BACKGROUND

Women's health care has always been a priority in health care strategies for the entire population. Interventions for women's health care have been covered in provinces across the country. Differences in access to services by region and ethnic minority groups are the biggest challenge in ensuring equity in health care.

Interventions to reduce disparities across regions, especially between ethnic minorities and Kinh people, are a key issue of the Maternal Health Care and Promotion Strategy to 2020. Some interventions for difficult areas ethnic minorities have been successfully applied. Village midwives, selected from the local ethnic community, are trained in both knowledge and practice to be able to take care of mothers during pregnancy and childbirth, safe delivery, detection of accidents. in mothers and infants.

Ninh Thuan is a province with many ethnic minorities living in disadvantaged areas. Reproductive health care for mothers and children in ethnic minority communes is very limited, in mountainous communes, the crude birth rate is still quite high, child marriage still exists and takes place in ethnic minority areas. This was the basis for us to conduct the research project: "The situation of reproductive health care for ethnic minority women and the effectiveness of activities of village midwives in Ninh Thuan province" with two goals:

1. Describing the status of knowledge and practice on reproductive health of ethnic minority women aged 15-49 in 4 communes of Ninh Thuan province in 2013.

2. Evaluating the effectiveness of interventions to strengthen the role and activities of reproductive health care of village midwives in the study area (2013-2016).

Layout of the thesis:

The thesis consists of 112 pages excluding references and appendices, was divided into following sections: introduction (two pages), overview (30 pages), subject and methodology of research (20 pages); research results (29 pages); 28 pages of discussion, 2 pages of conclusions, and 1 page of recommendations. The thesis

consists of 25 tables and 10 charts, 103 references (62 Vietnamese, 41 English).

New scientific and practical findings of the topic

The study showed current status of reproductive health care for ethnic minorities living in disadvantaged areas and the role of village midwives in Ninh Thuan province. The results of the project are the basis for confirming the role of village midwives and the feasibility of Circular 07 on the use of human resources in providing maternal and child health care for ethnic minority children. The effectiveness of intervention is the basis for expansion to ethnic minorities living in other areas throughout the country.

CHAPTER I: OVERVIEW

1.1. Some concepts used in the study

1.1.1. Concept of reproductive health

Reproductive Health (RH): According to the International Conference on Population and Development in Cairo - Egypt (ICPD - September 1994) and the International Conference on Women in Beijing - China (September 1995) Reproductive health "is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes".

1.1.2. Reproductive health care (reproductive health)

"A combination of technical methods and services to ensure reproductive health and general health by preventing and addressing reproductive health issues".

1.2. Situation of reproductive health care in the world and in Vietnam

1.2.1. In the world

In developing countries and countries with per capita income below average, pregnancy and childbirth are the leading causes of death and morbidity for women of childbearing age. Accounting for at least one-third of the global burden of disease and premature death among women of reproductive age. It is estimated that in these countries nearly 40% of pregnant women have health problems related to

pregnancy and 15% of them suffer from dangerous complications later.

1.2.2. In Vietnam

The number of women of reproductive age accounts for a high proportion, most of whom live in rural and mountainous areas with difficulties in life as well as access to medical services, pre-care interventions. Birth has achieved many significant achievements. Although the rate of pregnancy management nationwide reaches over 96%, the average number of antenatal care visits for pregnant women has reached > 4 times, however, the rate of 4 times antenatal care check in economically better people, in the group Kinh people are nearly 3 times higher than the poor and ethnic minorities. The reproductive health status of ethnic minority women is not optimistic, the birth rate at health facilities is not high; Although there have been positive activities to change reproductive health behaviors better among ethnic minorities, backward practices still adversely affect their health; The main reason is that access to health facilities is difficult and, importantly, backward practices still exist, so mothers often give birth at home and do not allow outside help.

The service delivery network is strengthened and developed from the central to local levels; Most midwives, obstetrics-pediatric assistant doctors, village health workers, village midwives at grassroots level are trained and have basic skills in reproductive health / family planning according to national standards. However, reproductive health care still has many shortcomings and many shortcomings in areas with extremely difficult socio-economic conditions, ethnic minority areas living, and access to health care services are limited.

1.3. Some interventions to improve reproductive health around the world and in Vietnam

In the world, a number of studies have been conducted to test intervention models or activities to improve the reproductive health status of pregnant mothers or women of reproductive age. The intervention model uses games to improve the knowledge and attitudes of mothers of reproductive age. The intervention has been

through training, powerpoint presentations, discussions, experience sharing, combining a number of thematic training programs such as anatomy, physiology of women's reproductive system, measures. contraception, sex

A study in Quang Ninh was conducted to evaluate the effectiveness of improving service delivery, the results showed positive changes in the situation of people using services.

