HEALTH EDUCATION PROGRAM FOR DIETARY AND WATER INTAKE CONTROL AMONG URINARY STONE PATIENTS AT RATCHABURI HOSPITAL

NONGNUCH JUNKLAI

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HEALTH EDUCATION PROGRAM FOR DIETARY AND WATER INTAKE CONTROL AMONG URINARY STONE PATIENTS AT RATCHABURI HOSPITAL

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ABSTRACT

The purpose of this quasi-experimental research was to evaluate the effectiveness of the health education program which applied Self-Efficacy Theory , to change dietary and water intake control among urinary stone patients who attended the outpatient department at Ratchaburi Hospital. The sample was divided into two groups. The experimental group received 3 health education sessions within a 4 week period, while the control group received the routine health education program from health personnel. Data were collected by interviewing schedule and performing urine pH, urine specific gravity at the pretest and posttest. Statistical analysis was performed using frequency, percentage, means, standard deviation, chi-Square test, independent t-test, paired t-test and z-test.

Results showed that the health education program was effective in improving urinary stone patients' knowledge, outcome expectations, and dietary and water intake control. Urine specific gravity was significantly higher in the experimental than the control group.

KEY WORDS : SELF-EFFICACY THEORY / URINARY STONE

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โปรแกรมสุขศึกษาในการควบคุมอาหารและน้ำดื่มของผู้ป่วยนิ่วระบบปัสสาวะ โรงพยาบาลราชบุรี (HEALTH EDUCATION PROGRAM FOR DIETARY AND WATER INTAKE CONTROL AMONG URINARY STONE PATIENTS AT RATCHABURI HOSPITAL)

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วท.ม. (สาธารณสุขศาสตร์) สาขาวิชาเอกสุขศึกษาและพฤติกรรมศาสตร์

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บทคัดย่อ

การวิจัยครั้งนี้เป็นการวิจัยกึ่งทดลองมีวัตถุประสงค์เพื่อศึกษาประสิทธิผลของโปรแกรมสุขศึกษาซึ่งประยุกต์ทฤษฎีความสามารถตนเองในการปรับเปลี่ยนพฤติกรรมการควบคุมอาหารและน้ำดื่มของผู้ป่วยนิ่วระบบปัสสาวะที่เข้ารับบริการรักษาแผนกผู้ป่วยนอกโรงพยาบาลราชบุรี โดยแบ่งกลุ่มตัวอย่างเป็น 2 กลุ่ม กลุ่มทดลองได้รับโปรแกรมสุขศึกษา 3 ครั้งเป็นระยะเวลา 4 สัปดาห์ และกลุ่มเปรียบเทียบได้รับโปรแกรมตามปกติจากบุคลากรของโรงพยาบาล รวบรวมข้อมูลโดยแบบสัมภาษณ์ และหาค่าความเป็นกรดด่างและความถ่วงจำเพาะในปัสสาวะก่อนและหลังการทดลอง วิเคราะห์ข้อมูลด้วยค่าสถิติ การแจกแจงความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ทดสอบทางสถิติด้วย Chi-Square test , Independent t-test , Paired t-test และ Z-test

ผลการวิจัยพบว่าโปรแกรมสุขศึกษามีผลให้ความรู้ของผู้ป่วยนิ่วระบบปัสสาวะ ความคาดหวังในผลลัพธ์ การเปลี่ยนแปลงพฤติกรรมการควบคุมอาหารและน้ำดื่มสูงขึ้น ความถ่วงจำเพาะในปัสสาวะของกลุ่มทดลองมีสัดส่วนการเปลี่ยนแปลงดีกว่ากลุ่มเปรียบเทียบอย่างมีนัยสำคัญทางสถิติ

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CHAPTER 1
INTRODUCTION

Background and the Importance of the Problem

From the past to the present, urinary stone is still the important public health problem of the worldwide countries including the developed countries, for example, Europe, the United States of America, and Japan, where high mortality was found in these countries, including the developing countries, such as Asia, Africa, where renal stone and vesicle stone have been found (Paitoon Kochasanee, 1994 : 288). The study of urinary stone prevalence varies from regions to regions and races. In Thailand urinary stone is the important problem in all regions of the country while the highest prevalence was found in the northeastern region, 4.2 per 1,000 population. The second high prevalence rate was found in the northern region with 3.0 per 1,000 population while the lowest prevalence rate was found in the southern region, 1.1 per 1,000 population (Montira Marukkatut, 2002 : 14). Besides, 50-70 percent of the persons who have had urinary, stone in the past have the chance to get this problem again varied from different types of stone. Another words, there is 8 times for the patients who have had urinary stone, to get this problem again within 1-2 years comparing with the general population. If this group of patients do not change their lifestyles, it was found that about half of them will get urinary stone within 5 years and 70 percent will get this problem again within 10 years (Montira Marukkatut, 2002: 5). Because urinary stone can be found in every age group and caused a lot of suffering. It can also cause pathologic conditions due to the obstruction caused by the stone, for example, hydronephrosis, hydroureter or diverticulum, whereby these conditions may cause chronic infection that can turn to cancer. Due to this situation, the kidney may loss its function and acute or chronic renal failure may be followed. In order to treat renal failure, the use of hemodialysis must be needed. This artificial kidney is the high cost technology and patients have to use it for life. The result of various studies indicated that urinary stone

is the illness that creates many treatment problems, needs a lot of medical manpower and budget. The reports of the hospitals, community, provincial and center hospitals, showed that there were 100-400 patients with severe urinary stone who need surgical treat meat per year (Sa-nga Nilwarngkul, 1987 : 3), depending on the bed number of each hospital. The statistics of Ratchaburi Hospital showed that in the years 2001, 2002 and 2003 there were 731, 659 and 802 patients with urinary stone admitted in the Department of surgery, respectively. Among these, there were 538, 452, and 636 cases, respectively, who were treated by surgical treatment. This situation showed that the number of urinary stone patients have not decreased, even though people's education and living have been better but the problem regarding urinary stone still exists and will be continued. Patients with urinary stone and their families wasted their time of working for their illness. Some of them have to spend more money than their yearly income. Therefore, this disease is a disease that has high socioeconomic consequences for the people.

The factors affecting the prevalence of urinary stone are race, heredity, age, gender and external factors that can be improved, for example, geography, climate, drinking water, dietary and occupation, except for some patients who have abnormality of urinary system, for example, UPJ obstruction, UV reflux, stricture urethra, Benign Prostate Hyperplasia. Because urinary stone caused by the crystal nucleation, the crystal growth and the crystal aggregation (Montira Marukkatut, 2002: 27), whereby this process related to the amount of water intake per day, some kinds of foods intake, and the climate condition. According to the study carried out by Chainarong Buratna (1997 : Abstract) who studied the factors affecting renal stone in Ubolrachthani Province. Sixty percent of the sampled group were males aged 45 years old and most of the patients resided in rural areas. It was found that the factors affecting renal stone were : heredity; Laosian lineage ; drinking well water or underground water; drinking less than 1 liter of water per day; eating glutaneous rice regularly; eating high-oxalate vegetables regularly for a long period of time. These vegetables were found only in the northeastern region particularly Ubolrachthani Province. Aroonratna Wannapongs (1996 : Abstract) studied the risk factors of urinary stone in the upper area of Khonkhan Province. It was found that 46.09 percent of those people whose close relatives have ever been sick with urinary stone will have a chance of being sick with this disease. And if these people have eaten purine-food higher than the average allowance level, the chance of being

sick with urinary stone will be 71.10 percent. If these people have exposed to other risks, one by one working outside in the warm areas more than 3 days a week; drinking water less than 2,000 cc/day; eating high-oxalate food higher than the average allowance per day, the increased chance of having urinary stone of these people will be 85.42%, 92.90%, and 96.09% respectively.

The statistics of Ratchaburi Hospital of the years 2001, 2002 and 2003 showed that the numbers of the patients with urinary stone in the Surgical Urology ward was among the highest 5 diseases of this ward were: 731, 659 and 802 respectively. The percentages of the patients with renal stone and ureteric stone were: 88.8, 90.4 and 91.3 respectively of all patients with all types of stone. From the study by the researcher through reviewing of the patients' records and interviewing 15 patients with urinary stone of Ratchaburi Hospital, during 1-30 January, 2005, it was found that most of the patients aged 30-60 years old (66.7%) and 20 percent age of the patients have been sick with this disease again. Regarding the risk factors of the urinary stone which are : personal factors; dietary behavior; drinking water; source of drinking water; and self-care. The detailed information were as follows:

The high percentage of the sampled group earned their living as low-skill traders (46.7%) and the other occupations were farmers (26.6%) housewives (20%) and government offers (6.7%) Regarding their income, the average income was 5,000-6,000 Baht/month. As regards to their knowledge/belief, 26.6 percent of the sampled patients did not know the causes of urinary stone; while some of them believed that stone was caused by : drinking unclean water or contaminated ice-water with dust (66.7%); natural (73.3%) did not relate to food intake (60.0%); urinary stone can not be cured (60.0%); urinary stone can be treated by surgery only (33.3%) after the complete treatment the relapse will not occur (73.33%); the patients with urinary stone should not exercise (46.6%); and the patients with urinary stone should take a lot of rest (46.6%). Regarding, the patients' eating and water drinking habits, it was found that their drinking – water and from : well – water / underground water (33.3%); rain water (26.6%); and hydrant water (33.3%). It was also found that the renal stone patients drink less than 1.5 liters of water / day since they will drink water when they feel thirsty only if they have to continue their work they do not have time to

stop for drinking water. Among the patients who are farmers or the ones who have to work outside for the long period of time, it is not convenient for them to come home for dietary or drinking water (26.7%). About eating, there were 53.3 percent of them indicated that they cooked by themselves and 53.3% usually eat chili paste with fresh or boiled vegetables (for example, morning glory, Chinese cabbage, boiled bamboo shoots, bamboo-shoot soup, etc.). There were 26.7 percent mentioned that they bought the ready – cooked food and 20 percent said that their children cooked for them every day.

The aforementioned data showed that these patients may get dangers from severe complications due to undesirable behaviors for example, acute infection of the urinary tract, renal failure and the reoccurrence of the stone easily and rapidly. Due to the lack of correct knowledge about urinary stone, the patients did not have confidence that urinary stone can be preventable by themselves through careful dietary and water intake. They also lack of confidence about self-expectation especially control of food and water intake and the lack of self-efficacy for taking care of themselves when they have urinary stone whereby they believe that only surgery is the best treatment. They believed that after this disease has been cured by surgical treatment the disease will not relapse. Even among the old cases of urinary stone who have had knowledge about self-care already, they still practice incorrectly and can not comply with the practice suggested. They do not change their lifestyles.

Therefore, the researcher was interested in applying the theory of self-efficacy for organizing activities aiming to change self-care behaviors of the urinary stone patients with regards to the urinary stone knowledge, perceived self-efficacy, perceived benefits for self-controlling of dietary and water intake, and correct practices of food and water intake. It was expected those positive behaviors will help lower or prevent the relapse, practice better self-care among the urinary stone patients, which in turn will reduce the severity of pathogenesis form stone and prevent complications.

Research Question

Can a health education program applying the theory of self-efficacy be able to change behaviors regarding dietary and water intake among urinary stone patients in Ratchaburi Hospital?

Research Objectives

General objective

To study the effectiveness of a health education program, by applying self – efficacy theory to change behaviors on dietary and water intake control among urinary stone patients at Ratchaburi Hospital.

Specific objectives

1. To study behavioral changes among urinary stone patients who participated in health education program as regards a urinary stone knowledge, perceived self – efficacy, outcome expectation and behavioral changes on dietary and water intake control.

