BAGROUND

Drug prevention and control and HIV / AIDS prevention have been actively implemented over the years and gained remarkable results but still face many difficulties and challenges.

Currently, the common drug used to treat opioid dependence is methadone. Studies in the world have demonstrated the efficacy of methadone in opioid dependence in reducing illicit drug use, reducing the risk of HIV infection, reducing drug-related crime. It also brings economic benefits and social order and safety.

In Vietnam, opiate addiction treatment with methadone began to be piloted in Ho Chi Minh City and Hai Phong in 2008. So far, the program has been implemented extensively at 54 provinces and cities across the country.

The northern mountainous provinces are the key provinces for drug and HIV, access to health services, health care services are still inadequate, Methadone treatment is challenging. At present, there is no research on the effectiveness of methadone treatment programs in the northern mountainous provinces. Therefore, we conducted the study: "The effectiveness of opioid dependence treatment with methadone in Dien Bien, Lai Chau and Yen Bai, 2014-2015" aims to:

1. Description of drug use status and health and social status of drug addicts prior to methadone substitution treatment in methadone in Dien Bien, Lai Chau and Yen Bai, 2014-2015.

2. Assessment of the effectiveness of opiate addiction treatment with methadone in Dien Bien, Lai Chau and Yen Bai, 2014-2015.

3. Identify some factors affecting the effectiveness of opiate addiction treatment with methadone in Dien Bien, Lai Chau and Yen Bai, 2014-2015.

New contributions of the thesis:

- The thesis describes well the demographic and sociological characteristics of drug addicts before participating in the methadone treatment in Dien Bien, Lai Chau and Yen Bai (2014).
- This is the first study on the effectiveness of opiate addiction treatment with methadone in Northern mountainous provinces. The results of the study show that the program is effective in reducing the use of heroin, reducing the risk of HIV transmission and improving the quality of life of patients involved in treatment.
- The study also identified factors such as ethnicity, marital status, and drug use 30 days prior to participating in the study, which influenced the continued use of heroin in the methadone treatment program. Age, ethnicity, marital status, employment, drug use 30 days before study entry, and distance from home to treatment facilities all affected treatment drop-out rates.

Thesis structure

The dissertation consists of 118 pages (excluding references and appendices), composed of 4 chapters:

Background		03 pages
Chapter 1	Document review	37 pages
Chapter 2	Research subjects and methodology	17 pages
Chapter 3	Results	28 pages
Chapter 4	Discussion	30 pages
Conclusions		02 pages
Recommandations		01 page

Chapter 1
DOCUMENT REVIEW

1.1. Overview of concepts

1.1.1.Narcotics are narcotic substances, psychotropic substances specified in the lists promulgated by the Government.

1.1.2.Substance use: A substance that, after being absorbed, changes the physical and psychological functions of the user.

1.1.3.Opioid is a generic term for opiates, morphine, heroin, methadone, and buprenorphine, LAAM, which have similar clinical manifestations and affect the same receptors in the brain.

1.1.4. Opiate addicts: A person who repeatedly eats opioids with increasing doses, leading to chronic, chronic, physiological and psychological dependence on the substance.

1.2. Situation of drug use and HIV/AIDS in Vietnam

1.2.1. Situation of drug use: up to 30/12/2015, the country has 201,180 drug addicts. The use of heroin is still predominant, but the trend toward synthetic drugs is increasing among young people.

1.2.2. Situation of drug use and HIV/AIDS: by the end of 2016, there are 215,621 people living with HIV, 88,668 AIDS patients and 90,181 died. Compared with 2015, the number of newly diagnosed HIV cases decreased by 3%, AIDS patients decreased by 4% and number of patients died has no change.

1.2.3.Characteristics of drug user: main drug users are using heroin. Age trends of drug addicts tend to be increasingly age-old drug use. The rate of drug users is 5-10 years (33.3%). Most drug addicts have participated in drug detoxification in various forms.

1.2.4. Drug and HIV / AIDS situation in Dien Bien, Lai Chau and Yen Bai

The North West region is one of the key areas for HIV / AIDS and injecting drug users in Vietnam. As of 30/12/2016, in Dien Bien, Yen Bai and Lai Chau, the number of drug addicts with management records were 9,669, 2,586 and 3,393, respectively.