Another study on improving prenatal and postnatal care practices, but specifically through nutrition education communication activities in Luc Yen district, Yen Bai province, conducted in 2015 showed that communication through this form has achieved certain effects.

Through the above studies, it can be seen that each study has different methods and forms of intervention to suit the context as well as specific subjects. However, the core of the forms focus on training, improving knowledge, and changing practices for the audience.

1.4. Operation model, intervention using village midwives

1.4.1. Village midwives model: Using village midwives among ethnic minorities who have very low education levels trained to become village midwives, this is a cultural approach to enhance access to safe maternal care all in mountainous ethnic areas. Village midwives are selected from ethnic communities, who speak the same language as ethnic minorities, are familiar with customs and traditions, so they will be easier to approach people to provide services. primary health care and care for mothers in the local community where they live.

1.4.2. Continuity of care model: The model of the American Save the Children (US support) and the Save the Children Internationally, globally, including Vietnam.

CHAPTER II: SUBJECTS AND METHOD OF RESEARCH

2.1. Research subjects

- For quantitative research: Ethnic minority women aged 15-49, married.

- For qualitative research: Subjects of TB, individuals involved in the process of providing reproductive health services

2.2. Time and place of research

The study was conducted from December 2013 to September 2016 in Bac Ai district and Ninh Son district, Ninh Thuan province

2.3. Research Method

2.3.1. Quantitative sample size

The sample size of the study was calculated by this formula:

$$n_1 = n_2 = \frac{[Z_{(1-\alpha/2)}\sqrt{2p(1-p)} + Z_{1-\beta}\sqrt{[p_1(1-p_1) + p_2(1-p_2)]}]^2}{(p_1 - p_2)^2}.\text{DE}$$

In which:

+ n1: Number of research respondents before intervention; n2: Number of research reports;

+ $Z_{(1-\alpha/2)} = 1.96$; with $\alpha = 0.05$; $Z_{(1-\beta)} = 0.842$;

+ p1: the percentage of ethnic minority women giving ANC 3 times (31.3%);

+ p2 is the rate of EM women taking ANC 3 times of desired antenatal care = 60%; p is the average value of p1 + p2; DE = + Design coefficient: 2.

We have n = 353, in fact collected 420 objects.

2.4.2. Quantitative sampling method

Purposefully selecting 02 districts of Bac Ai, Ninh Son, randomly selecting two communes for each district to have 04 communes: Phuoc Thanh and Phuoc Thang communes of Bac Ai district, Lam Son and Ma Noi communes of Ninh Son district; Each household chooses only one object. The number of women surveyed for the communes is 420

2.4.3. Qualitative sampling method

In-depth interview with focus groups: The subjects who are village health workers/village midwives are in charge of village reproductive health care

2.5. Data processing and analysis: Using EPI-INFO 6.04 data management software. The interviews, group discussions were recorded and "taped" the recording to import and analyze using N-Vivo software on the basis of building tree nodes.

2.6. Ethical issues in research: The study was approved by the Ethics Committee for Biomedical Research of National Institute of Hygiene and Epidemiology.

CHAPTER III: RESULTS OF RESEARCH

3.1 Current status of knowledge and practice on reproductive health of ethnic minority women aged 15 to 49.

Table 3. 1. Actual practice of antenatal care and injections (n=413)

		Frequency	Percentage
Number of antenatal examination	≤ 2	84	20.3
	≥ 3	213	51.6
	Do not remember	72	17.4
	No examination	44	10.7
Tetanus vaccination	Yes	338	81.8
	No	54	13.1
	Do not remember	21	5.1

Among pregnant women, only 51.6% of mothers had ANC 3 times and 10.7% of mothers did not go for antenatal examination. Regarding tetanus vaccination, 81.8% of mothers had tetanus vaccination, 13.1% were not vaccinated and 5.1% did not remember whether or not they had been vaccinated.

Table 3.2. Mother's practice on choosing a place of birth (n = 420)

Nơi sinh	Frequency	Percentage
Health facilities	283	67.4
At home/ forest	119	28.3
Be born on route to hospital	7	1.7
Do not remember/No answer	11	2.6
Total	**420**	**100.0**

Research results show that the majority of mothers give birth at health facilities (64.7%). However, there are still 28.3% of pregnant women do not go to health facilities for childbirth, upland and field, 1.7% to give birth..