2. To study the changes of urinary pH and urinary specific gravity level, after the intervention.

Research Hypotheses

1. A health education program organized by applying self–efficacy theory can enable the urinary stone patients in the experimental group to change for the better on :

1.1 urinary stone knowledge

1.2 perceived self – efficacy

1.3 outcome expectation

1.4 dietary and water intake behaviors

2. A health education program organized by applying self–efficacy theory can lower the urine pH level to the better direction in the experimental group.

3. A health education program organized by applying self–efficacy theory can lower the urine specific gravity level to the better direction in the experimental group.

Research Scope

This study focused only on the behaviors to control dietary and water intake among urinary stone patients both males and females who attended at Urinary Clinic in Ratchabiri Hospital, Ratchaburi province. This research was conducted during March to July, 2005.

Research Variables

Independent variable : Health education program

Dependent variables :

1. The urinary stone knowledge;
2. Perceived self – efficacy on dietary and water intake control;
3. Outcome expectation on dietary and water intake control;
4. Dietary and water intake control;
5. Urine pH;
6. Urine specific gravity.

Definitions of the Research Variables

Health education program refers to the health education activities, for urinary stone patients in the experimental group, by applying self – efficacy theory, with the aim to have patients changed urinary stone knowledge, perceived self – efficacy, outcome expectation of practice and dietary and water intake control. Self–efficacy can develop through vicarious experience , performance accomplishment and verbal persuasions from group process, role of model, videotape

presentation, and self–recording of urine pH and urine specific gravity, group activities for exchanging experiences, problems and obstacles encountered, and problem solving.

Urinary Stone Patient refers to the urinary stone patients both males and females who have been diagnosed by the medical doctor.

Effectiveness of a health education program refers to the positive changes of knowledge, perceived self – efficacy, outcome expectation, dietary and water intake control, urine pH and urine specific gravity, which occurred after providing the health education program by applying self – efficacy theory.

Perceived self–efficacy on dietary and water intake control refers to the patients' belief and self–confidence of their own ability, measured by answering the questionnaire developed by the researcher, to control dietary and water intake.

Outcome expectation on dietary and water intake control refers to the expectation of good result which should happen as the result from dietary and water intake control. This was measured by using the interviewing schedule.

Dietary and water intake control refers to the :

1. **Dietary control** : the urinary stone patients could choose the appropriate foods : avoiding high sodium and high calcium foods ; avoiding high oxalate and high protein foods ; eating variety of 5 main groups (protein , carbohydrate , fat , fruit and vegetables and water) everyday.

2. **Water intake control** : drinking clean water 2–3 lit / day (10–12 glasses) and drinking 1–2 glass of water every 2 hour regularly.

Urine Specific Gravity refers to the concentration of the particles in urine measured by estimating from the proportion of weight and amount of particles in the solution. (Dusit Jirakulsomchok,1998 : 139). The normal values are between 1.003 and 1.035 . urine of normal people will be highest concentrated during the nigh time. The high level of urine specific gravity

indicates high urine concentration and the low level indicates diluted urine condition (Penjun Suwanasang Monaiyapongs, 1997 : 371).

Urine pH refers to the ability of kidney to excrete acid, normally depends on the body acid-base status. The normal pH of urine ranges from 4.5 to 8 (Dusit Jirakulsomchok, 1998 : 140). A diet high in meat will keep the urine acidic. A diet high in fruits and vegetables will keep the urine alkaline. (Penjun Suwanasang Moniayapongs, 1997 : 370)

pH > 6.0 means alkaline urine

pH < 6.0 means acidic urine

CHAPTER 2
CONCEPTS, THEORIES AND RELATED RESEARCHES

The study was the application of the self-efficacy theory in organizing a health education program aiming to change dietary and water intake of urinary stone patients attending Ratchaburi Hospital. The related theories and researches were reviewed by the researchers, as the following contents :

Past 1 Urinary Stone Knowledge

Pathoplysiology of Stone

There are a variety of foods intake in each day. Through the metabolism process, these foods will be changed to different stages and lastly, the wastes circulated with blood circulation will be filted at the kidney and excreted in urine. It was found that the types and quantity of the excretions varied all the time. They are the reflection of types and quantity of the intake foods though there are many substances in urine. The forming of stone involves 2 factors as follows:

1. **Stone aggregator.** It refers to the components of the stone, these are : calcium, oxalate, phosphate, and uric acid, etc.
2. **Stone inhibitor.** It refers to the substances, for example, citrate, magnesium, pyrophosphate, glycoaminoglycen, etc.

Therefore, the forming of stone depends on the balance of these two groups.

The Stone Forming Process

1. Crystal nucleation. The ion of the stone aggregator will combine with the other ions and in the supersaturation condition of the ions in urine, the crystal nucleation will occur. The factors that can control the saturation are density, temperature, and pH. Regarding stone forming, the temperature does not affect this forming, since the forming occurs in the body's temperature, 37º Celsius.

2. Crystal aggression. After the crystal nucleation, if urine is still supersaturated, the crystal nucleation will be continued both homogeneous and heterogeneous nucleation accordingly with the change of urine's density.

3. Crystal aggregation. The stone's crystals have been enlarged and floated near the others in the position that the chemical relation will bring these crystals together and form the bigger size of the stone.

In conclusion, the stone aggregators with different density in urine caused spontaneous nucleation, crystal growth, and crystal aggregation of different sizes.

Factors Affecting Prevalence of Urinary Stone

1. Internal Factors

1.1 Race

The population of different races have different chances of having urinary stone. The low prevalence of urinary stone was found in North American Indians, Africans, and people in Israel while high prevalence was found among Eurasians and white people.

1.2 Sex and Age

Most of the patients with urinary stone are in the labor force, age 40-60 years and the trend is going to be found in the older age group. This finding is different from other countries where the prevalence was found among the younger group (Montira Marukkatut, 2002 : 11-12). Urinary stone was found among males 2-3 times of females. It was believed that estrogen hormone in female increases the excretion of citrate in urine and because citrate is the stone inhibitor, therefore, less prevalence was found in females than in males.

The patients with the lower part of urethral were found most in 3 age groups : preschool children, aged 0-5 years, due to malnutrition ; the second group, labor-force group, aged 20-50 years, whereby it has been hypothesized that the kidney stone migrates to bladder; the third group, the older persons, aged higher than 60 years, due to the enlarged prostate gland obstructs the urethra.

2. External Factors

2.1 Geography, Climate, and Seanson

In the dry areas like Africa or countries in the dissert areas, the high prevalence of urinary stone was found. This was due to the loss of high amount of water from the body which caused the condensed and high intensity urine. This condition causes urinary stone easily. Besides, the geography and climate affect on the vegetables that were consumed by the people including the eating culture of the people affect on the stone forming.

2.2 Drinking Water

Drinking water is the important factor affecting urinary stone forming. The research revealed that increased rate of urinary stone was found among those who drink less than 2 liters of water / day. Besides, the chemical substances in the drinking water are also important for the stone forming. The researchers showed the significant relationship between urinary stone and drinking alkaline water (which has high quantity of calcium) and fluorided water.

2.3 Diet

The nutrients affecting urinary stone formation are calcium oxalate, sodium, protein carbohydrate and caffeine. Some nutrients affecting urinary stone formation, but no evidence, are vitamin C and energy quantity. The nutrients that are stone inhibitors are potassium and magnesium. It has been believed that vitamin B6 can inhibit the formation of stone but still need adequate evidence (Montira Marukkatut, 2002 : 24).

2.4 Occupation

High prevalence of urinary stone was found among 2 groups of occupation, those are the group of administrators and the group of people who loss perspiration through working, for example, farmers, labors, and workers of the industrial factories (Montira Marukkatut, 2002 : 14). The cause of stone formation in the first group is different from the cause in the second group. Among the first group, consuming high-protein diet causes the high excretion of uric acid and result in uric acid stone. Uric acid also disturbs the function of the stone inhibitors which cause calcium stone. In the second group, chronic dehydration in the cause of stone due to the high density of urine.

Prevention of Urinary Stone

The important principle of preventing stone is to lower the risk factors of stone forming, as follows:

1. Dilution of Urine

From the studies, it was found that the diluted urine that can prevent the crystal nucleation of stone must contain 2-2.5 litres of urine per day, with the specific gravity of urine of 1.010. In order to have the required composition of ursine, the patients need to drink 2-3 litres of water per day. The factors affecting the body's need of water are the temperature and lifestyle. For example, during the warm weather, the body lost water through perspiration, and other conditions including heavy physical exercise and outside working also cause high perspiration which will result in dehydration and high density of urine. Regarding drinking water, the patients should drink water regularly and should drink 1 glass of water (200 c.c.) before going

to bed. The no-mineral water should be the appropriate type of water for drinking and all types of alcoholic beverages must be avoided (including wine and beer) or soft drink. Coffee and alcoholic beverages affect on the stone formation because coffee and alcoholic beverages cause the high excretion of calcium in urine including hyperuricouria. Soucie (1966) and shuster (1985) found that drinking tea, coca-cola and soft drink accelerated urinary stone.

In fact, the small volume of urine is the risk factor of every type of stone because it causes supersaturasion of stone aggregators. This situation may be caused by drinking less amount of water or dehydration due to other conditions especially through perspiration in the warm weather or prolonged outside working including athletes, workers of the factories where the temperature of the workplaces is high. This situation will cause more cases of stone due to uric acid than other types. The result of the study of urine pH showed that among the persons who exposed to warm weather, the high level of acidity in urine was found which facilitates the nucleation of uric acid. It was also found that marathon runners are more risky for getting stone 25 times of the normal people. (Pojana Sribunlue, 2000 : 195-196). The result of a research project that studied the pH value of urine among the volunteers after taking physical exercise by bicycling showed that their urine pH was significantly lower. According to the study carried out by Chawalit Jirayukul (2002 : Abstract) who studied the effect of the practice of Sapuk Trakraw on the chemical changes among the members Thailand Sapak Trakraw Team, the significant difference of pH value was found between before, during and after the practice. The result of one study carried out with urinary stone patients, in the western countries, who had high quantity of stone aggregators in urine, showed that supersaturationed urine was found among these patients. Therefore, it will be helpful if these patients drink a lot of water which will result in the lower density of stone aggregators in urine and recurrence of stone will be lower no matter what type of stone (Pojana Sribuntue, 2000 : 269).

2. Changing of Improper Dietary Behavior

Improper dietary behavior will promote the forming of stone. The proper diets include the variety of foods consisting of 5 groups of nutrients, with proper quantity and in accordance in specific age groups.

Regarding protein, it was found that consuming high protein diets accelerated the excretion of high protein diets accelerated the excretion of calcium and uric acid but lowered the excretion of citrate. Among the people who ate high protein diets, the increased risk of having stone is up to 1.33 times. For every 75 grams of increased protein consumed, the excretion of calcium will be increased up to 100 mg/d. This change will not be found from consuming protein from vegetarian diets and eggs. Therefore, decreasing the amount of protein form animal sources will decrease the prevalence of stone.

Sodium. Eating high sodium diets will accelerate the excretion of calcium and cystine in urine including pH level and will reduce the excretion of citrate. It was found that eating increased high – sodium diets 100 mmol resulted in the increased excretion of calcium up to 25 mg. Therefore, the patients with stone that caused by calcium and cystine should be suggested to consume low-sodium diets.

Potassium. Consuming low-potassium diets accelerated the urinary stone. The high-potassium diets lowered the risk of having stone to 0.49, comparing the patients who consumed more than 4,041 mg/d and those who consumed potassium less than 2,896 mg/d.