1.3. Treatment methods for opiate substances

The methods include: treatment of withdrawal status, long-term maintenance therapy and drug therapy. Purpose: (1) reduce or stop drug use; (2) prevention of harms related to drug use; (3) restore health and improve the quality of life of drug users.
Alternative Medicine:

1.3.1. Methadone

Methadone is a synthetic opiate, which is a complete agonist with the receptors for CDTP (μ, κ and δ). At the appropriate dosage, methadone is responsible for the absorption of μ receptors and suppresses the effects of opioids, only once a day; with stable doses the patient can participate in normal work and activities.

1.3.2. Buprenophine

Buprenorphine is a semi-synthetic, partially agonist with the receptors for opioids (both having receptor agonist effects (μ and nociception), both with the receptor (κ and δ) receptors. Antiretroviral therapy should be used to treat opioid addiction like methadone, but it is safer. Apply daily or 3 times a week.

1.3.3.Naltrexone: Naltrexone is an opioid antagonist by displacing opiate molecules at receptors, as well as by preventing access to opium by its receptors. The drug completely blocks the effects of opioids and is not addictive. The main limitation of this therapy is the high rate of discontinuation of treatment.

1.4. Treatment of opioid addiction with methadone in the world and Vietnam

1.4.1. On the world

By the end of 2014, more than 80 countries in the world have implemented the program, in which methadone is the most commonly used drug.

1.4.2. Effectiveness of methadone treatment programs

Numerous studies have demonstrated the efficacy of methadone in the reduction of heroin use, HIV prevention, increased adherence to ARV treatment, mortality among methadone patients, reduction criminal acts.

1.4.3. Methadone treatment in Vietnam

Vietnam began piloting in Hai Phong and Ho Chi Minh City in 2008. After the pilot phase, the government allowed the program to be expanded nationally.

Chapter 2

RESEARCH SUBJECTS AND METHODOLOGY

2.1. Subjects, time and place of study

2.1.1. Research subjects

Opiate addicts started taking Methadone.

2.1.2. Time and place of study

The study was conducted from October 2014 to December 2015 in three provinces of Dien Bien, Lai Chau and Yen Bai.

2.2. Research Methods

2.2.1. Research design

- **Quantitative research**: a community-based, comparative, randomized controlled trial designed to assess the effectiveness of opiate addiction treatment with methadone at the time of initiation of treatment and at 12 months postpartum. on the same target group.
- **Qualitative research**: To analyze and clarify the effect of treatment and some factors affect the effectiveness of treatment. Using in-depth interview and group discussion.

2.2.2. Sample size and sample selection

2.2.2.2. Quantitative research

$$n = \frac{(Z_{1-\frac{\alpha}{2}} \times \sqrt{2\bar{p}(1-\bar{p})} + Z_{1-\beta} \times \sqrt{p1(1-p1) + p2(1-p2)})^2}{(p1-p2)^2}$$

n	Minimum sample size for each group
Z(1-α/2)	Reliability is obtained at probability level α = 5% (equals 1.96)
z1-β	Sample force, (force of 90%), z1-β = 1.28
p1	Rate of heroin use in HCM City (2009) before intervention was p = 0.362

p2	Rate of heroin use in HCM City (2009) after 12 months of intervention was p = 0.222
$\bar{p}$	Average rate (p1+p2)/2

The theoretical change of n = 219 was the minimum sample size for each group before and after intervention, with a 15% redundancy, so the sample size needed was n = 252.

Sampling method

All patients started to participate in drug addiction treatment with methadone in 3 provinces of Dien Bien, Lai Chau and Yen Bai between October 2014 and December 2014. By the end of December 2014, a total of 300 patients participated in the study, taking the total of 300 patients.

After 12 months of treatment, 56 people were dropt-out, and the remaining 244 patients participated in the study. In order to ensure accuracy in the calculation of performance indicators when comparing two rounds of follow-up after 12 months, the data were calculated by a sample size of 244 participants in both rounds assist.

2.2.2.3. Qualitative research

- In-depth interviews with 9 medical staffs working in methadone treatment facilities in 3 research provinces, 03 people in each province: 01 head of the treatment facility, 01 who is the treating physician; 01 person is a consultant.
- In-depth interviews with 6 family member of patients in methadone treatment.
- In-depth interviews with 6 patients participating in methadone treatment.
- Conduct 3 group discussions (one for each group): each group of 6-8 patients are participating in the study.