Table 3.3. Practicing postpartum care (first 6 weeks)

	Postpartum care		**Guidelines for breastfeeding**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Yes	329	78.3	406	96.7
No	35	8.3	11	2.6
Do not remember	56	13.4	3	0.7
Total	420	100.0	420	100.0

The proportion of mothers taking care of the first 6 weeks after giving birth at home was 78.3%; be taught how to breastfeed

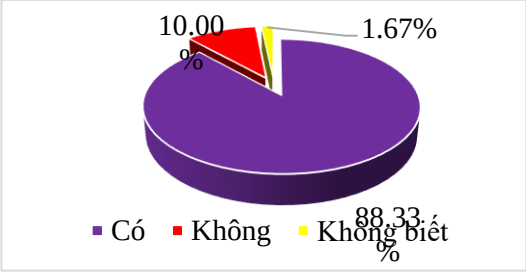

Figure 3.1. Be guided on family planning (n = 420)

Results of Figure 3.1 showed that 88.3% of mothers were instructed on family planning.

3.2. Effective intervention through the activities of village midwives

Table 3.4. Effective knowledge of antenatal care and tetanus vaccination at the first pregnancy

Kowledge		Pre-intervention (n_1=420)	Post-intervention (n_2=420)	EI* (%)
Number of antenatal examination	≤ 2	123(29.3)	49(11.7)	-60.2
	≥ 3	153 (36.4)	258 (61.4)	68.5
	Do not need	49 (11.7)	6 (1.4)	-88.0
	Do not know	95 (22.6)	107 (25.5)	12.7
Number of Tetanus vaccination	One	41 (9.8)	30 (7.1)	-27.3
	Two	267 (63.6)	295 (70.2)	10.4
	Do not know	112 (26.7)	95 (22.6)	-15.3

** EI: Efficiency index*

The results in Table 3.4 show that before the intervention, the percentage of ethnic minority women who have knowledge about antenatal care ≥ three times is only 36.4%, the percentage of post-intervention increased to 61.4% (EI = 68.5%).

Table 3.5. Effective practices on reproductive health care before birth

Practical contents		Pre-intervention (n_1=413)	Post-intervention (n_2=419)	EI* (%)
Number of antenatal examination	≤ 2	84(20.3)	37(8.8)	-56.6
	≥ 3	213 (51.6)	289 (68.8)	33.4
	Yes, but do not know	72 (17.4)	90 (21.4)	22.8
	No Examination	44 (10.0)	4 (1.0)	-90.6
	Yes	338 (81.8)	401 (95.7)	16.9

Practical contents		Pre-intervention (n_1=413)	Post-intervention (n_2=419)	EI* (%)
Number of Tetanus vaccination	No	54 (13.1)	11 (2.6)	-79.9
	Do not remember	21 (5.1)	7 (1.7)	-67.1
Place for antenatal examination	Village midwives came	126 (30.5)	272 (64.9)	112.4
	Commune health stations	298 (72.2)	388 (92.6)	28.1
	Up-level medical facilities	54 (13.1)	43 (10.3)	-22.0
	Private health facilities	8 (1.9)	36 (8.6)	344.0
	Mụ vườn	7 (1.7)	1 (0.2)	-88.2

Table 3.5 shows that the rate of 3 or more antenatal care visits among pregnant women of ethnic minorities has increased from 51.6% of pre-intervention to 68.8% of post-intervention (EI: 33.4%). The rate of non-examination has decreased from 10% to 1%. Regarding tetanus vaccination, the number increased from 81.8% of pre-intervention to 95.7% of post-intervention (EI: 16.9%). Regarding antenatal care sites, the proportion of subjects invited village midwives to their homes, to health stations, to private medical facilities increased, the effectiveness index reached 112.4%, 28.1% and 344.0% respectively. Parallel to that, the percentage of women who invite traditional healers / midwives has decreased, from 1.7% to 0.2%.

Table 3.6. Effective mothers' knowledge about midwives best

Classification of midwives	**Pre-intervention (n_1=420)**		**Post-intervention (n_2=420)**		**EI* (%)**
	Frequency	**%**	**Frequency**	**%**	
Health facilities	276	65.7	314	74.8	13.8
Village midwives	18	4.3	32	7.6	77.8
Garden midwives	22	5.2	3	0.7	-86.4
Do not know	104	24.8	71	16.9	-31.7
Tổng	**420**	**100.0**	**420**	**100.0**	

The percentage of mothers who changed their knowledge about public health workers who were the best midwives at pre and post intervention increased from 65.7% to 74.8%. The percentage of mothers who changed their knowledge about midwives was the best midwife at pre and post intervention decreased from 5.2% to 0.7% at post-inervention. The proportion of mothers who changed their knowledge about not knowing who was the best midwife at pre and post intervention decreased too.