Fiber. High-fiber foods can slow down the formation of stone because high-fiber foods create a state of alkalinity in the body resulting in the higher excretion of citrate. Fiber foods also contain low protein and low fat which reduce the formation of stone.

Carbohydrate. High-Carbohydrate foods will accelerate the excretion of calcium in urine resulting in the increased oxalate in the body.

Oxalate Foods. High oxalate foods can be absorbed and excreted more in urine. The decrease of high-oxalate foods is one measure for preventing hyperoxaluria. It was found that high quantity of oxalate is the important compound found in a stone. There was one study that showed that the persons who consumed high oxalate vegetables had the increased oxalate crystal in urine which is the important factor causing urinary stone.

Pojana Sribunlue et al. (1984 : 13-19) studied the high epidemic area of stone which is Khonkhan Province by studying the most favorite vegetables of the villagers the quantity of oxalate in those vegetables. Since calcium plays the role in

inhibiting the quantity of oxalate, therefore, the researchers have studied the quantity of calcium in those vegetables. The study showed that there 10 favorite foods mostly consumed by the villagers in Khonkhan Province which were : Krathin ; chinese cabbage ; Thai morning glory; egg-plants, cucumber, bamboo shout, green – ivy buds, small red onions, coriander and sadoa. In the same quantity of these vegetables, the fresh vegetables that contain the highest quantity of oxalate were : Sadoa, coriander, krathin, Thai morning glory, egg-plants, small red onions, green-ivy buds, bamboo shout, cucumber, and Chinese green cabbage, respectively. Regarding the quantity of calcium, the fresh vegetables that contain the highest quantity of calcium in the same quantity of vegetables were : coriander; sadoa; Krathin; green-ivy buds; Chinese, green cabbage, small red onions, bamboo shoot, egg-palnts, Thai morning glory, and cucumber respectively. The finding showed that the vegetables that contain high quantity of oxalate. It was also found that the vegetables that were consumed most frequently by the villagers were Krathin; Chinese green cabbage; Thai morning glory; eyg-plants; and cucumber while Sadoa was the vegetable that the villagers consumed least. The quantity of calcium and oxalate in the vegetables affects the reciprocal absorption of both compounds. If there is a high quantity of one compound it will inhibit the absorption of another compound whereby calcium oxalate will be formed and it is very difficult to be absorbed. Therefore, consuming all 10 binds of vegetables is risky for the formation of stone. The study carried out by Aroonratana Wannapongs (1996 : Abstract) aiming to study the risk factors of the stone of the upper part of urinary system in Knonkhan Province, it was found that there was a significant relationship between the prevalence of urinary stone and lifestyle of the villagers, for example, dietary habits which the consumption of purine in the higher level than the standard criteria; consumption of high oxalate food; drinking water less than 2000 cc/day ($p<0.05$) According to Chainarong Buratna (1997 : Abstract), who studied the risk factors affecting renal stone in Ubolratchathai, it was found that the villagers drink well-water or underground water, with less than 1 litre per day; eat glutaneous rice regularly, eat high-oxalate vegetables regularly and for a long period of time, those are Kradone, Tiew, Meg. Cha-em, Marum, spinach, Bai-chaplue, bamboo shout, Phaksein, Phakwan, Phakhope, Phakhep, Phakeerog, lin-pha, Phak-waan, Dogkrajew, Dogcae, Phak-Kheeleg, Sadoa and Ec-heen. According to Montiran Tantanuch et al (2001 :

Abstract), the high percentage of the patients with stones in southern part of Thailand suffer from renal stone and the disease was found most with the overweight patients.

Therefore, the principle of urinary stone prevention is the decreasing of risk factors by changing or controlling dietary habits. Drinking water is cheap and safe. Patients with stone should drink a lot of water regularly and all day in order to dilute urine. They also should consume 5 groups of foods with appropriate. Quantity and body's need and slow down the consumption of high-oxalate foods. The patients should avoid consuming protein from animal sources and sodium, because protein from animal meat and sodium accelerate the excretion of calcium and decrease the excretion of citrate. They should consume variety of foods and change their lifestyles, for example, control body weight, enough rest and sleep, avoid the activities that loss a lot of perspiration or if they exercise, they should drink a lot of water.

Urine Examination

Urine pH, shows the capacity of kidney in regulating the level of hydrogen ion in plasma and tissue fluid. Normally body metabolism results the acidity state which is mostly excreted in urine. Single morning specimen of urine should be collected for examination sine this urine has the highest density level and the target substances can be found easily. However, the urine specimen should be examined right away after collection in order to prevent the growth of bacteria and the urine is in the alkalinity state (Nisaratna et al., 2002 : 200).

Interpretation of the Urine Examination

The normal urine pH value is 4.5-8.0, average of 6.

The urine pH value that is oftenly higher than 7.0 correlated with the formation of stones caused by calcium with the formation of stones caused by calcium carbonate, calcium phosphate, and magnesium-ammonium-phosphate.

The urine pH value that is lower than 5.5 correlated with the formation of stone caused by cystine and uric acid.

Consuming excess high-protein will result in increased phosphate and sulphate form metabolism and the state of acidity will be found in urine. This condition is

different from the condition of the persons who consume high quantity of vegetables and fruits whereby the alkalinity state is found in urine. The pH value in urine will have diurnal variation accordingly with the condition of the fluid outside the cells during the acidosis (Penjun Suwansaeng Monayapongs, 2002 : 370). Regarding the variation of acidity state of urine, there are 3 factors affecting this variation : flowing rate of urine (urine's volume), kinds of foods consumed, and time duration between meals. It was found that the lowest pH level of urine was found during the lowest flowing rate of urine, during the morning after getting up and the pH level will be increased after each meal which is similar to adding of alkali or alkaline load.

Factors Affecting Acidosis of Urine

1. **Ketoacidosis** which is due to diabetes mellitus, being diet, high fever
2. Metabolic acidosis caused by the increased excretion of ammonia and oxygen deficiency of ammonia and oxygen deficiency of tissues resulting in increased lactic acid.

Factors affecting Alkolinity of Urine

1. Diuresis right after meals
2. Vegetarian foods and vegetables the do not create fixed acid as the precipitated toxic substance.
3. Metabolic alkalosis caused by hyperventilation, severe vomiting, loss of hydrochloric acid from GI suctioning.
4. Infection of urinary tract
5. Renal tubular acidosis which caused abnormal acidity and low level of bicarbonate and pH of blood.

Specific Gravity of Urine

Principle

Specific gravity of urine is the measurement density of compounds in urine. This value depends on size, quantity and density of those compounds.

Interpretation

The normal value of specific gravity of urine is 1.003-1.035.

The high level of specific gravity indicates the intensity of urine and the low level indicates diluted urine. The highest value was found of the single morning urine specimen which is usually higher than 1.020. Among the normal people who drink less water, urine will be highly condensed and the value of specic gravity will be at least 1.030 (Nisaratna et al.,2002 : 201). Normally, sodium mostly affects on the specific gravity of urine, however, there are many kinds of substances that affect on the specific gravity of urine, as follows (Suthatip Pitchayapaiboon, 2001 : 83-84).

1. Glucosuria
2. Proteinuria : The small effect was found whereby 0.4 g/dl of proteinuria will increase the specific gravity value to 0.001.
3. Radiogrophic contrast media which will increase the specific gravity value to 1.010-1.050.
4. Dehydration. This condition will cause high intensity urine and the specific gravity value is 1.020-1.030.
5. Drugs, for example, high dose of penicillin's, Carbenicillinm, Albumin Dextran, Diuretics, Detergent Mennitol.

Murayama T, **Taguchi H. (1988 : Abstract)** studied correlation of the composition of the urinary calculi with urine pH, especially of diurnal variation, and composition of urinary excretion was studied. Urine pH in the patients with uric acid stones was constantly low and urinary pH in the patients with apatite and struvite stones was always high. Diurnal variation was not observed. In patients with pure calcium oxalate stones, however, urinary pH was low in the early morning, increased during the daytime, and was lowered at night. In the patients with mixed calcium oxalate-phosphate stones, a similar diurnal variation in urinary pH was found, but the urinary pH in the early morning was signifycantly higher in the patients with mixed calcium oxalate-phosphate stones than in those with pure calcium oxalate stones. Urinary tract infection did not influence these differences in urinary pH. Urinary excretion of calcium in the patients with mixed calcium oxalate-phosphate stones was significantly higher than that in those with pure calcium oxalate stones. No other

correlations were observed between composition of the urinary calculi and urinary excretion of calcium, oxalate, uric acid, phosphate or magnesium. From these findings we conclude that urinary pH and urinary calcium are the most important factors determining the composition of the urinary calculus. And Sasiwimol Khuanmuang (2001 : Abstract) carried out the comparison study of kidney's filtration rate, and the excretion of sodium and potassium in urine during the day time and night time among adults and elderly by collection of urine specimen and drawing blood specific 2 duration – times, during 7.00 – 19.00 hours and 19.00 – 7.00 hours. It was found that the kidney's filtration rate and sodium in urine were less in the day time than the night time among both group but the higher potassium excretion was found more in the night time.

Therefore, for this research project, the behaviors the were studied included the control of dietary and water intake of the patients with urinary stones and those behaviors were checked by measuring pH and specific gravity of urine in the sampled patients.

Past 2 Concepts and Theories

2.1 Self-Efficacy Theory

Bandura has reported about persons' belief regarding their own ability to cary on a task Bandura's Self-efficacy theory (Bandua 1977 : 191-215) suggested that a person should be confident about his/her own ability, thus, self-efficacy will influence on helping a person to carry on specific task which is the behavior that is important in linking between "knowing what to do" and "Actually doing it". If a person can set expectation or believe in his/her own ability by knowing what to do and after doing that he/she will get the outcome as expected, he/she can be able to do that thing (s). The structure of this theory is presented in Figure 2.

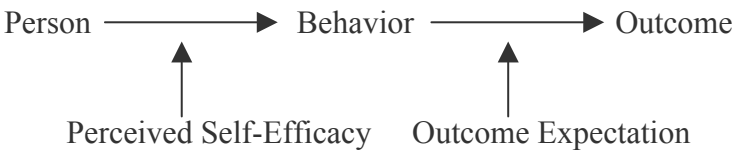

Figure 1 The relationship between perceived self-efficacy and outcome expectation

Source : Division of Health Education, Ministry of Public Health, 1999 : 30.

In this model, *self-efficacy* is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). Although Bandura proposes both of these motivational constructs, the theory and subsequent research focus on the role of self-efficacy beliefs. Bandura (1986) suggests that outcome expectations are heavily dependent on efficacy judgments. Bandura notes that outcomes are connected to actions; how one behaves largely determines the actual outcome and, in the same way, beliefs about outcome expectations are dependent on self-efficacy judgments.

	Outcome Expectation	
Self Efficacy	Low outcome Expectation	High outcome expectation
High self-efficacy	Social activism Protest Grievance Milieu change	Assured, opportune Action High cognitive
Low self-efficacy	Resignation Apathy Withdrawal	Self-devaluation Depression

Figure 2 Behavioral and affective reaction as a function of different levels of self-efficacy and outcome expectations

From "Self-Efficacy Mechanism in Human Agency" by A. Bandura, 1982, *American Psychologist,*37,p.140. Copyright 1982 by the American Psychological Association. Adapted by permission.

Sources of Self-Efficacy Beliefs

The case for the contextual and mediational role of self-efficacy beliefs in human behavior can be made by exploring the four sources from which these beliefs are developed:

1. Mastery experience, the interpreted result of purposive performance, is the most influential source of self-efficacy beliefs. Bandura's emphasis that one's mastery experiences are the most influential source of self-efficacy information has important implications for the self-enhancement model of academic achievement, which contends that, to increase student achievement in school, educational efforts should focus on raising students' feelings of self-worth or of competence.