2.3. The method of data collection

- Using structured questionnaires through interviews with 300 patients. The question is based on the questionnaire survey of the Ministry of Health and the quality of life of the WHO adjusted to suit the actual situation in Vietnam.

- Urinalysis for heroin was conducted at Dien Bien Provincial AIDS Center, Lai Chau, Yen Bai.

- In-depth interviews (health workers, patients, family members), group discussions (patients).

2.4. Data processing and analysis

2.4.1. Quantitative research

- Epi Info software for Windows is used to enter and store data of collected data (cross-sectional survey, test results). After linking the personal identification data, the study used STATA 12 software to conduct descriptive, comparative and analytical statistics.

- Compare the difference between time points with Chi-square test for qualitative or t-test variables for quantitative variables with statistical significance of $p < 0.05$.

- Multivariate logistic regression model was used to determine some of the factors influencing the treatment effect (including the effect on continuation of heroin use during treatment and quitting treatment). The stepwise forward algorithm with the threshold value $p \leq 0,2$ is applied to select the variables to be included in the short model. Variables with $p > 0.2$ values were excluded from the gonadotropic model. Values of $p < 0.05$ were statistically significant.

2.4.2. Qualitative research

Thematic analysis:

- After completion of each interview or group discussion, the researcher is responsible for checking the quality of the

recording file, naming the patient file and sending the file to the responsible officer. ice.

- The tape was removed and the researcher reads all tapes, aggregates the opinions of the respondents by topic, compares the information between the respondents in the same group and contrasts the information between the respondents. group together. Then, the researcher reread case by case to find out how the information provided is related to the context of their lives.

2.5. Research ethics

The protocol was approved by the Ethics Council of the Vietnam Administration of HIV/AIDS Control (VAAC) in Decision 189 / QD-AIDS dated 10/10/2014 and 127 / QD-AIDS dated 23/7/2015. Participants are completely volunteer: each participant will sign a consent agreement to participate in the study. The information about the participants is ensured confidentiality: the questionnaire will be stored in VAAC. Collection and processing of data will be separated by code to ensure confidentiality. Test results for heroin will not be linked to the participant's identification information.

2.6. Study chart

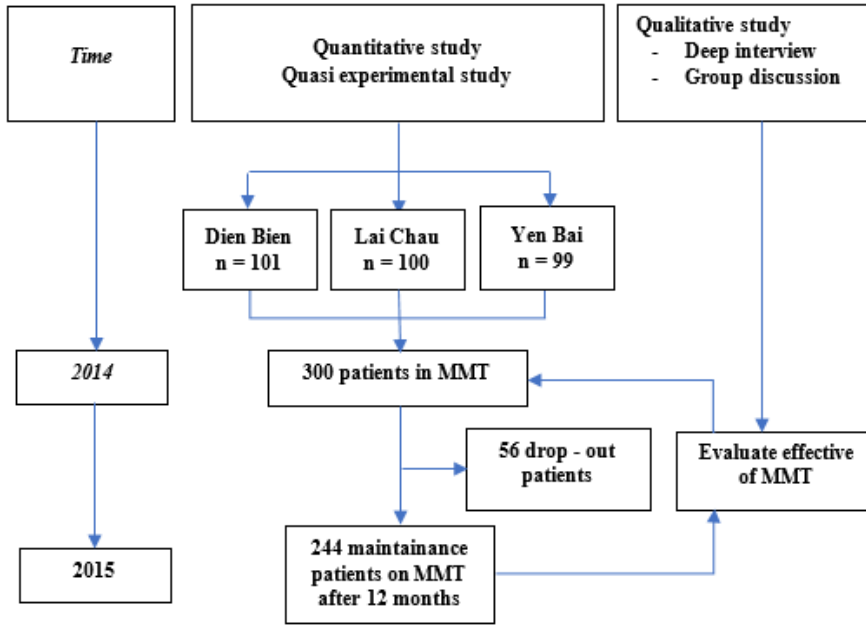

Figure 2.1. Study chart

Chapter 3

RESULTS

3.1. Current status of drug use and health and social status of subjects prior to methadone treatment

3.1.1. Socio-demographic characteristics and employment

- The majority (99.3%) of the participants is male and the majority is between 30 and 49 years old (71.7%).
- 56.2%, those with secondary education, 59.0% are living with spouses, partners and 83% are working as freelancers.
- Kinh majority accounts for more than half of the study population (58.7%). Thai ethnic groups are concentrated in Dien Bien (34.7%) and Lai Chau (41.0%).
-Nearly half of those who are away from treatment facilities are less than 5 km (47.3%), 84.9% are motorcycles for travel.