Table 3.7. Effective knowledge of the danger signs during labor

Dấu hiệu nguy hiểm khi chuyển dạ	**Pre-intervention (n_1=420)**		**Post-intervention (n_2=420)**		**EI* (%)**
	Frequency	**%**	**Frequency**	**%**	
Severe abdominal	148	35.2	158	37.6	6.8
Bleeding a lot	162	38.6	244	58.1	50.6
Fever	75	17.9	182	43.3	142.7
Convulsions	21	5.0	134	31.9	538.1
Early amniotic	82	19.5	107	25.5	30.5

The proportion of mothers who knew the danger signs during labor increased at post intervention. On the symptoms of severe abdominal pain during labor increased from pre-intervention 35.2% to post-intervention 37.9%. There was a lot of bleeding during labor increased from 38.6% pre-intervention to 58.1% post intervention (EI=50.6%). At post intervention, 43.3% of mothers knew the

symptoms of fever and the infection was 142.7%. The proportion of mothers who understood that convulsions and early rupture of membranes increased from 5% and 19.5% (pre-interention) to 31.9% and 25.5% (post-intervention), and EI respectively reached 538.1% and 30.5%.

Table 3.8. Knowledge about where mothers choose to have a baby and who will deliver

Contents		**Pre-intervention (n_1=420)**		**Post-intervention (n_2=420)**		**EI* (%)**
		Frequency	**%**	**Frequency**	**%y**	
Place for birth	Health facilities	283	67.4	370	88.1	30.7
	At home/ forest	119	28.3	29	6.9	-75.6
	Be born on route to hospital	7	1.7	1	0.2	-85.7
	Do not	11	2.6	20	4.8	81.8
	Total	**420**	**100.0**	**420**	**100.0**	
Midwives	Midwives at	130	31.0	267	65.1	105.4
	Village	28	6.7	60	14.6	114.3
	Garden	70	16.7	2	0.5	-97.1
	Relatives	37	8.8	1	0.3	-97.3
	Others	145	34.5	80	19.5	-44.8
	Tổng (n)	**420**	**100.0**	**420**	**100.0**	

The percentage of women giving birth at health facilities increased, reaching 88.1% (at post-intervention), EI = 30.7%. Along with that, the rate of giving birth at home, in the forest and be born on route to hospital has decreased, reaching 28.3% and 1.7% (pre-intervention) respectively, to 6.9% and 0.2% (post-intervention), EI achieved 75.6% and 85.7% respectively. Regarding midwives for mothers, the number of women who gave birth by midwives at CHCs only 31.0%, but after the intervention this ratio has improved much to 65.1% (EI= 1005.4%). Similarly, the rate of village midwives increased from 6.7% (pre-intervention) to 14.6% (post-intervention), and EI was 114.3%. The percentage of midwives who are midwives and family

members has decreased, respectively 16.7% and 8.8% (pre-intervention to 0.5% and 0.3% (post-intervention).

Table 3.9. Effective knowledge about dangerous manifestations after birth

Manifest danger after birth	Pre-intervention (n_1=420)		Post-intervention (n_2=420)		EI (%)
	Frequency	%	Frequency	%	
The burn lasts longer and increases	127	30.2	214	51.0	68.5
Vaginal discharge with a foul odor	115	27.4	202	48.1	75.7
Prolonged high fever	123	29.3	204	48.6	65.9
Abdominal pain persists and increases	99	23.6	160	38.1	61.6
Convulsions	58	13.8	102	24.3	75.9
Other	6	1.4	7	1.7	16.7

Regarding maternal knowledge about dangerous postpartum manifestations, the results showed that the level of knowledge about each expression is quite high, ranging from 61.6% to 75.7%.

Table 3.10. Effective knowledge of management when encountering dangerous signs after birth

Ways to handle	Pre-intervention (n_1=420)		Post-intervention (n_1=420)		EI (%)
	Frequency	%	Frequency	%	
To self-healing	33	7.9	6	1.4	-81.8
Self-healing	93	22.1	6	1.4	-93.5
Invite health workers to come	89	21.2	173	41.2	94.4

Go to state health facilities	134	31.9	342	81.4	155.2
To the healer	129	30.7	6	1.4	-95.3
Worship	7	1.7	0	0.0	-100.0
Other	2	0.5	1	0.2	-50.0

The results in table 3.10 showed that, at post-prevention, mothers have increased their knowledge of more scientific ways of handling, while at the same time, the rate of knowledge about the dangerous postpartum management measures has decreased significantly. The percentage of options for to self-healing, self-healing, visiting physicians for examination and treatment and co-ordination accounted for 7.9%, 22.1%, 30.7% and 1.7% respectively, however, the post-intervention was reduced to only 1.4%, 1.4%, 1.4% and 0.0%. Meanwhile, at post-intervention, the proportion of mothers who knew that they need to invite health workers to their homes and to state health facilities increased, reaching 41.2% and 81.4% respectively (the corresponding EI was 94.4%. and 155.2%).