2. Vicarious experience **:** Vicarious processes refer to the human ability to learn not only from direct experience, but also from the observation of others. *Observational learning* allows one to develop an idea of how a new behavior is formed without actually performing the behavior oneself (Bandura, 1977a;1986;1989). This information can then be coded (into symbols) and used as a guide for future action. Vicarious learning is important in that it enables humans to form patterns of behavior quickly, avoiding time-consuming trial and error, as well as avoiding costly and even fatal mistakes. In addition, vicarious capabilities allows one to explore situations and activities for the attainment of new knowledge that would normally be out of reach due to constraints on time, resources, and mobility. For example, TV has vastly expanded the range of models and behaviors one is exposed to every day, allowing people to transcend the boundaries of their own environment (Bandura, 1986).

3. Social persuasions: Individuals also create and develop self-efficacy beliefs as a result of the social messages they receive from others. These persuasions can involve exposure to the verbal judgments of others and is a weaker source of efficacy information than mastery or vicarious experience, but persuaders can play an important part in the development of an individual's self-beliefs. Successful persuaders cultivate people's beliefs in their capabilities while at the same time ensuring that the envisioned success is attainable. Just as positive persuasions may

work to encourage and empower, negative persuasions may work to defeat and weaken self-beliefs.

4. Physiological states : such as anxiety, stress, arousal, fatigue, and mood states also provide information about efficacy beliefs. Because individuals have the capability to alter their own thinking, self-efficacy beliefs, in turn, also powerfully influence the physiological states themselves. Bandura has observed that people live with psychic environments that are primarily of their own making. Often, they can gauge their confidence by the emotional state they experience as they contemplate an action.

Efficacy-Activated Processes

A. Cognitive Processes

The effects of self-efficacy beliefs on cognitive processes take a variety of forms. Much human behavior, being purposive, is regulated by forethought embodying valued goals. Personal goal setting is influenced by self-appraisal of capabilities. The stronger the perceived self-efficacy, the higher the goal challenges people set for themselves and the firmer is their commitment to them.

Most courses of action are initially organized in thought. People's beliefs in their efficacy shape the types of anticipatory scenarios they construct and rehearse. Those who have a high sense of efficacy, visualize success scenarios that provide positive guides and supports for performance. Those who doubt their efficacy, visualize failure scenarios and dwell on the many things that can go wrong. It is difficult to achieve much while fighting self-doubt. A major function of thought is to enable people to predict events and to develop ways to control those that affect their lives. Such skills require effective cognitive processing of information that contains many ambiguities and uncertainties. In learning predictive and regulative rules people must draw on their knowledge to construct options, to weight and integrate predictive factors, to test and revise their judgments against the immediate and distal results of their actions, and to remember which factors they had tested and how well they had worked.

It requires a strong sense of efficacy to remain task oriented in the face of pressing situational demands, failures and setbacks that have significant repercussions. Indeed, when people are faced with the tasks of managing difficult environmental demands under taxing circumstances, those who are beset by self-doubts about their efficacy become more and more erratic in their analytic thinking, lower their aspirations and the quality of their performance deteriorates. In contrast, those who maintain a resilient sense of efficacy set themselves challenging goals and use good analytic thinking which pays off in performance accomplishments.

B. Motivational Processes

Self-beliefs of efficacy play a key role in the self-regulation of motivation. Most human motivation is cognitively generated. People motivate themselves and guide their actions anticipatorily by the exercise of forethought. They form beliefs about what they can do. They anticipate likely outcomes of prospective actions. They set goals for themselves and plan courses of action designed to realize valued futures.

There are three different forms of cognitive motivators around which different theories have been built. They include causal attributions, outcome expectancies, and cognized goals. The corresponding theories are attribution theory, expectancy-value theory and goal theory, respectively. Self-efficacy beliefs operate in each of these types of cognitive motivation. Self-efficacy beliefs influence causal attributions. People who regard themselves as highly efficacious attribute their failures to insufficient effort, those who regard themselves as inefficacious attribute their failures to low ability. Causal attributions affect motivation, performance and affective reactions mainly through beliefs of self-efficacy.

In expectancy-value theory, motivation is regulated by the expectation that a given course of behavior will produce certain outcomes and the value of those outcomes. But people act on their beliefs about what they can do, as well as on their beliefs about the likely outcomes of performance. The motivating influence of outcome expectancies is thus partly governed by self-beliefs of efficacy. There are countless attractive options people do not pursue because they judge they lack the

capabilities for them. The predictiveness of expectancy-value theory is enhanced by including the influence of perceived self- efficacy.

The capacity to exercise self-influence by goal challenges and evaluative reaction to one's own attainments provides a major cognitive mechanism of motivation. A large body of evidence shows that explicit, challenging goals enhance and sustain motivation. Goals operate largely through self-influence processes rather than regulate motivation and action directly. Motivation based on goal setting involves a cognitive comparison process. By making self-satisfaction conditional on matching adopted goals, people give direction to their behavior and create incentives to persist in their efforts until they fulfill their goals. They seek self-satisfaction from fulfilling valued goals and are prompted to intensify their efforts by discontent with substandard performances.

Motivation based on goals or personal standards is governed by three types of self influences. They include self-satisfying and self-dissatisfying reactions to one's performance, perceived self-efficacy for goal attainment, and readjustment of personal goals based on one's progress. Self-efficacy beliefs contribute to motivation in several ways: They determine the goals people set for themselves; how much effort they expend; how long they persevere in the face of difficulties; and their resilience to failures. When faced with obstacles and failures people who harbor self-doubts about their capabilities slacken their efforts or give up quickly. Those who have a strong belief in their capabilities exert greater effort when they fail to master the challenge. Strong perseverance contributes to performance accomplishments.

C. Affective Processes

People's beliefs in their coping capabilities affect how much stress and depression they experience in threatening or difficult situations, as well as their level of motivation. Perceived self-efficacy to exercise control over stressors plays a central role in anxiety arousal. People who believe they can exercise control over threats do not conjure up disturbing thought patterns. But those who believe they cannot manage threats experience high anxiety arousal. They dwell on their coping deficiencies. They view many aspects of their environment as fraught with danger. They magnify the

severity of possible threats and worry about things that rarely happen. Through such inefficacious thinking they distress themselves and impair their level of functioning. Perceived coping self-efficacy regulates avoidance behavior as well as anxiety arousal. The stronger the sense of self-efficacy the bolder people are in taking on taxing and threatening activities.

Anxiety arousal is affected not only by perceived coping efficacy but by perceived efficacy to control disturbing thoughts. The exercise of control over one's own consciousness is summed up well in the proverb: "You cannot prevent the birds of worry and care from flying over your head. But you can stop them from building a nest in your head." Perceived self-efficacy to control thought processes is a key factor in regulating thought produced stress and depression. It is not the sheer frequency of disturbing thoughts but the perceived inability to turn them off that is the major source of distress. Both perceived coping self-efficacy and thought control efficacy operate jointly to reduce anxiety and avoidant behavior.

Social cognitive theory prescribes mastery experiences as the principal means of personality change. Guided mastery is a powerful vehicle for instilling a robust sense of coping efficacy in people whose functioning is seriously impaired by intense apprehension and phobic self-protective reactions. Mastery experiences are structured in ways to build coping skills and instill beliefs that one can exercise control over potential threats. Intractable phobics, of course, are not about to do what they dread. One must, therefore, create an environment so that incapacitated phobics can perform successfully despite themselves. This is achieved by enlisting a variety of performance mastery aids. Feared activities are first modeled to show people how to cope with threats and to disconfirm their worst fears. Coping tasks are broken down into subtasks of easily mastered steps. Performing feared activities together with the therapist further enables phobics to do things they would resist doing by themselves. Another way of overcoming resistance is to use graduated time. Phobics will refuse threatening tasks if they will have to endure stress for a long time. But they will risk them for a short period. As their coping efficacy increases the time they perform the activity is extended. Protective aids and dosing the severity of threats also help to restore and develop a sense of coping efficacy.

After functioning is fully restored, the mastery aids are withdrawn to verify that coping successes stem from personal efficacy rather than from mastery aids. Self-directed mastery experiences, designed to provide varied confirmatory tests of coping capabilities, are then arranged to strengthen and generalize the sense of coping efficacy. Once people develop a resilient sense of efficacy they can withstand difficulties and adversities without adverse effects.

Guided mastery treatment achieves widespread psychological changes in a relatively short time. It eliminates phobic behavior and anxiety and biological stress reactions, creates positive attitudes and eradicates phobic ruminations and nightmares. Evidence that achievement of coping efficacy profoundly affects dream activity is a particularly striking generalized impact.

A low sense of efficacy to exercise control produces depression as well as anxiety. It does so in several different ways. One route to depression is through unfulfilled aspiration. People who impose on themselves standards of self-worth they judge they cannot attain drive themselves to bouts of depression. A second efficacy route to depression is through a low sense of social efficacy. People who judge themselves to be socially efficacious seek out and cultivate social relationships that provide models on how to manage difficult situations, cushion the adverse effects of chronic stressors and bring satisfaction to people's lives. Perceived social inefficacy to develop satisfying and supportive relationships increases vulnerability to depression through social isolation. Much human depression is cognitively generated by dejecting ruminative thought. A low sense of efficacy to exercise control over ruminative thought also contributes to the occurrence, duration and recurrence of depressive episodes.

Other efficacy-activated processes in the affective domain concern the impact of perceived coping self-efficacy on biological systems that affect health functioning. Stress has been implicated as an important contributing factor to many physical dysfunctions. Controllability appears to be a key organizing principle regarding the nature of these stress effects. It is not stressful life conditions per se, but the perceived inability to manage them that is debilitating. Thus, exposure to stressors with ability to control them has no adverse biological effects. But exposure to the same stressors without the ability to control them impairs the immune system. The

impairment of immune function increases susceptibility to infection, contributes to the development of physical disorders and accelerates the progression of disease.

Biological systems are highly interdependent. A weak sense of efficacy to exercise control over stressors activates autonomic reactions, catecholamine secretion and release of endogenous opioids. These biological systems are involved in the regulation of the immune system. Stress activated in the process of acquiring coping capabilities may have different effects than stress experienced in aversive situations with no prospect in sight of ever gaining any self-protective efficacy. There are substantial evolutionary benefits to experiencing enhanced immune function during development of coping capabilities vital for effective adaptation. It would not be evolutionarily advantageous if acute stressors invariably impaired immune function, because of their prevalence in everyday life. If this were the case, people would experience high vulnerability to infective agents that would quickly do them in. There is some evidence that providing people with effective means for managing stressors may have a positive effect on immune function. Moreover, stress aroused while gaining coping mastery over stressors can enhance different components of the immune system.

There are other ways in which perceived self-efficacy serves to promote health. Lifestyle habits can enhance or impair health. This enables people to exert behavioral influence over their vitality and quality of health. Perceived self-efficacy affects every phase of personal change--whether people even consider changing their health habits; whether they enlist the motivation and perseverance needed to succeed should they choose to do so; and how well they maintain the habit changes they have achieved. The stronger the perceived self-regulatory efficacy the more successful people are in reducing health-impairing habits and adopting and integrating health-promoting habits into their regular lifestyle. Comprehensive community programs designed to prevent cardiovascular disease by altering risk-related habits reduce the rate of morbidity and mortality.