3.1.2. Current status of drug use and health status

3.1.2.1. Status of substance use

Most used are heroin and opium (60.8% and 37.9%). 67.3% injected heroin and 10.7% shared needle and syringes. The age of onset of drug use was 20.3. Most of them used drugs over 2 years (95.2%). The average amount paid for drugs is 300,000 VND / day.

There were 70.3% of respondents who participated in drug detoxification, from 2 years to 5 years (56.5%), mainly detoxification at the center and self-medication (37.6% and 31%) but not successful. Reasons for relapse were drug addiction and friends (63.5% and 56.5%); bored, disappointed (26.4%).

3.1.2.2. Sexual behavior

50.7% of the respondents used condom at the last sex. 16.5% had sex with female sex workers but only 31% used condoms during sex. 9.8% have sex with injecting drug female sex workers.

3.1.2.3. Health status and quality of life

There were 24.4% of subjects who had hepatitis C, 11.7% of hepatitis B. There were 10.7% of subjects treated with ARV.

The majority of subjects had an average quality of life (75%) in which the level of satisfaction of the subjects was generally normal (60.7%).

3.2. Efficacy of methadone treatment

3.2.1. Substance use change and risk behavior

Table 3.1. Change in substance use before and after treatment

Characteristics	Before treatment (n=244)		After treatment (n=244)		p value
	n	%	N	%	
Use of drugs in last 30 days	88	36,2	39	16,5	**<0,01***
Heroin	77	31,7	26	10,9	**<0,01***
Morphine	6	2,5	4	1,7	0,52*
Opiate	7	2,9	2	0,8	0,18**
Amphetamines/ Methamphetamine	0	0,0	2	0,8	0,25**
Cannabis	1	0,4	2	0,8	0,62**
Sleeping pills	1	0,4	2	0,8	0,62**
Others	4	1,6	7	2,9	0,34*
Injected drugs in past 30 days	57	23,7	30	12,7	**<0,01***

* Chi-square test; ** Fisher-exact test

Comment: The proportion of substance users decreased from 36.2% at the beginning of treatment to 16.5% after 12

months of treatment. The heroin use rate decreased from 31.7% to 10.9%. These results were statistically significant (p <0.01). The rate of injecting decreased from 23.7% to 12.7% after 12 months of treatment. This result was statistically significant (p <0.01).

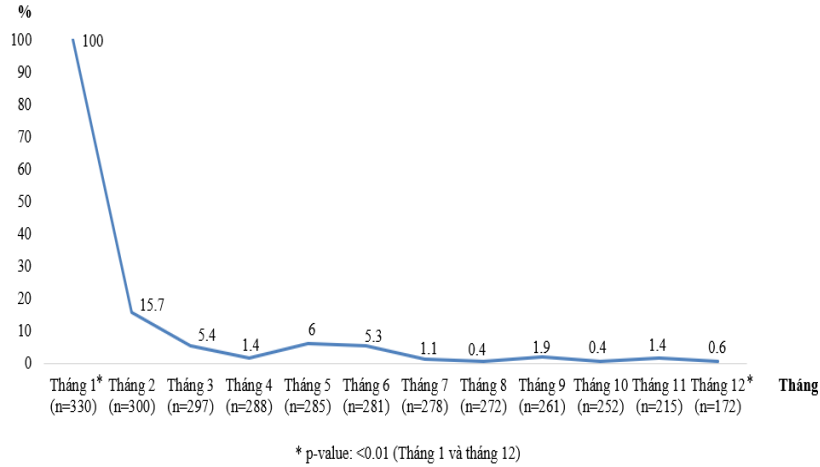

Figure 3.1. A 12-month follow-up of heroin in urine

Comment: Urine heroin positive test results decreased from 100% to 0.6% after 12 months (p <0.01).