Table 3.11 Effect of maternal knowledge about vaccination for children under 1 year of age

Vaccination for children under 1 year of age	**Pre-intervention (n_1=420)**		**Post-intervention (n_1=420)**		**EI (%)**
	Frequency	**%**	**Frequency**	**%**	
Tuberculosis	95	22.6	193	46.0	103.2
Diphtheria	45	10.7	73	17.4	62.2
Pertussis	70	16.7	128	30.5	82.9
Tetanus	54	12.9	125	29.8	131.5
polio	45	10.7	115	27.4	155.6
Measles	77	18.3	163	38.8	111.7

In terms of knowledge of vaccination for children under 1 year of age, the proportion of people who need to be vaccinated for a number of common diseases has increased at post-intervention, of which the

highest efficiency index was for polio (EI=155.6%), diphtheria had the lowest EI, reaching 62.2%.

3.3. The effect of TB interventions through maternal evaluation

Table 3.12. Evaluate the implementation of propaganda and advocacy on maternal and child health care of village midwives

Contents	Pre-intervention (n_1=420)		Post-intervention (n_1=420)		EI (%)
	Frequency	%	Frequency	%	
1. Health care during pregnancy and family planning in reproductive age	293	69.8	387	92.1	32.1
2. Prevention of malnutrition for children	294	70.0	366	87.1	24.5
3. Advocacy for pregnancy management registration and antenatal care	315	75.0	396	94.3	25.7
4. Tetanus vaccination for mothers	327	77.9	392	93.3	19.9
5. Going to the health facility for childbirth	301	71.7	395	94.0	31.2
6. Complete immunization of vaccines for children of age	281	66.9	381	90.7	35.6
7. Good guidance on how to take care before and after birth, how to breastfeed and	201	47.9	0376	89.5	87.1

Contents	Pre-intervention (n_1=420)		Post-intervention (n_1=420)		EI (%)
	Frequency	%	Frequency	%	
how to feed a baby					
8. Good advice on getting married and not close to marriage	101	24.0	231	55.0	128.7

The results in Table 3.12 showed that, through the evaluation of ethnic women aged 15-49, the implementation of propaganda and advocacy on maternal-child health care of village midwives tended to be better than pre-intervention. In particular, village midwives is assessed to have good counseling on the age of marriage and should not marry inbreeding with the highest EI is 128.7% (pre-intervention: 24.0%, post-intervention: 55.0%). In addition, the proportion of village midwives who gave good instructions on how to care for their mothers during pregnancy and postpartum had increased from 47.9% of the pre-intervention to 89.5% of post-intervention (EI=87.1%).

Table 3.13. Maternal evaluation of Maternal health care implementation during pregnancy

Contents	Pre-intervention (n_1=420)		Post-intervention (n_1=420)		EI (%)
	Frequency	%	Frequency	%	%
1. Participate in good pregnancy management in the village	211	50.2	399	95.0	89.1
2. Timely transfer	250	59.5	364	86.7	45.6

3. Good counseling for mothers and families to prepare for childbirth	271	64.5	377	89.8	39.1
4. Deliveries often take place when delivery does not keep up with health facilities	240	57.1	351	83.6	46.3
5.Handle cases of a catastrophe occurring during delivery at home and to medical examination and treatment facilities	221	52.6	346	82.4	56.6

Table 3.13 showed that the proportion of village midwives participating in good pregnancy management in the village increased from 50.2% (pre-intervention) to 95.0% at post-intervention (EI= 89.1%), good and timely initial management In case of accident (this percentage was 52.6% for pre-intervention, 82.4% for post-intervention). Good counseling for mothers and mothers who prepare for childbirth, detect good cases of high-risk pregnancies and perform well to support the birth of the pyramid also has the incidence of 39.1%, 45.6% and 46% respectively. , 3%.

3.5. Several factors affect the effectiveness of intervention

There are no doctors at commune health stations; All villages have village health workers, active villages and village midwives, who participate in reproductive health activities at the grassroots level. In addition, village midwives and village health workers have many part-time jobs. Regarding facilities, working rooms on reproductive health care; No separate working rooms have been arranged yet, the clinic has to integrate rooms that have somewhat affected reproductive health activities at the grassroots level. Specialized reproductive health equipment in the surveyed communes shows that

specialized reproductive health equipment in the surveyed communes has been invested and provided to ensure the standards of equipment, there is still a lack of propaganda pictures / images Contraceptive

CHAPTER IV: DISCUSSION

4.1. Describe the status of knowledge and practice on reproductive health of women in ethnic minority areas in Ninh Thuan province

4.2.1. Situation of access to reproductive health services

The research results show that the proportion of subjects who have ever heard or known of some contents related to reproductive health such as how maternal and child care, birth and family planning was quite high, reached 92.9%, 93.8% and 85.0% respectively. The means to help this object access to information is quite diverse, the rate of knowledge from the source is health workers, population collaborators, village health workers, respectively 89.8% and 89.3%. Next, from officials (women, farmers, youth union) and communal radio stations reached 35%.