D. Selection Processes

The discussion so far has centered on efficacy-activated processes that enable people to create beneficial environments and to exercise some control over

those they encounter day in and day out. People are partly the product of their environment. Therefore, beliefs of personal efficacy can shape the course lives take by influencing they types of activities and environments people choose. People avoid activities and situations they believe exceed their coping capabilities. But they readily undertake challenging activities and select situations they judge themselves capable of handling. By the choices they make, people cultivate different competencies, interests and social networks that determine life courses. Any factor that influences choice behavior can profoundly affect the direction of personal development. This is because the social influences operating in selected environments continue to promote certain competencies, values, and interests long after the efficacy decisional determinant has rendered its inaugurating effect.

Career choice and development is but one example of the power of self-efficacy beliefs to affect the course of life paths through choice-related processes. The higher the level of people's perceived self-efficacy the wider the range of career options they seriously consider, the greater their interest in them, and the better they prepare themselves educationally for the occupational pursuits they choose and the greater is their success. Occupations structure a good part of people's lives and provide them with a major source of personal growth.

In summary, the principle of self-efficacy theory has derived from social learning. If a person is in the condition that being ready for acting appropriately and having full encouragement to act. Self-efficacy is the key factor for predicting or determining that person will change behaviors and complying with the suggestions continuously. For this research project, in order to help patients with urinary stones learned about appropriate dietary and water intake, the researcher has applied self-efficacy theory to plan a health education program for developing self-efficacy beliefs among urinary stone patients in practicing appropriate behaviors through 3 practices as follows : performance accomplishment from their own direct experiences, observing the outcomes form daily life practices; vicarious experience from the practices of the role models; and verbal persuasion through group dialogue, warning, encouragement, explaining the beneficial outcomes from the actin.

2.2 Health Education Methodology for Adults

Because the sampled group of this research project are adults therefore, groups discussion has been used for this study, as follows:

Concept of Group Discussion

Suree Chanthalamolee (2000 : 78-79) indicates that group discussion or group muting is the method that provides opportunity for the group members exchange knowledge, opinions, and experiences through verbal communication. It also provides opportunity for the group members to : express their feeling about the issues discussed both for the concrete and abstract issues; seek the facts; interpret the meaning of the facts; analyze self understanding; and accept others' opinion. Group discussion is not only talking nor reporting any issue to the group. Decision making of the group should not be done by majority but it must be done through reasoning, facts, correctness and appropriateness. The group members are free to present their ideas as well as cooperation in seeking the means to the problems encountered rather than presenting only the facts.

Group discussion method used in health education was found to effective and popular. It can be used with every level of the target group as regards to education, age, occupation, and profession. Group discussion helps group member exercised critical thinking of every aspect of the issues discussed in order to apply to their daily life appropriately. The group has influence upon the health behavioral changes, decision making, acceptance, and voluntary which lead to sustainable changes of health behaviors. The problem solving by group is likely to be more effective than by individual.

Disseminating knowledge / information by using group process is usually made by group discussion which will e useful for enhancing knowledge, understanding, attitudes, and opinions in order to fulfill the objectives set. Group discussion will provide opportunity for the group members to exchange opinions, experience, knowledge, feeling, and emotion including practicing human relation activities with other persons. Besides, group discussion also help group members solve problems together, know others' opinions, including others' feeling and

emotion regarding acceptance of participation and storming and putting opinions into action. Therefore, group discussion is the activity that helps create positive changes among group members, promote the group members to change their lifestyles and beliefs in the correct direction.

Learning Through Group Process

Learning through group process is the participatory learning based on the principle that the learners actively involve in learning process which makes the learning be joyful, stimulated, and active not passive. The learning occurred will be the meaningful experience for the learners. Being involved in the activity; learning as one member of the group; having an opportunity to act and to express their opinions; and having feelings and mutual emotion will create interaction and making the learning expended and effective in order to apply for their daily living.

Methods for Changing Group's Behaviors

1. **Media of change.** It refers to the state that the group is the important media influencing group members and enable members to change their behaviors.
2. **Target of change.** Even though the goal of using group process is to change behaviors of the group members but its real goal is to change behaviors of all members of the group.
3. **Agent of Change.** Many types of behaviors of people can be changed unless the involvement of the members in the change process

Form the aforementioned reasons, the researcher has applied the principle of group activities for organizing a program for the patients with urinary stones. Group activities were organized and including the provision of opportunity for the members to participate in group activities. Self-efficacy theory has also been applied with the aim to help the patients think critically. The group influence will be helpful for the patients with urinary stones change their behaviors regarding dietary and water intake

Past 3 Related Researches

3.1 Researches Related to Urinary Stone

Chainarong Buratana (1996 : Abstract) studied the risk factors of renal stone in Ubolrachathani Province by interviewing 320 patients. The risk factors found were heredity, Laosian Lineage, drinking well-water or underground water, drinking less than 1 litre of water per day; eating gluttonous rice regularly; and eating high-oxalate vegetables regularly for a long period of time. These vegetables were Krathin; Tiew; Meg; Cha-om; Marum: spinach : Baichaplu bamboo shoot; sien; wan; Hope ; Eerog; Linphaa; Phak Wan, Dogkrajiew, Dogkae; Phak Kheeleg; Sadoa; and Phak Echeen. (These names are the local names).

Sudjai Jaipakee (2001: Abstract) studied the effect of the supplementary potassium and magnesium on the function of the enzyme sodium potassium ATP ase in red blood cells and the components of the patients' urine by comparing the effects of different supplements of potassium and magnesium for the patients with urinary stones. The different supplements were as follows: group 1 (n = 15) supplemented by KCT; group 2 (N = 16) supplemented by Nak-citrate; group 3 (N = 14) supplemented by Mg glycine and group 4 (m = 15) supplemented by KMg-citrate. The results of the experimentation showed that : urinary pH was significantly increased after the use of supplemts of Nak-citrate and KMg-citrate; the amount of potassium in urine increased significantly after supplementing KC1, NaK-citrate and KMg-citrate; the amount of magnesium in urine increased significantly after supplementing Mg glycine and KMg-citrate; the amount of calcium in urine decreased significantly after supplementing NaK-citrate and KMg-citrate; the density value of citrate in urine increased significantly after supplementing NaK-citrate and KMg-citrate; potassium value in red blood cells increased significantly after implementing NaK-citrate, Mg glycine and KMg-citrate; magnesium value in red blood cells increased significantly after supplementing Mg glycine and KMg-citrate; sodium value in red blood cells decreased significantly after supplementing KMg-citrate and increased significantly after supplementing Mg glycine; and the function of enzymn Na-K ATPase increased significantly after supplementing KCI, NaK-citrate and KMg-citrate. It was also

found that the saturation of calcium phosphate in urine increased significantly after implementing NaK-citrate and KMg-citrate but decreased significantly after supplementing after supplementing KCI. The results of the supplementing of KMg-citrate can prevent the deficiency potassium and magnesium and the condition of low quantity of citrate in urine including lowering the quantity of calcium excretion in urine. But KCI could not prevent the deficiency of magnesium and the condition of low level of citrate in urine; Mg glycine could not prevent the deficiency of potassium and the condition of low level of citrate in urine, Nak-citrate could not prevent the deficiency of magnesium. The results of this study showed that KMg-citrate is the most appropriate compound that can be supplemented for controlling composition of renal stones of the people in rural areas in northeastern part of Thailand because these people have potassium and magnesium deficiency and the condition of low citrate in urine which are the risk factors of the composition of renal stone.

The study carried out by Montira. Marukkatul and Choosakdi Paripattananont (2001 : Abstract) regarding the relationship between levels of calcium and uric acid in uric and blood of the patients with variety of stones and the factors in blood and urine that may affect the composition of stones, for example, levels of calcium, phosphate, and uric acid in blood, urine pH, and level of calcium, uric acid and citrate in urine. The samples were composed of 101 patients with calcium oxalate – stones, calcium phosphate – stones, and uric acid – stones who attended Songkhlanakarints Hospital during December 1995 to May 1998. The results of the study were :

1. There was no relationship between the levels of calcium in blood and urine of the three groups of patients and the same result was found with the level of uric acid.

2. There was a statistical significantly relationship between the levels of uric acid of the calcium-stone patients (calcium oxalate and calcium phosphate) and uric acid-stone patients.

3. There was a statistical significantly relationship between the levels of calcium of the calcium oxalate stone patients and uric-stone patients.

Nomura K, Ito H, et al.(1995 : Abstract) studied to reduce the recurrence rate of or urolithiasis, dietary counseling was conducted for calcium - stone patients. Sixty-six patients received dietary counseling and were in principle instructed to use the Recommended Dietary Allowance for Japanese as their goal. Seventy-three patients did not undergo the counseling. Comparison of the dietary intake of the patients with the dietary requirements for Japanese revealed that protein intake, especially animal protein intake,was higher and calcium intake lower in the patients.As a result of the counseling, intakes of total protein, animal protein, fat, and carbohydrates were all reduced. Patients in the stone recurrence-free group excreted less oxalate than those in the recurrent one. The excretion of oxalate was then reduced and urine volume increased owing to the diet counseling program. The stone recurrence rate of the group participating in the diet counseling was lower than that of the group not taking part. The recurrence rate of the hyperoxaluric group was higher, with statistical significance, than that of the normooxaluric group among those not receiving the dietary counseling. With dietary counseling, the recurrence rate significantly decreased in the hyperoxaluric patients. Thus, the reduction in the rate of stone recurrence resulting from participation in the diet counseling program seemed to be attributable to the decrease in urinary oxalate excretion. Dietary counseling seems to be a useful measure to prevent urinary stone recurrence.

Kato T, **Yanagawa M, et al.** (1993 : Abstract) studied the dietary habits of 113 upper urinary tract stone formers and 24-h urine specimens before and after dietary control. Protein intake was decreased in male patients after dietary control but urinary risk factors were not changed significantly. The excretion of urinary risk factors (calcium, uric acid and oxalate) was decreased in the patients who had calcium excretion of more than 250 mg per day or uric acid excretion more than 650 mg per day or oxalate excretion more than 45 mg per day before the control. The daily protein intake was significantly correlated to urinary uric acid, calcium, and phosphate excretion and the daily vitamin C intake to urinary citrate excretion. There was a negative correlation between the daily calcium intake and urinary oxalate. The mean stone episode rate of these patients was significantly decreased from 0.174 to 0.059 stones per year by dietary control ($p < 0.005$).

Murayama T, **Taguchi H. (1988** : Abstract **)** studied correlation of the composition of the urinary calculi with urine pH, especially of diurnal variation, and composition of urinary excretion was studied. Urine pH in the patients with uric acid stones was constantly low and urinary pH in the patients with apatite and struvite stones was always high. Diurnal variation was not observed. In patients with pure calcium oxalate stones, however, urinary pH was low in the early morning, increased during the daytime, and was lowered at night. In the patients with mixed calcium oxalate-phosphate stones, a similar diurnal variation in urinary pH was found, but the urinary pH in the early morning was significantly higher in the patients with mixed calcium oxalate-phosphate stones than in those with pure calcium oxalate stones. Urinary tract infection did not influence these differences in urinary pH. Urinary excretion of calcium in the patients with mixed calcium oxalate-phosphate stones was significantly higher than that in those with pure calcium oxalate stones. No other correlations were observed between composition of the urinary calculi and urinary excretion of calcium, oxalate, uric acid, phosphate or magnesium. From these findings we conclude that urinary pH and urinary calcium are the most important factors determining the composition of the urinary calculi.