3.2.2. Change the quality of life

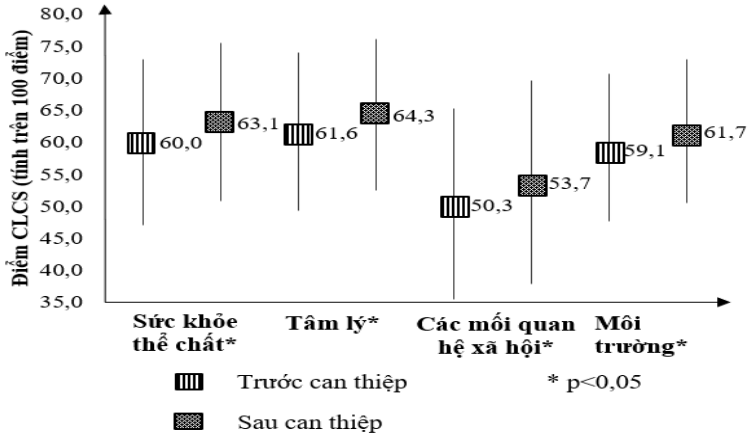

Figure 3.2. Change the quality of life after 12 months

The physical health scores of the subjects increased from 60.0 at baseline to 63.1 after 12 months of treatment. Social relationships also increased from 50.3 to 53.7. In addition, the quality of life in psychology and the environment also increased. These results were statistically significant ($p < 0.05$).

3.2.3. Some other effects

Qualitative research illustrates the effectiveness of the methadone treatment program in terms of economic, social and social security in the area where treatment is being implemented.

Not only the patients and their family members are most visible the benefits of the methadone program; but health care workers are managers and doctors and counselors who are directly involved in the care and treatment of patients also experience significant changes in appearance, personality of patients and economic benefits, security, social impact of methadone program.

3.2.4. Situation of drop-out

56 subjects drop-out of methadone treatment (18.7%) with causes were 66.1% unknown reasons, 19.6% transferred to other clinics, 8.9% were arrested, 3.6% died and 1.8% voluntarily stopped treatment.

3.3. Some factors affect the effectiveness of treatment

The rate of patients taking heroin during treatment was 32.7% and the rate of drop-out was 18.7% after one year of intervention.

Table 3.2. Factors that influence drug use during treatment (multivariate)

Characteristics	Used drugs in treatment period	
	OR	**95% CI**
Ethnic group (Kinh - ref)		
Tay	3,37*	0,94; 12,07
Thai	1,97**	1,00; 3,87
Other	2,92**	1,10; 7,75
Married status (Single - ref)		
Married/cohabit with partners	1,93*	0,90; 4,16
Divorce/Separation/Widow	6,68***	2,54; 17,55
Personnel income (No -ref)		
Yes	0,63	0,32; 1,25
Family members use drugs (No - ref)		
Yes	0,24	0,04; 1,34
Used drugs in past 30 days before study (No - ref)		
Yes	2,49***	1,37; 4,55
Duration of drug use (<2 years - ref)		
10-20 years	1,78*	0,94; 3,36
Constant	0,15***	0,06; 0,35
Observed	255	

*** p<0,01, ** p<0,05, * p<0,1

Patients in the Thai and other ethnic minority groups had a higher risk of drug use during treatment than those in the Kinh group (OR of 1.97 and 2.92, p <0.05). Patients who were divorced, separated, widowed had a 6.68 times higher risk of drug use during methadone treatment than those who were single (OR = 6.68; p <0.01). Patients who took the drug 30 days before the study site were 2.49 times more likely to continue using drugs during treatment than those who did not. (OR = 2.49 and p- value <0.01).

Some reasons why patients continue to use heroin during treatment:

- Due to the technical nature of methadone treatment:

+ Many patients with HIV, treatment of opiate addiction, and treatment with antiretroviral drugs (ARV) at the same time. These two drugs interact with each other, reducing the level of methadone in the blood. When the dose of methadone is not enough, the patient uses heroin.

Even if the patient is not infected with HIV, when the dose of Methadone is not enough, the patient will also take heroin.

- Do patients try to add heroin to see the feeling of "happy, happy" as untreated? This is also the reason given by patients at the beginning of treatment.

