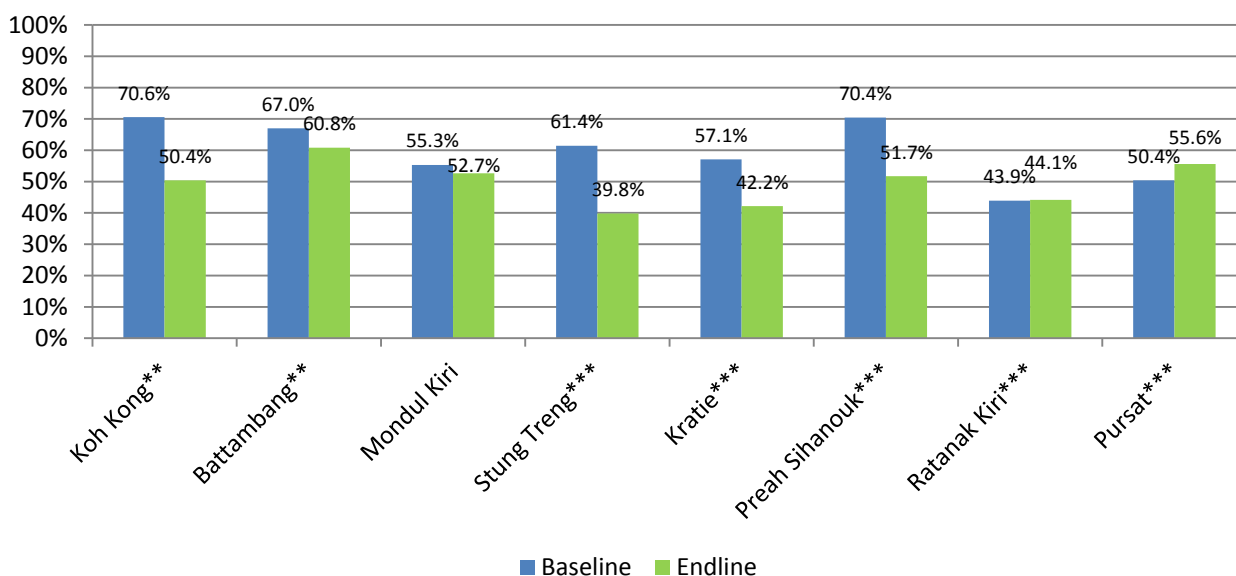


Figure 52: Self-efficacy in refusing sex “when you don’t want to but your husband or partner does?”

(nbase=2,762; nend=3,249)

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

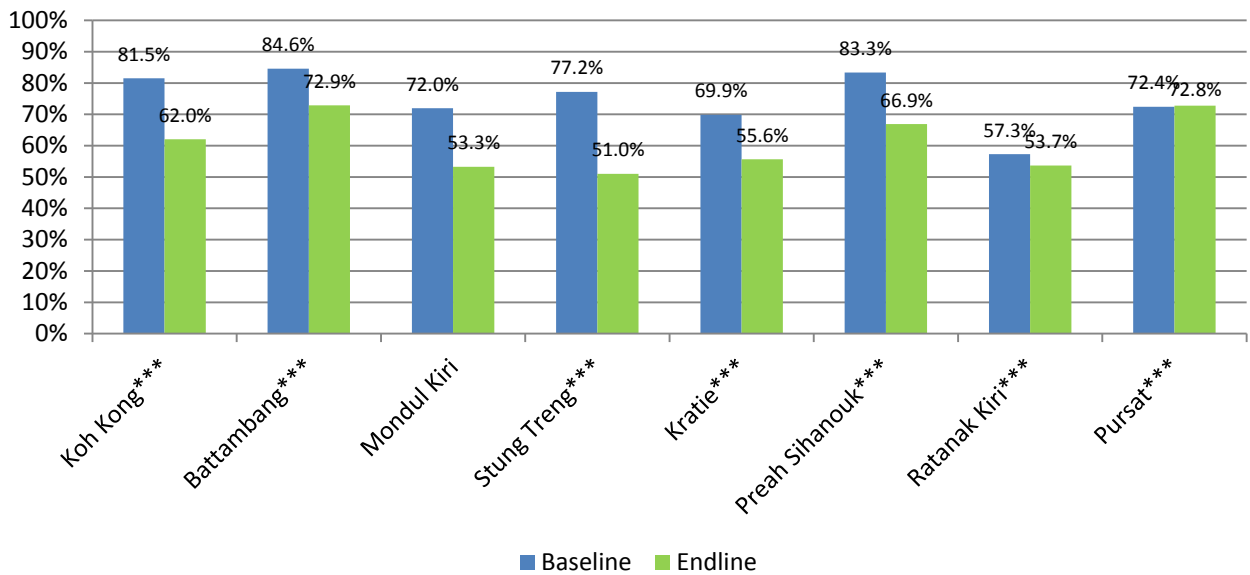


Figure 53: Self-efficacy in refusing sex “if you were feeling tired?”