Straub, Michael; Hautmann, Richard E (2005: Abstract). Purpose of review focuses on new developments in stone prevention. This review presents the current knowledge of metabolic influences causing the symptom 'stone' and the effective measures against it. The result showed that modern lifestyle, dietary habits and obesity emerge to be the promoters of idiopathic stone disease. Cross-sectional studies showed significant correlations between these factors and kidney stones with direct implications on our preventive concepts: normalization of body mass index, adequate physical activity, balanced nutrition and sufficient circadian fluid intake. Modern diets containing a lot of animal protein, refined carbohydrates and salt act on the metabolism like an acid load. To overcome these disadvantageous effects, a sufficient supply of potassium and alkali is required. Last but not least, calcium should not be restricted. There is clear evidence from clinical and experimental research that a normal or a high calcium supply is appropriate in calcium stone disease.Only in absorptive hypercalciuria calcium restriction remains beneficial in combination with thiazide and citrate therapy. Up to 85% of all stone patients

could anticipate lower risk of stone recurrence with elementary reorientation of their lifestyle and dietary habits. Normalizing the major risk factors is easy and cheap. About 15% of patients forming stones require additional specific pharmacological prevention. The specific measures to avoid recurrence of the stone disease are precisely defined.

3.3 Researches Related to Self-Efficacy Theory

There was no research that directly related to the application of self-efficacy theory with urinary stone patients, but there are some researches that applied self-efficacy theory with the other age groups of adults and elderly who got other health problems, as follows:

Saijai Chaisong-Kram (2002 : Abstract) studied the effectiveness of health promotion program applying self-efficacy theory on the changes of dietary, exercise, and stress management behaviors of 60-years-old and higher group. The experimental group received a health promotion program which was composed of group discussion, skills, practices, demonstration, presenting of role-models, and showing video tape, with the aims to have the elderly group changed their behaviors regarding dietary intake, exercise and stress management. The study was last for 12 weeks. The results of the research showed that after the experimentation the experimental group gained better knowledge significantly comparing with before the experimentation. Their perceived self-efficacy and outcome expectation, behaviors regarding dietary intake, exercise, and stress management have been increased significantly comparing with before the experimentation.

Chutlwan Purintarapibal (1998 : Abstract) studied the effectiveness of a health education program for promoting dietary behavior of the elderly by applying self-efficacy theory. The sample was composed of the elderly who were the members of the Elderly Club of Patumthanee Province. The selection of the sample group was done by simple random sampling, accordingly with the criteria set. Thirty six and 32 old age persons were put in the experimental and the comparison group respectively. The experimental group received the health education program planned and data were collected by :- measuring body weight and height in order to assess body mass index;

measuring blood cholesterol; and interviewing by using the interviewing schedule, before and after the experimentation. The results of the study showed that after receiving the health education program, significant positive changes of behaviors were found among the experimental group as regards to knowledge, perceived self-efficacy, perceived outcome expectation and dietary intake, comparing with before the experimentation and the comparison group. It was also found that perceived self-efficacy and outcome expectation significantly related to dietary behavior and the proportion of the decreased body mass index among the experimental group was significant higher that of the comparison group.

Noparatana Jareonkij (1999 : Abstract) studied the effect of dietary behavior, perceived self-efficacy, outcome expectation and prediction power of perceived self-efficacy, outcome expectation and personal factor, on dietary behavior of 160 older persons with non-essential hypertension who were 60 years old and higher, at Bangpae Hospital, Jombueng Hospital, Jedsamien Hospital and Wadpleng Hospital. The data were collected by interviewing and the research instrument were : Personal Data Record Form, interviewing schedule regarding perceived self-efficacy, outcome expectation and dietary behaviors. It was found that perceived self-efficacy, educational level, illness duration, and outcome expectation could predict dietary behavior 31.8%

Jarunee Nantavanotayan (1996:81-84) studied an application of the Self – Efficacy Theory to relieve pain among patients with osteoarthritis of the knees. The study group consisted of patients with osteoarthritis of the knees attending their first visit at the osthopedics clinic of Ramathibodi Hospital. These were divided into an experimental group (36) who received the health education program applying the Self – Efficacy Theory and the control group (36) who did not. The result showed that after participation in the health education program, the experimental group had more significantly changed in efficacy expectation, outcome expectation and practice in the avoidance of knee joint problems than before the experiment and than the control group ($p<0.05$).

From the aforementioned review it was found that no previous studies about urinary stone have applied self-efficacy theory. From one characteristic of this theory which indicated that high level of perceived self-efficacy can predict the

desirable outcomes and can affect on practices or intention to practice or behavioral changes, the researcher was interested in studying the behavioral changes of urinary stone patients by organizing a health education program regarding the control of dietary and water intake behaviors which require the ability of the patients them selves. Therefore, the patients should have knowledge about urinary stone, and have perceived self-efficacy and outcome expectation in order to be able to control their dietary habits and water intake for preventing urinary stone. The health education program consisted of performance accomplishment from direct experiences, vicarious experience form the role-models and verbal persuasion through : group's dialogue; warning; explanation; encouragement; interpretation of the outcomes and the benefits gained from practices; and suggestions for solving the problems and obstacles encountered. See Figure 3.

Conceptual Framework

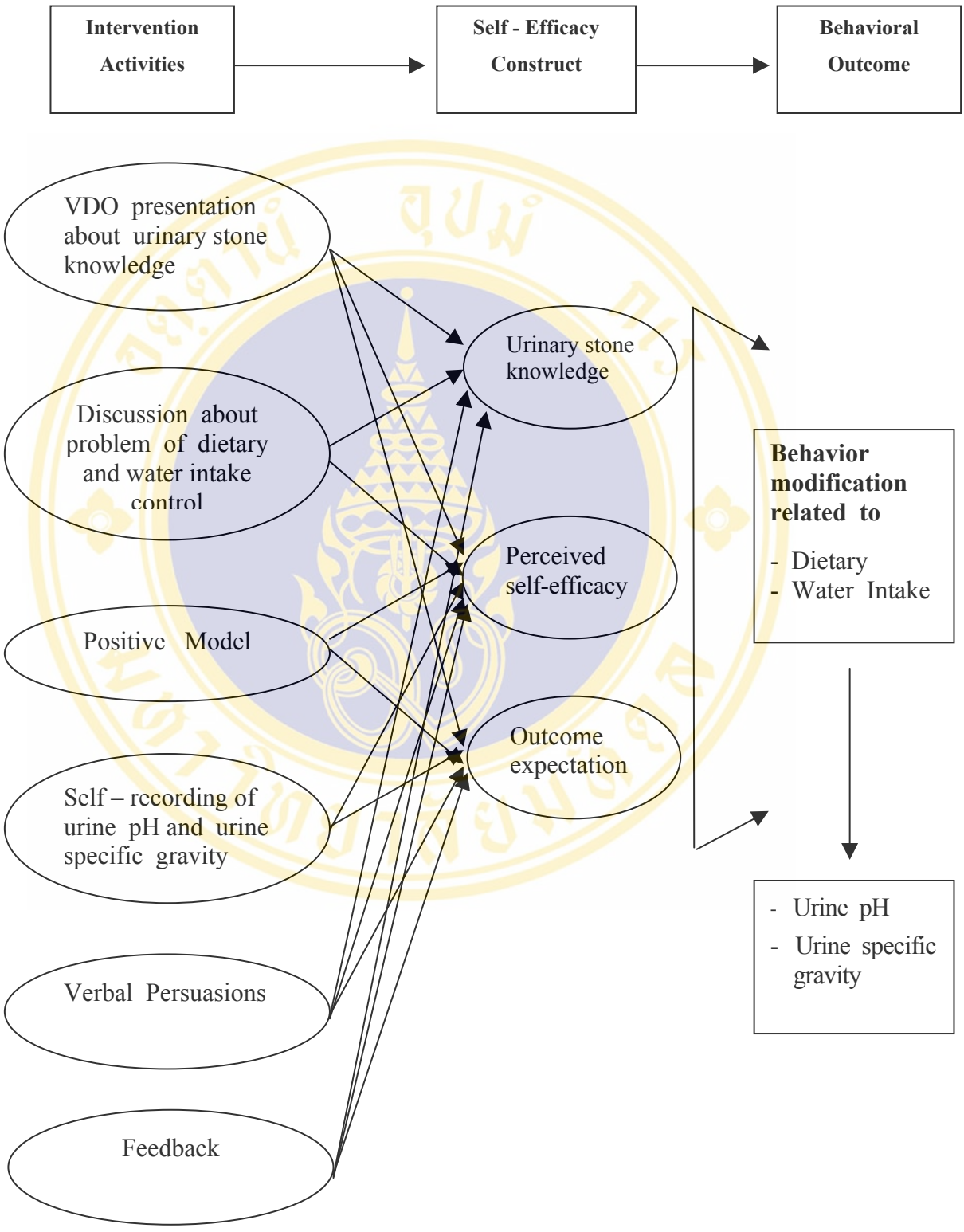

Figure 3 Conceptual Framework

CHAPTER 3
MATERIALS AND METHOD

The purpose of this research was to evaluate the effectiveness of the health education program, which applied self–efficacy theory to change behaviors regarding dietary and water intake control among urinary stone patients at Ratchaburi Hospital. The steps to conduct the research are as follows :

1. Research Design
2. Population and Sample
3. Research Instruments
4. Research Procedure
5. Data Analysis

1. Research Design

This project was a quasi – experimental research , with pretest – posttest two-group design. The urinary stone patients were divided into the experimental group and the comparison group , each group consisted of 30 persons. The experimental group received a health education program organized by the researcher and the comparison group received regular education program from the hospital. The data were collected before and after the intervention of both groups (Two Group Pretest – Posttest Design), the project was last for 4 weeks for each group. The research design was shown as follows :

Experimental group O_1 ----------X---------- O_2

Comparison group O_3 ---------- O_4

Figure 4 Research design

O_1, O_3 refer to data collection before the experimentation

O_2, O_4 refer to data collection after the experimentation

X refers to the health promotion program

Experimental design (Pretest – Posttest Two – Group Design)

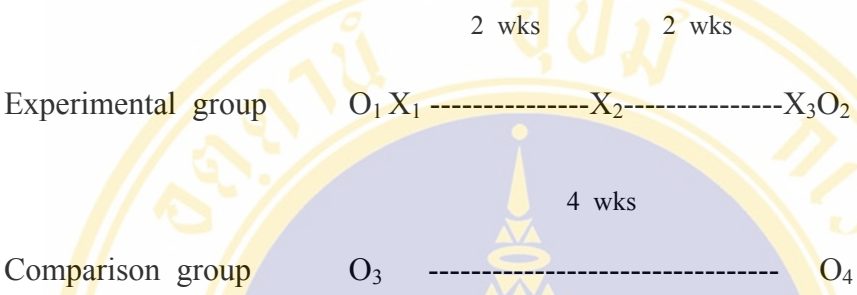

Figure 5 Experimental design

O_1, O_3 refer to data collection before the experimentation by interviewing both the experimental and the comparison groups about socio–demographic characteristics, urinary stone knowledge, perceived self–efficacy, outcome expectation, dietary and water intake control and measuring urine pH and urine specific gravity.

O_2, O_4 refer to data collection at the end of the health education program by interviewing both the experimental and the comparison group about socio – demographic characteristics , urinary stone knowledge , perceived self – efficacy, outcome expectation, dietary and water intake control and measuring urine pH and urine specific gravity.

X_1 refers to the first health education program providing urinary stone knowledge , perceived self – efficacy, outcome expectation of dietary and water intake control. The activities in small groups (3 – 5 persons) were composed of video lesson, positive role-model, group discussion, practice and recording the result of testing urine at home.

X_2 refers to the second health education program implemented 2 weeks after the patients received X_1 , using group discussion about experience of dietary and water intake control, problems encountered with practices, analysis

of the urine pH and urine specific gravity values measured at home. The aim was to motivate perceived self–efficacy, outcome expectation, encouragement and reinforcement for the success of dietary and water intake control.