3.3.2. Factors affect the drop -out of methadone treatment

Table 3.3. Factors affect treatment drop-out (multivariate)

Characteristics	Dropt-out	
	OR	95% CI
Age group (<30 - ref)		
40-49	0,26***	0,11; 0,64
Ethnic group (Kinh - ref)		
Tay	2,90	0,64; 13,12
Thai	0,27***	0,10; 0,71

Other	0,33	0,08; 1,37
Education (<High school - ref)		
>High school	0,22	0,03; 1,81
Married status (Single - ref)		
Divorce/Separation/Widow	0,12***	0,02; 0,58
Stable job (No - ref)		
Yes	0,27***	0,13; 0,57
Used drugs in past 30 days before study (No - ref)		
Yes	0,35**	0,15; 0,84
Duration of drug use (<2 years - ref)		
2-5 years	0,49	0,20; 1,16
10-20 years	0,34**	0,11; 0,99
Distance from home to MMT clinic (<5km - ref)		
5-10 km	2,44**	1,02; 5,80
>10 km	2,75**	1,07; 7,11
Used heroin during methadone treatment (No - ref)		
Yes	1,92	0,85; 4,33
Constant	1,06	0,43; 2,58
Observed	263	

*** p<0,01, ** p<0,05, * p<0,1

Patients aged 40-49 had less risk of drop-out than patients under 30 years of age (OR = 0.26; p <0.01). Thai patients were less likely to give up treatment than those in the Kinh group (OR = 0.27; p <0.01). Separated, widowed patients were less likely to give up than single ones (OR = 0.12; p <0.01). Patients with stable jobs were less likely to quit treatment than those without stable employment (OR = 0, 27; p <0.01).

Patients with longer drug use time before treatment, the less risk of quitting, patients taking drugs from 10-20 years have a lower risk of treatment than patients used drugs under 2 years (OR = 0.34; p <0.05). Patients who took the drug 30 days prior to study time were less likely to quit than unused patients (OR = 0.35; p <0.05).

Patients with distances more than 5km from home to treatment facilities are at higher risk of discontinuation than those who are less than 5 km (2.44 times higher than patients with 5-10 km distance and 2.75 times for patients with a distance of more than 10 km) (p <0.05).

Causes of dropping treatment: from the patient (patient to give up treatment to see if both heroin and methadone are removed), due to difficult access to treatment (long distance from home to treatment facility), due to legal violations of patients, stigma and discrimination.

Chapter 4

DISCUSSION

4.1. Current status of drug use, health and social status of participants prior to methadone treatment

4.1.1. Socio-demographic characteristics and employment

4.1.1.1. General information

Currently, the age of drug use in Vietnam is under 30 accounts for a large proportion. However, our results show that the majority of study participants were over 30 years old (83%). This result is similar to the study among injecting drug users in Hoa Binh, Tuyen Quang, and Bac Kan in 2014 and Thai Nguyen in 2015 but higher than those in Hai Phong and Ho Chi Minh City study. Most of the participants are male. This is in line with the report of the Ministry of Labor, invalids and social affairs (MOLISA) on drug detoxification.

The Kinh majority accounts for more than half of the respondents (58.7%). Thai ethnic groups are concentrated in Dien Bien (34.7%) and Lai Chau (41.0%).

About half of the respondents have lower secondary education. This finding is consistent with a number of studies conducted in mountainous provinces of Vietnam as well as the report by the MOLISA.

4.1.1.2. Occupation and income

Most of the participants were self-employed (83%), similar to that of Nguyen Van Hung et al. The average income of the participants is 3.3 million VND / month, lower than the World Bank's average income per capita of around 4 million VND / month. Study sites are mountainous provinces that affect the income of drug addicts.

4.1.1.3. Family conflict and delinquency

21.4% of participants have previous criminal records. This is lower than the MOLISA report (38%). However, this result is higher than the research conducted in Hai Phong in 2015 (13.0%).

4.1.4.4. Access to methadone clinic.

Half of methadone patients lived far from methadone clinic lass than 5km (47.3%), 20.1% of them lived far from methadone clinic more than 10 km. Mainly transportation good were motorcycle (84.9%).

4.1.2. Current status of drug use and health status

4.1.2.1. Status of substance use

The two most commonly used drugs are heroin (60.8%) and opiate (37.9%). Nearly 70% of them were injecting heroin users, this result is lower in research in Hai Phong and Ho Chi Minh City in 2011-2014. Of these, 10.7% had sharing needles and syringes. This result is lower than that of behavioral surveillance in high-risk groups in Viet Nam in 2014 (13.1%).