4.1.2. Food for prenatal care

The results showed that only about 50% of pregnant women had three or more antenatal care visits, there were still 10.7% of mothers did not go for antenatal examination; 81.8% of mothers had tetanus vaccination, 13.1% were not vaccinated; antenatal care at commune health stations accounted for 72.2%, 30.5% invited village midwives to come to their homes, 13.1% were medical facilities at higher levels, 1.9% were private medical facilities, garden midwives accounted for 1.7%. They were instructed to register for pregnancy management by village health workers, village midwives accounted for the highest proportion (50.85%), followed by the staff of the commune health station (17,19%), the guide was 11.86% village women, health workers at district level was 10.17%.

4.1.3. Care during birth

The results indicated that 64.7% of mothers gave birth at health facilities, however, there were still 28.3% of pregnant women who

did not go to health facilities to give birth at home. or outside forests, upland fields, 1.7% be born in route to hospital. Reasons for not going to a health facility to give birth were the difficulty of transportation made up the highest rate with 31.75%, due to the habits of 23.81%, far from the health facility 13.49% .

People who supported when they could not go to health facilities to give birth: 42.06% of family members, 23.81% of village health care, 19.05% of commune-level birth attendants. There are still 7.14% and 7.49% of people giving birth support are midwives or self-help.

4.1.4. Situation of care after birth

Our results showed that the proportion of mothers receiving postpartum care at home in the first 6 weeks was 78.3%. In addition, the percentage of mothers being breastfed is very high, accounting for 96.7%. Postpartum care, the highest rate of village health care, accounted for 61.70%, followed by the commune health care with 14.89%. However, there was still a significant proportion of family members or midwives caring for mothers after giving birth (accounting for 14.89% and 2.13%, respectively). As for breastfeeding guidelines, village and commune health care were still the two main implementing forces, with the rates of 43.10% and 37.93% respectively. The proportion of mothers who were guided by family members and gardeners still accounts for a certain number.

4.1.5. Situation of using family planning services

The results of family planning guidance for mothers were 88.3%, with 10.0% of respondents saying that they were not instructed. In addition, among 371 (88.3%) of mothers who were instructed on family planning, the guides who were village and commune health workers accounted for the highest proportion, 32.6% and 31.0% respectively. 21.3% was guided by population officials.

4.1.6. Situation of examination and treatment of reproductive tract infections

Our results indicate that the percentage of women aged 15 to 49 who had regular gynecological examinations was 81.2%, with the highest proportion being the commune health stations (83.6%), followed by district health facilities (9.1%), private health facilities and the

provincial health facilities were nearly the same, 3.8% and 3.5% respectively.

4.2. Effective reproductive health interventions for ethnic minority women in Ninh Thuan province.

4.3.1. Effective antenatal care intervention

The results showed that post-intervention's knowledge about 3 times or more antenatal care was improved, increasing from 36.4% to 61.4%, the efficiency index reached 68.5%. The proportion of mothers who knew the need for two shots of oral tetanus vaccine increased from 63.6% of pre-intervention to 70.2% of post-intervention, the effectiveness index was 10.4%. At post-intervention, knowledge about the danger signs of subjects could be encountered during pregnancy increased, the efficiency index was from 27.6% to 68.7%. In particular, signs of seizures had the highest achievement (68.7%), reaching the rate from 15.2% of pre-intervention to 25.7% of post-intervention. Knowledge of how to deal with danger signs during an outdated and outdated pregnancy was quite high: 7.1% were said to be self-healing, 4.0% to self-cure, 5,2% said that they went to the healer garden midwives and 3.8% knew how to use worship. However, the post-intervention rate of knowledge of these methods has decreased, instead, the knowledge of healthier ways of treatment has increased: As invited village midwives to come home (EI: 72.5%), to the clinic health and private clinics increased from 67.9% and 10.0% to 82.9% to 12.9% respectively.

Research results indicated that the rate of 3 times or more pregnancy check-up for pregnant women of ethnic minorities aged 15-49 years old was 51.6% (pre-intervention) increased to 68.8% (post-intervention) (EI=33.4%). The rate of non-examination has decreased from 10% to 1%.

The rate of against tetanus vaccination among pregnant women increased from 81.8% to 95.7%, with the EI reached 16.9%. The percentage of new research subjects invited village midwives to their homes, to health stations, to private health facilities has increased, the effectiveness index reached 112.4%, 28.1% and 344.0% respectively.

In parallel with this, the percentage of women who invite traditional healers/midwives decreased, from 1.7% to 0.2%.