X_3 refers to the third health education program implemented 2 weeks after the patients received X_2 , using group discussion about experience of dietary and water intake control, problems encountered with practices, analysis of the urine pH and urine specific gravity values measured at home. The aim was to motivated perceived self – efficacy, outcome expectation, encouragement and reinforcement for the success of dietary and water intake control.

2. Population and Samples

Population of this research were the urinary stone patients who attended at the Urinary Stone Clinic in Ratchaburi Hospital , during March to June, 2005.

The samples of this research were 60 urinary stone patients who attended in the Urinary Stone Clinic at the Outpatients Department of Ratchaburi Hospital. During March to July, 2005. The samples were selected by using the following criteria :

1. The patients both males and females who received urinary stone diagnosis from the doctor.
2. Who did not have severe complication.
3. Who did not have urinary tract infection.
4. Who did not take medicine that affects urine pH and urine specific gravity.
5. Who have willing to participate in all activities of the health education program by signing the consent form.

The first group, thirty urinary stone patients who met the inclusive criteria were assigned to be the comparison group. The data were collected before and after receiving the regular health education program from the hospital.Later, the seconed group of thirty urinary stone patients were set up and the data were collected before and after the intervention carried out by the researcher during March to July, 2005.

3. Research Instruments

The research instruments consisted of the instruments used for implementing the experimentation and those for data collection.

3.1 Data collection instruments

Data collection instruments (Interviewing schedule) consisted of 6 sections as follows :

Section 1 : Socio–demographic characteristics such as sex, age, education, occupation , income and history of recurrent stone.

Section 2 : Urinary stone knowledge. Eighteen questions were used for assessing urinary stone knowledge, with 3 choices : yes , no and don't know. A correct answer got 1 point (questions members 5 , 6 , 7 and 10 – 17) and zero (0) point for incorrect answer (questions members 1 , 2 , 3 , 4 , 8 , 9 and 18). The total score from 0 – 18 points and was divided into 3 levels as follows:

Below 60 % of the total score (0 – 10.7 points) refers to the low level of urinary stone knowledge.

60 – 79 % of the total score (10.8 – 14.3 points) refers to the moderate level of urinary stone knowledge.

Above 80 % of the total score (14.4 – 18.0 points) refers to the high level of urinary stone knowledge.

Section 3 : Perceived self – efficacy. Twelve items were used for measuring perceived self – efficacy about dietary and water intake control, by applying Likert's 5 point-rating scale construction method. All of the items used were positive. The scoring system was as follows :

Scale	Score
Can definitely do	5
Can do mostly	4
Can do partly	3
Not sure	2
Can not do	1

The total score ranged from 12 – 60 points and was divided into 3 levels as follows:

Below 60 % of the total score (0 – 35 points) refers to the low level of perceived self – efficacy.

60 – 79 % of the total score (36 – 47 points) refers to the moderate level of perceived self – efficacy.

Above 80 % of the total score (48 – 60 points) refers to the high level of perceived self – efficacy.

Section 4 : Outcome expectation. Twelve items were used for measuring outcome expectation about dietary and water intake control, by applying Likert's 5 point-rating scale construction method. All of the items used were positive. The scoring system was as follows :

Scale	**Score**
Strongly agree	5
Agree	4
Not sure	3
Disagree	2
Strongly disagree	1

The total score ranged from 12–60 points and was divided into 3 levels as follows:

Below 60 % of the total score (0 – 35 points) refers to the low level of outcome expectation.

60 – 79 % of the total score (36 – 47 points) refers to the moderate level of outcome expectation.

Above 80 % of the total score (48 – 60 points) refers to the high level of outcome expectation.

Section 5 : Dietary and water intake control. Twelve items were used for measuring dietary and water intake control. The patients were asked to answer their actual behavior performed during the past 1 week as related to quantity and frequency of the performance. Totally 12 items were used, with 2 choice:

"Should do" and "Should not do". The items that " Should do" everyday per week were the items 10, 11 and 12 and the items that "Should not do" everyday per week were the items 1 – 9.

Frequency		Score of "Should do" choice	Score of "Should not do" choice
Sometime	(0-3 time/week)	1	3
Usually	(4-5 time/week)	2	2
Regular	(6-7 time/week)	3	1

The total score ranged from 0 – 36 points and was divided into 3 levels as follows:

Below 60 % of the total score (0 – 21.5 points) refers to the low level of dietary and water intake control.

60 – 79 % of the total score (21.6 – 28.7 points) refers to the moderate level of dietary and water intake control.

Above 80 % of the total score (28.8 – 36.0 points) refers to the high level of dietary and water intake control.

Section 6 : Record Form of testing urine pH and urine specific gravity levels. The scoring system of the score measured before and after the experimentation was as follow :

The better urine pH refers to the positive change of urine pH level measured at the end of the intervention comparing with the level measured before the intervention as follow :

Before experimentation	After experimentation
Acid	normal
Alkaline	normal
Normal	normal

The better urine specific gravity refers to the positive change of urine specific gravity level measured at the end of the intervention comparing with the level measured before the intervention as follow :

Before experimental	After experimental
Concentrated	Diluted
Diluted	Diluted

Construction of the instruments

The instruments were constructed by these the steps as follows :

1. Studied theories, concepts, related researches and other related documents.

2. Identified the scope and structure of the contents, set the items and scoring criteria of the interviewing schedule.

3. Content validity of the drafted interviewing schedule was checked by the thesis committee members and the experts : 1 Urologist , 1 nursing instructor, and 2 faculty members of the Health Education, Mahidol University, including the checking for correctness, language used, and the coverage of the behaviors that attempted to measure. Revision of the interviewing schedule was made before having the schedule tested.

4. Tried out the interviewing schedule with 30 urinary stone patients who were similar to the selected sample at Nakornpathom Hospital. Reliability analysis was done of the sections on urinary stone knowledge, perceived self – efficacy and outcome expectation by using Cronbach's Alpha Coefficient. The results were analyzed as follows :

Reliability of "Urinary stone knowledge" part was 0.78 and all 18 items were used in the final form.

Reliability of "Perceive self – efficacy" part was 0.83 and 12 items from 13 items used.

Reliability of "Outcome expectation" part was 0.83 and all 13 items were used.

3.2 Instruments for Implementing the Experimental

Health education program. The curriculum contents were structured to urinary stone knowledge which aimed to encourage patients to change behaviors in dietary and water intake control. This program was undertaken with the following instruments :

3.2.1 Lesson Plan. (See Appendix)

3.2.2 Ten – minute Videotape :

3.2.2.1 Part I: The contents of this part concerned with information about urinary stone , causes , signs and symptoms , severity of the disease and its complications , risk factors , suggestion for practices , preventing recurrent urinary stone and advice on dietary and water intake.. These videotape was developed created by the researcher after reviewing theories, concepts, researches and other related documents. And the urologist and experts have reviewed and made suggestion.

3.2.2.2 Part II : Presenting the symbolic model (positive model) to share experiences and proper practices including how to control dietary and water intake.

3.2.3 Self – Care Manual for patients. This Manual was developed by the researcher and was check for the correction of the contents by the urologist.

3.2.4 Record Form of urine pH and urine specific gravity values. The measurement was made the patients at home and have them recorded in the form developed by the researcher by checking " X " in the column that indicated the same value got.

4. Research Procedure

4.1 Preparatory Phase

1. Coordinating with the Director of Ratchaburi Hospital and related chiefs of other divisions to ask for their corporation in conducting the research.

2. Preparing the research materials such as videotape, manual, and documents.

4.2 Implementation Phase

Comparison group

1. The urinary stone patients in the comparison group were interviewed by using the interviewing schedule and their urine pH and urine specific gravity values were recorded.

2. The urinary stone patients in the comparison group received regular health education program from the hospital personnel and the second appointment for the next 4 weeks was made.

3. During the second visit the urinary stone patients in the comparison group were interviewed again and their urine pH and urine specific gravity values were recorded again

After the data of the pre- and post- intervention were collected from all 30 patients of the comparison group, then, the patients were selected for the experimental group.

Experimental group

The total of 4 weeks were used for the experimentation.

Before the Experimenation

The first health education activity

1. The urinary stone patients were selected accordingly with the criteria set and assigned in the experimental group.

2. The researcher explained the objective of the program and researcher procedures.

3. Pre-and Post-experimentation data were collected from the experimental group by using the interviewing schedule developed by the researcher including measuring and recording the patients' urine pH and urine specific gravity values.

4. Organizing health education activities as planned, with 3 – 5 patients each. The detailed activities are presented as follows :

Activity I :

Week 1

The objective of this activity was to enhance patients knowledge about urinary stones and practices, perceived self–efficacy , outcome expectation, and practices to control dietary and water intake. This session was last for 1 hour, as the following details :

1. Video presentation regarding urinary stone knowledge , dietary and water intake control (Part I).

2. Video presentation regarding positive role-model who presented experiences relating to the illness, signs and symptoms, practices for dietary and water intake control, with the aim to help the patients perceived their own self- efficacy and outcome expectation from dietary and water intake control behaviors.

3. Exchanging opinions and discussing about practices for dietary and water intake control, problems and obstacles encountered, and methods for solving those problem by organizing a group discussion.

4. Distribution of " self – Care Manual " and " Record Form " of the results of the urine test.

5. The researcher explained the procedure for urine testing that the patients can do it at home by using the urine test strip. The patients were asked to observe their urine pH and urine specific gravity values by using their single morning specimen for 14 days (2 weeks). The patients have practiced urine testing by using urine testing strip under the supervision of the researcher including the procedure for recording the result of the urine test.

6. The opportunity was open for the patients to ask questions and to summarize the key issues of the activities and set the appointment for the next 2 weeks.

Activity II :

Week 3

The objective of this activity was to enhance and motivate the urinary stone patients perceived self–efficacy in taking care of themselves as regards to control dietary and water intake and outcome expectation of dietary and water intake control including reinforcing and supporting the appropriate behaviors.

1. The researcher assessed the patients dietary habits and water drinking by interviewing and using the patients' self–recording forms. The researcher explained about the practices at home and the results of urine tests.

2. The results of the urine tests were analyzed and having the patients discussed their problems with other patients by using group process. The group members exchanged their opinions and provided support for the appropriate dietary behaviors without any blames of the incorrect behaviors but aiming at changing for desirable behaviors. The patients were suggested about how to select the foods and drink water correctly by having them selected and made decision by themselves. The patients set the goal together and revised the plans and their daily life activities is make them suitable for themselves.

3. The opportunity was open for the patients to ask questions , summarized the important contents, set the date of the next appointment for the next 2 weeks , and distributed the appointment card and the record form of urine test.

Activity III :

Week 5

The objective of this activity was to stimulate patients' perceived self–efficacy in taking care themselves in controlling dietary and drinking water , outcome expectation and intention of practice appropriate in regards to dietary and water intake in order to prevent urinary stones , including perceived benefits from dietary and water intake control and reinforcing and supporting the appropriate behaviors.

1. The researcher assessed the practices of the patients regarding dietary and water intake and the result of urine test made at home including solving the problems and obstacles encountered. Group discussion and assessment of the process have been also included.

2. The opportunity was open for the patients to ask questions.

3. The key issues were summarized.

4. The patients were asked to answer the interviewing schedule, developed by the researcher, as the second data collection after the experi- mentation.

5. Urine specimens were collocated and tested for urine pH and urine specific gravity, as the results measured after the experimentation.

5. Data Analysis

The computer program was used for data analysis and hypotheses were accepted by a statistic significant at p – value 0.05. The statistics were used for data analysis as follows :

1. Analysis of socio–demographic characteristics by using descriptive statistics regarding frequency, mean , percentage and standard deviation.

2. Comparison of the difference of socio – demographic characteristics between the experimental group and comparison group by using Chi–square test.