(nbase=2,762; nend=3,249)

* p<0.1; ** p<0.05; *** p<0.01

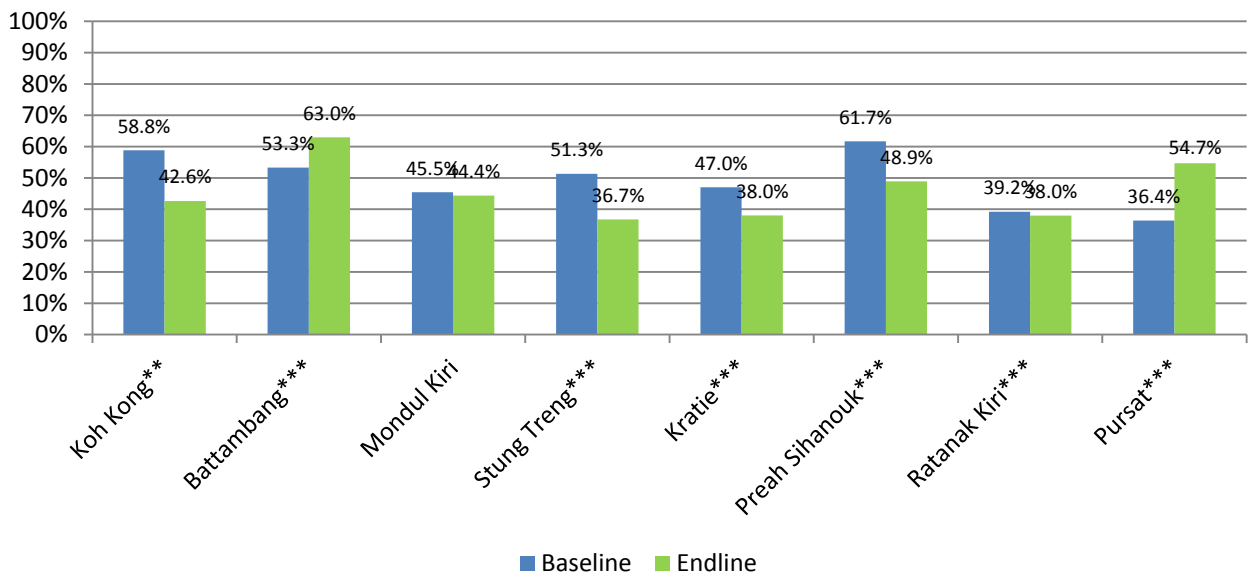


Figure 54: Self-efficacy in refusing sex “when he gets angry with you if you don’t want to?”

(nbase=2,762; nend=3,249)