There are some users of synthetic drugs such as Amphetamine or Methamphetamine. This result is similar to the report on substance use in Vietnam. A large proportion of respondents have drug use periods of 5-10 years (33.3%), similar to the study conducted by Hoang Dinh Canh in Hai Phong and Ho Chi Minh City.

The age of drug use among the participants is about 20 years. With the tendency of drug addiction age of drug addicts to be more and more rejuvenated, the early education on drug prevention and control for adolescents from the time of school Important in the control of drug and social evils.

The average amount paid for drugs of the study participants is about 300 thousand VND / day. This result is similar to the report on drug detoxification (nationwide, drug spending is three times higher than their income, causing economic burden for their families. It can also lead to delinquent acts.

4.1.2.2. Detoxification situation.

70.3% have had detoxification, this rate is lower than that of Hoang Dinh Canh study. This result may be explained by the fact that the study area is mountainous, with access to detoxification services that are difficult and, anti drug education is not favorable.

The reason for relapse is largely due to drug addiction, which is similar to the results of studies on the neurobiological mechanism of drug addiction. Friends influence are also the main reason for relapse, in line with the results of the study conducted by Asghar Mohammadpoorasl et al.

4.1.2.3. Risk behavior of participants

a) Injecting behavior

Approximately 67.3% of the participants were injecting drug users. Of which 10.7% had sharing needles and syringes. This rate is lower than the results of the cognitive-behavioral surveillance in high-risk groups in Viet Nam in 2005 (13.1) and some results from other local studies.

b) Sexual behavior

Only half of them use condoms the last time they have sex. The condom use rate for sex workers was 30%, lower than HSS + 2014 (63.3%). This result encourages the continued promotion of condom use during sexual intercourse, especially among high risk individuals.

4.1.2.3. Quality of life of participants

The quality of life of the majority of participants at the start of treatment was moderate. 21.3% said that their quality of

life was good. This result is higher than that of Hoang Dinh Canh and is similar to some studies in the world.

4.2. Efficacy of methadone treatment

4.2.1. Effective on reducing drug use

Results show that the proportion of substance users is reduced by more than half as compared to the time of initiation of treatment, particularly the use of heroin. The rate of heroin-positive in urine of methadone patients is only 0.6% after 12 months (100% at the beginning of treatment). This result is consistent with some studies conducted in Vietnam and in the world.

4.2.2. Effectiveness of reducing drug injecting behavior

The results of the study show that the proportion of injecting drug users has decreased from 23.7% (upon initiation of treatment) to 12.7% (after 12 months of treatment), similar to research in the world and in Vietnam.

4.2.3. Improve the quality of life of the patient

The physical health scores of the participants increased from 60 at the beginning of treatment to 63.1 after 12 months of treatment. Social relationships also increased from 50.3 to 53.7. These results were statistically significant ($p < 0.05$). The results are similar to some studies in Vietnam and around the world.

4.2.4. Adhere to the treatment of the patient

After 12 months of treatment, 18.7% of patients discontinued treatment. This rate is higher than that in Thai Nguyen (8.7%) and in Hai Phong and HCM City (11.7), which is lower than the results of many studies in the world.

4.3. Some factors affect the effectiveness of treatment

4.3.1. Several factors affect the continuation of drug use during methadone treatment

The results of the multivariate regimen indicate that many factors influence the continuation of drug use among patients during treatment.

Patients in the Thai and other ethnic minority groups had a higher risk of drug use during treatment than those in the Kinh group (OR of 1.97 and 2.92, p <0, 05). This difference in the ethnic group was also found in one study in China.

Patients who were divorced, separated, widowed were 6.68 times more likely to use drugs for methadone treatment than those who were single (OR = 6.68; p <0.01). The results are similar to the study conducted in China in 2015.

Patients who took the drug 30 days before the study site were 2.49 times more likely to continue using drugs during treatment than those who did not. (OR = 2.49 and p- value <0.01).

4.3.2. Factors affect the treatment drop-out

Patients over 40 years of age (40-49 years) tended to be less likely to give up treatment than those under 30 years of age (OR = 0.26; p <0.01), similar to results from similar studies in Vietnam, China and the United States.