4.2.2. Effective intervention interventions in birth

The results showed that, in terms of knowledge regarding the best choice of midwives, the percentage of public health workers who selected to be the best midwives first and the post-intervention increased from 65.7% to 74.8%. The percentage of mothers who changed their knowledge about midwives being the best midwife first and when post-intervention decreased from 5.2% to 0.7%, the proportion of those who did not know who was the best midwife had decreased. 16.9% (post-intervention). The proportion of mothers who knew about symptoms of severe abdominal pain increased from 35.2% (pre-intervention) to 37.9% (post-intervention). The rate of awareness about symptoms of bleeding during labor increased from 38.6% (pre-intervention) to 58.1% (post-intervention) (EI reached 50.6%). In post-intervention, 43.3% of mothers knew about the symptoms of fever and the infection was 142.7%. The percentage of mothers who understood the symptoms of convulsions, early rupture of membranes increased from 5% and 19.5% (pre-intervention) to 31.9% and 25.5% (post-intervention), and EI reached 538.1% and 30.5% respectively.

The percentage of women giving birth at health facilities increased, reaching 88.1% (post-intervention), EI = 30.7%. Along with that, the rate of giving birth at home, in the forest and falling decreased, reaching 28.3% and 1.7% (pre-intervention), respectively, to 6.9% and 0.2% (post-intervention), EI achieved 75.6% and 85.7% respectively.

About midwives for mothers, women who gave birth by midwives at the CHCs only 31.0%, but after the intervention, this ratio has improved much to 65.1% (EI=1005.4%). Similarly, the rate of delivery increased from 6.7% (pre-intervention) to 14.6% (post-intervention), and the average outcome was 114.3%. The percentage of midwives who were midwives and family members decreased,

respectively 16.7% and 8.8% (pre-intervention) to 0.5% and 0.3% (post-intervention).

4.2.3. Effective postpartum care interventions

The mothers' knowledge about dangerous manifestations after birth has increased significantly, the results show that the level of knowledge about each expression is quite high, ranging from 61.6% to 75.7%. In particular, mothers who knew about the expression "vaginal discharge with a foul smell" achieved the highest EI (75.7%), increasing the known rate from 27.4% (pre-intervention) to 48.1% (post-intervention). However, in post-intervention, the rate of subjects who knew the signs of prolonged and increasing bleeding was still the highest, reaching 51.0%. The results showed that the number of mothers who had increased their knowledge about the scientific treatment methods than the rate of choosing to cure and cure themselves, went to the traditional physician for examination and treatment, and co-workers accounted for 7.9%, 22, respectively. 1%, 30.7% and 1.7%, post-intervention has been reduced to only 1.4%, 1.4%, 1.4% and 0.0%. The proportion of mothers who knew that they needed to invite health workers to their homes and to state health facilities increased, reaching 41.2% and 81.4% respectively (the IRS were 94.4% and 155.2 respectively.

4.2.4. The role of village midwives in reproductive health

In general assessment of village midwives, ethnic minority women of reproductive age in Ninh Thuan province had a more positive assessment of village midwives. The highest EI was the fact that village midwives used to have pictures/propaganda about contraception (pre-intervention: only 24.5%, post-intervention; 67.1%). Next, the rate of village midwives evaluated as having a clean delivery bag accounted for 82.1% of post-intervention, the average outcome was 70.9%. In addition, the rate of village midwives always present when calling, always graciously open, taking care of the good birth and talking about maternal and child health care issues was also improved at post-intervention, with 25.5% to 47.8%.

Regarding the implementation of propaganda, good advocacy counseling about the age of marriage and should not marry

inbreeding had the highest EI, was 128.7% (the proportion at pre-intervention: 24.0%, post-intervention: 55.0%). Percentage of village midwives who gave good instructions on how to take care of themselves for their mothers during pregnancy and postpartum has also increased from 47.9% of pre-intervention to 89.5% of post-intervention (EI= 87.1%).

Regarding the implementation of maternal health care during pregnancy of village midwives: The percentage of village midwives who participated in good pregnancy management in their village increased from 50.2% of pre-intervention to 95.0% of post-intervention (EI= 89.1 %). Next, the initial management is good and timely in case of a catastrophe occurrence (this ratio was 52.6% for pre-intervention, 82.4% for post-intervention). Good counseling for mothers and mothers who prepare for childbirth, detect good cases of high-risk pregnancies and perform well to support the birth of the pyramid also had the incidence of 39.1%, 45.6% and 46% respectively. Through the assessment of ethnic minority women, the percentage of village midwives who performed well/very well this task at the time of post-intervention reached 63.3%, 32.8% higher than that of the pre-intervention, EI reached 107.8%. The rate of postpartum women being cared for by village midwives is very high, some years up to 96.15%; 91.0% of village midwives instructed couples to use contraception at a good level (EI = 33.6%). Achieving the highest EI was a good guideline for sterilization when there are enough children (EI = 104.7%). Post-intervention, the percentage of village midwives evaluated good instruction for women to use oral contraceptives after being provided with a contraceptive pill, contraceptive implant, placement of intrauterine device and husband using condom from 76.2% to 91.9%.