* p<0.1; ** p<0.05; *** p<0.01

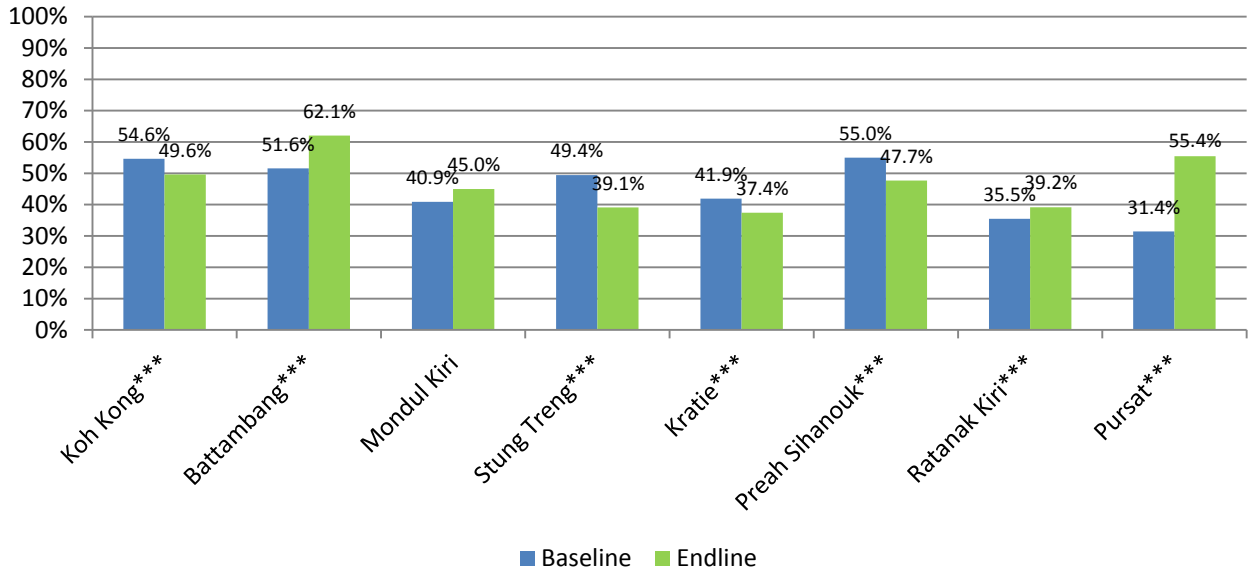


Figure 55: Self-efficacy in refusing sex “when he threatens to hurt you if you don’t want to?”
(nbase=2,762; nend=3,249)

* p<0.1; ** p<0.05; *** p<0.01

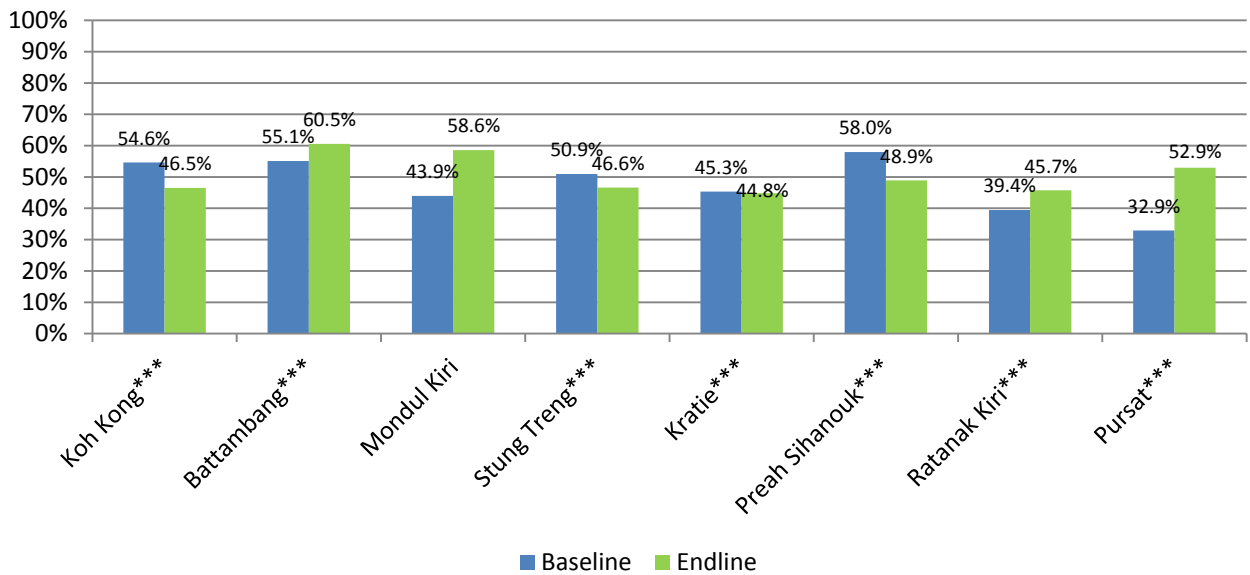


Figure 56: Self-efficacy in refusing sex “when he threatens to have sex with another woman if you don’t want to?”

(nbase=2,762; nend=3,249)

* p<0.1; ** p<0.05; *** p<0.01

Table 27Table 28: Newborn care in component 1 provinces

Key Variables	Baseline	Midline	Endline
Placed on bare chest immediately after birth (<i>n_{base}</i> =379; <i>n_{mid}</i> =420; <i>n_{end}</i> =401)***	51.2%	72.1%	78.8%
Wiped / dried immediately after birth (<i>n_{base}</i> =379; <i>n_{mid}</i> =405; <i>n_{end}</i> =401)***	83.9%	88.9%	87.0%
Delay bath at least six hours (<i>n_{base}</i> =368; <i>n_{mid}</i> =421; <i>n_{end}</i> =401)***	57.1%	72.5%	57.9%
All three types of care (<i>n_{base}</i> =379; <i>n_{mid}</i> =424; <i>n_{end}</i> =401) ***	33.8%	51.9%	42.1%
Among ethnic minorities WRAs *	25.9%	39.2%	32.3%
Among WRAs with disability ***	29.5%	54.6%	30.0%
Among WRAs from poor HHs **	27.3%	42.5%	24.7%
Among adolescents WRAs	39.0%	50.0%	34.9%