Thai and other ethnic minorities tended to give less treatment than those with Kinh (OR = 0.26; p <0.01). A study conducted in Yunnan, China in 2010 found that patients with premature death were associated with ethnicity.

Patients with stable jobs were less likely to quit than those without stable employment (OR = 0.27; p <0.01). This result is consistent with the results of the study in China.

Patients who used drugs for 10 to 20 years had a lower risk of discontinuation than those who received less than 2 years (OR = 0.34; p <0.05). Patients who took the drug 30 days prior to study time were less likely to quit than unused patients (OR = 0.35; p <0.05).

Patients who are more than 5 km away from treatment facilities are at a higher risk of discontinuation than those who

are less than 5 km away from the treatment facility (2.44 times higher than patients in the 5-10 km range and 2.75 times with patients over 10 km).

Patients who had been divorced, separated, widowed were less likely to quit than single ones (OR = 0.12, p <0.01).

CONCLUSIONS

1. Current status of drug use and health and social status of participants before methadone treatment

- **Demographic characteristics**: Opioid addicts participate in methadone treatment in 3 provinces, most of who are aged between 30 and 49, male, Kinh, lower secondary education.

- **Drug use**: Most have drug use over 2 years. The most used drug is heroin, mainly injected. Most of the participants who went to drug detoxification failed. Methamphetamine drug use was started in the treatment group

- **Health status**: high rate of blood diseases such as hepatitis C (24.4%), hepatitis B (11.7%) and in ARV treatment (10.7%).

- **Quality of life**: The majority have an average quality of life. On the scale of 100, the facets were physical health (60.2 points), mental health (61.2 points), social relationships (50.3) and environment (58.8)

2. Methadone treatment effect

Treatment effectiveness emphasizes reduced substance use, reduced risk behavior for HIV transmission, and improved quality of life for patients. The effects are as follows:

- Effective use of substance abuse:

+ The proportion of drug users decreased from 36.2% to 16.5% after treatment

+ The rate of heroin use decreased from 31.7% to 10.9% ($p < 0.01$).

+ The positive results of heroin testing in the urine decreased from 100% to 0.6% after 12 months ($p < 0.01$).

- Effectiveness of behavioral change risk of HIV transmission: The rate of injecting drug users decreased from 23.7% to 12.7% after 12 months ($p < 0.01$)

- Efficiency in quality of life:

+ The physical health scores of the participants increased from 60.0 to 63.1 after treatment. The social relationship also increased from 50.3 to 53.7 after treatment($p < 0.05$)

3. Factors affecting effectiveness of methadone therapy

- Factors affecting continued drug use: Ethnic minorities, divorced/separated/widowed), drug use 30 days before study time

- Factors affecting methadone treatment drop-out: youth (<30), Kinh ethnicity, still single, unstable job, new drug use, drug use 30 days before study time , and far from the treatment facility.

RECOMMENDATIONS

1. Extend Methadone treatment to all districts of the three study provinces, northern mountainous provinces and across the country.

2. There are many factors that affect the effectiveness of treatment, so it is necessary to improve Methadone treatment services. Promote counseling for cases where there is a risk of continued use of heroin during treatment and at risk of quitting. Expand treatment services to all districts and communes to facilitate access to treatment for methadone.

3. Studies on ethnographic and cultural characteristics of ethnic minorities in the North should be conducted to explain the differences in treatment effectiveness among patients of different nationalities.

LIST OF PUBLICATIONS AS RESULTS OF THE THESIS

1. Nguyen Thi Minh Tam, Nguyen Thanh Long, Nguyen Hoang Long, Nguyen Thi Lan Anh, Le Thi Thanh Xuan, Le Thi Huong, Nguyen Huu Thang (2015) " Some social characteristics and drug use of methadone new patients in provinces of Dien Bien, Lai Chau and Yen Bai in 2014". *Journal of Preventive Medicine*, Vol. XXV, No. 10 (170) 2015, pp. 268-278.

2. Nguyen Thi Minh Tam, Nguyen Thanh Long, Nguyen Thi Lan Anh (2017), "Evaluation of methadone addiction treatment effectiveness in three northern mountainous provinces". *Journal of Preventive Medicine*, Volume XXVII, No. 9 (27) 2017, pp. 104-113.