4.4. Several factors affect the effectiveness of intervention

Human resources is one of the most important resources, a decisive factor in the economic development of each industry, each region and each locality. The health sector is a specific industry, directly related to human life and health, so the development of health human resources plays a particularly important role in the implementation of

the care and protection tasks. and improve people's health. In addition to the lack of numbers, the research results also showd that in reality, village midwives and village health workers had to undertake many tasks. This result was similar to the reality that exists in many mountainous and ethnic minority areas. In addition to the lack of human resources, the weak level of health workers had also been identified as one of the barriers in implementing grassroots health services. It can be seen that, although there is now more attention, it is true that in mountainous areas, where ethnic minorities live, cadres do not have high professional qualifications or even no medical skills. As among the subjects included in the qualitative research, most of the participants in the village health network only finished primary school, a very small number of them reached lower secondary school but still not good. Karma.

Customs, habits and habits of ethnic minorities have always been one of the factors that have caused significant impacts to access and effective interventions on health care in general and reproductive health activities in particular. In our in-depth study, the factor mentioned was due to the shyness of women of reproductive age: "... Speaking of customs and habits here, it's generally because I am also The locals, they said before that they were shy, they came to the station, they had to take off their pants, they had to do this and that. Mobility does not only include distance from home to health facilities, but also depends on the quality of the road, the availability of special types of transport in remote areas and road conditions. Unsecured clinics have affected women's access to health facilities

CONCLUSION

1. Status of knowledge and practice of reproductive health of ethnic minority women in Ninh Thuan province.

There were 67.9% of mothers antenatal care at health stations, 10% went to private clinics. 51.6% of mothers had antenatal care enough 3 times, 81.8% of mothers had tetanus vaccination, 72.2% of antenatal care at commune health stations. 50.8% of mothers were instructed to register for pregnancy management by village health workers, village midwives; 28.3% of pregnant women did not go to

health facilities. Reasons for not going to health facilities to give birth due to difficult transportation conditions accounted for the highest proportion (31.7%).

78.3% of mothers were looked after in the first 6 weeks after giving birth at home. 96.2% of mothers were taught how to breastfeed their babies. Regarding postpartum care and breastfeeding instruction: village health workers and village midwives accounted for the highest proportion (61.7% and 43.1% respectively). 88.3% of mothers had been instructed on family planning; 81.2% of women between the ages of 15 and 49 had regular gynecological exams, mainly at commune health stations (83.6%).

2. Effective interventions to strengthen reproductive health care through activities of VILLAGE MIDWIVES in Ninh Thuan province.

The proportion of mothers with knowledge about 3 times or more antenatal care was only 36.4%, the number of post-intervention increased to 61.4% (Efficiency index = 68.5%). The mothers' knowledge about the number of tetanus vaccinations in their first pregnancy was two doses increased from 63.6% to 70.2% (Efficacy index: 10.4%). The understanding of the study subjects about the danger signs that can be encountered during pregnancy increases. The rate of ≥ 3 times antenatal care examination increased to 68.8% (Efficacy index: 33.4%).

It is also better for mothers and mothers to have knowledge about danger signs during labor. The percentage of women giving birth at health facilities has increased, reaching 88.1% (post-intervention), efficiency index = 30.7%. Regarding midwives for mothers, women who gave birth by midwives at the CHCs only 31.0%, increased to 65.1% (post-intervention) (Efficiency index = 1005.4%). Effective index of knowledge with each dangerous manifestation after birth is quite high, reaching from 61.6% to 75.7%.

The assessment of ethnic women of reproductive age at post-intervention was better than before the intervention. In particular, the most effective indicator was that village midwives has had pictures/photo propaganda on contraception (the proportion of pre-

intervention was only 24.5%, post-intervention: 67.1%). In addition, the rate of village midwives always present when calling, always graciously taking off, taking care of good birthing and talking about maternal and child health care issues also improved at post-intervention, with the fruits reach from 25.5% to 47.8%.

RECOMMENDATIONS

Bac Ai district and Ninh Son district authorities should continue to maintain the village midwives training model, which should ensure active participation of commune authorities to re-evaluate the effectiveness of this model. In addition, the intervention model can be extended to other communes with many ethnic minorities in low-income areas.

Ninh Thuan Province Department of Health should implement an intervention program similar to that in Bac Ai district and Ninh Son district to improve the reproductive health status of ethnic minority women of reproductive age. Need to continue training village midwives to improve knowledge on professional skills and communication for midwives to perform their assigned tasks better.

Continuing to support and provide some necessary equipment, especially obstetric and neonatal emergency equipment. Training and provision of medical equipment should be focused on remote areas, but it should be appropriate to the local situation. In addition, it is necessary to continue supplementing and training more human resources to support