3. Comparison of the difference of mean scores within the experimental group and comparison group, before and after the experimentation, in relation to urinary stone knowledge, perceived self – efficacy, outcome expectation, dietary and water intake control by using Paired samples t – test.

4. Comparison of the difference of mean scores between the experimental group and comparison group, before and after the experimentation, in relation to urinary stone knowledge, perceived self – efficacy, outcome expectation, dietary and water intake control by using Independent samples t – test.

5. Comparison of the difference of urine pH and urine specific gravity values within the experimental and the comparison group, before and after the experimentation, by using Z – test.

CHAPTER 4
RESULTS

The purpose of this research was to evaluate the effectiveness of the health education program, which applied self – efficacy theory to change dietary and water intake control among urinary stone patients at Ratchaburi Hospital. Urinary stone patients were divided into the experimental group and comparison group, 30 patients each. The experimental group received health education program organized by the researcher. The comparison group received regular health education program of the urinary clinic. Data collection was carried out before and at the end of the program. The study was conducted during March to July 2005. The data were analyzed and presented into 5 parts as follow:

Part 1 : Socio–demographic characteristics of the urinary stone patients

Part 2 : The level of urinary stone knowledge, perceived self- efficacy, outcome expectation, dietary control of the sample group, before and after the experimentation

Part 3 : The comparison of the average mean scores of urinary stone knowledge, perceived self-efficacy, outcome expectation, and dietary and water intake control, within the experimental and the comparison groups, before and after the experimentation

Part 4 : The comparison of the average mean scores of urinary stone knowledge, perceived self-efficacy, outcome expectation, and dietary and water intake control, between the experimental group and the comparison group, before and after the experimentation

Part 5 : The comparison of urine pH and urine specific gravity values between the experimental group and the comparison group after the experimentation .

Part 1 : Socio – demographic characteristics of the urinary stone patients (See Table 1)

Sex. In the comparison group, there were males and females almost half where 63.3 percent were females. There was no significant difference between two groups (p = 0.297).

Age. The majority of the experimental and the comparison group aged " 40 – 60 years " (46.7 % and 50 % , respectively) , aged " higher than 60 years " (30 % and 26.7 % , respectively). In the experimental group, the highest age was 80 years , the lowest age was 19 years and the average age was 50.63 years. For the comparison group, the highest age was 81 years , the lowest age was 29 years and the average age was 50.50 years. There was no significant difference between two groups (p = 0.954).

Educational Level. Both the experimental and the comparison groups had the same educational level, primary education (70.0 % and 73.3 % , respectively) and secondary education (26.7 % and 23.3 %, respectively). There was no significant difference between two groups (p = 0.956).

Occupation. The majority of the experimental and the comparison group were agriculturist / traders / employees (66.7 %). There was no significant difference between two groups (p = 0.904).

Income. Most of the experimental group and the comparison group had the same income which was lower than 5,000 bath (63.3 % and 60.0 %, respective). The highest income in the experimental group was 16,000 bath and the average income of the experimental group was 6,129.67 baht. While the highest income in the comparison group was 50,000 bath and the average income of the comparison group was 7,408.33 baht. There was no significant difference between two groups (p = 0.743).

Stone Recurrence. About 53 percent of the experimental group had stone recurrence comparing with 40 percent of the comparison group. There was no significant difference between two groups (p = 0.301).

Table 1 Distribution of number and percentage of the experimental and the comparison groups by sex , age , educational level , occupation , income and stone recurrence

Socio – demographic characteristics	Experimental group		Comparison group		p
	n	%	n	%	
Sex					
Male	11	36.7	15	50.0	0.297
Female	19	63.3	15	50.0	
Total	30	100.0	30	100.0	
Age (years)					
Lower than 40	7	23.3	7	23.3	0.954
40 - 60	14	46.7	15	50.0	
Higher than 60	9	30.0	8	26.7	
Total	30	100.0	30	100.0	
Average age ± S.D.	50.63 ± 15.50		50.50 ± 14.94		
Max , Min	80 , 19		81 , 29		
Education level					
Primary Education	21	70.0	22	73.3	0.956
Secondary Education	8	26.7	7	23.3	
Bachelor Degree	1	3.3	1	3.3	
Total	30	100.0	30	100.0	
Occupation					
Housewife	5	16.7	4	23.3	0.904
Agriculturist / Trader / Employee	20	66.7	20	66.7	
Government / non-government	5	16.7	6	20.0	
Total	30	100.0	30	100.0	

Table 1 Distribution of number and percentage of the experimental and the comparison groups by sex , age , educational level , occupation , income and stone recurrence (Cont.)

Socio – demographic characteristics	Experimental group		Comparison group		p
	n	%	n	%	
Income (Baths)					
Lower than 5,000	19	63.3	18	60.0	0.743
5,001 – 10,000	8	26.7	7	23.3	
Higher than 10,001	3	10.0	5	16.7	
Total	30	100.0	30	100.0	
Average income ± S.D.	6,129.67 ± 4,037.79		7,408.33 ±.8,945.12		
Max , Min	16,000.00 , 2,000.00		50,000.00 , 2,000.00		
Stone Recurrence					
New Stone	14	46.7	18	60.0	.301
Recurrent Stone	16	53.3	12	40.0	
Total	30	100.0	30	100.0	

Part 2 : The level of urinary stone knowledge, perceived self- efficacy, outcome expectation, dietary and water intake control of the sample group, before and after the experimentation (See Table 2)

2.1 The level of urinary stone knowledge the experimental and the comparison groups, before and after the experimentation

Before the program, the majority of both groups had the low level of urinary stone knowledge, 63.3 % and 66.7 % , respectively.

After the program, it was found that all of the sample in the experimental group had an increased urinary stone knowledge to the moderate and high levels (53.4 % and 33.3 %, respectively) and the comparison group had the low and the moderate levels of knowledge (53.3 % and 40.0 % respectively).

2.2 The level of perceived self-efficacy of the experimental and the comparison group, before and after the experimentation

Before the experimentation, 56.7 percent and 63.3 percent of the experimental and the comparison group had the high level of perceived self-efficacy.

After the experimentation, 66.7 percent of the experimental group had an increased perceived self-efficacy in the high level. In comparison group, perceived self-efficacy had been decrease, 56.7 percent and 40.0 percent had the high and moderate levels respectively.

2.3 The level of outcome expectation of the experimental and the comparison groups, before and after the experimentation

Before the experimentation, the 53.4 percent of the experimental and 60.0 percent of the comparison groups had the moderate level of outcome expectation respectively.

After the experimentation, 73.3 percent of the experimental group had the high level of outcome expectation, comparing with 56.7 percent of the comparison group.

2.4 The level of dietary and water intake control of the experimental and the comparison groups, before and after the experimentation

Before the experimentation, 70.0 percent of the experimental group and 60.0 percent of the comparison group had the high level of dietary and water intake control.

After the experimentation, the experimental group had an increased dietary and water intake control in the high level (86.7 %) comparing with 70.0 percent in the comparison group.

Table 2 Number and percentage of the respondents by level of urinary stone knowledge, perceived self-efficacy, outcome expectation, dietary and water intake control, in the experimental and the comparison groups, before and after the experimentation

Variables	Before the Experimentation						After the Experimentation					
	High		Moderate		Low		High		Moderate		Low	
	N	%	N	%	N	%	N	%	N	%	N	%
Knowledge of urinary stone												
Experimental group	3	10.0	8	26.7	19	63.3	10	33.3	16	53.4	4	13.3
Comparison group	1	3.3	9	30.0	20	66.7	2	6.7	12	40.0	16	53.3
Perceived Self-Efficacy												
Experimental group	17	56.7	12	40.0	1	3.3	20	66.7	8	26.7	2	6.6
Comparison group	19	63.3	11	36.7	0	0.0	17	56.7	12	40.0	1	3.3
Outcome Expectation												
Experimental group	13	43.3	16	53.4	1	3.3	22	73.3	8	26.7	0	0.0
Comparison group	10	33.3	18	60.0	2	6.7	17	56.7	13	43.3	0	0.0
Dietary and Water Intake Control												
Experimental group	21	70.0	8	26.7	1	3.3	26	86.7	4	13.3	0	0.0
Comparison group	18	60.0	11	36.7	1	3.3	21	70.0	8	26.7	1	3.3

Part 3 : The comparison of the average mean scores of urinary stone knowledge, perceived self-efficacy, outcome expectation, and dietary and water intake control, within the experimental group and comparison group, before and after the experimentation (See Table 3)

The difference of the mean scores of urinary stone knowledge , perceived self-efficacy, outcome expectation, dietary and water intake control, within the experimental and comparison groups, before and after the experimentation, was analyzed by using Paired t-test. It was found that :

3.1 Urinary stone knowledge

In the experimental group, before the program, the mean score of knowledge was 9.27 with the standard deviation of 3.78 and after the experimentation the mean score was 12.97 and the standard deviation was 2.71. Statistically significant difference was found between the mean scores, the mean score measured after the experimentation was significantly higher than the mean score of before the experimentation (p-value<0.001).

In the comparison group, after the program, the mean score of knowledge was 8.90 with the standard deviation of 3.45 and after the experimentation the mean score was 9.57 and the standard deviation was 3.77. After testing the difference of the mean scores, it was found that there was no statistically significant difference between the mean scores (p = 0.403).

3.2 Perceived Self-Efficacy

In the experimental group, the mean score before the program was 47.57 and the standard deviation was 8.34 compared to the after program's mean score of 48.77 and the standard deviation of 6.09. The result found no significant difference (p = 0.574).

In the comparison group, the mean score of the perceived self – efficacy before the program was 48.73 and the standard deviation was 5.84, and the after the program mean score was 48.50 with the standard deviation of 7.51. After testing the difference of the mean scores, it was found that there was no significant difference (p = 0.852).

3.3 Outcome Expectation

In the experimental group, before the program, the mean score of outcome expectation was 46.27 with the standard deviation of 7.59 compared to the mean score measured after the program, of 49.50 with the standard deviation of 5.61. It was found that the mean score of after the program was significant higher than the mean score of before the program (p = 0.025).

In the comparison group, before the program, the mean score of outcome expectation was 45.37 with the standard deviation of 7.57 compared to the mean score measured after the program, of 47.60 with the standard deviation of 4.98. It was found that the mean score of after the program was no significant higher than the mean score of before the program (p = 0.109).

3.4 Dietary And Water Intake Control

In the experimental group, before the program, the mean score of dietary and water intake control of the experimental group was 29.73 with the standard deviation of 3.60. After the program, the mean score was 31.40 with the standard deviation of 2.76. The mean score measured after the program was significantly higher than of the before the program's mean score (p= 0.049).

In the comparison group, before the program, the mean score of dietary and water intake control was 29.27 with the standard deviation of 3.31. After the program, the mean score was 29.50 with the standard deviation of 3.29. The mean score measured after the program was no significantly higher than of the before the program's mean score (p= 0.686).

Table 3 Comparison of mean score difference on urinary stone knowledge , perceived self-efficacy, outcome expectation, and dietary and water intake control within the experimental and the comparison groups, before and after the experimentation

. Variables	n	$\bar{x}$	S.D	t-value	df	p-value
Urinary stone knowledge						
Experimental group						
Before the Experimentation	30	9.27	3.78	4.980	29	<0.001
After the Experimentation	30	12.97	2.71			
Comparison group						
Before the Experimentation	30	8.90	3.45	0.849	29	0.403
After the Experimentation	30	9.57	3.77			
Perceived self-efficacy						
Experimental group						
Before the Experimentation	30	47.57	8.34	0.569	29	0.574
After the Experimentation	30	48.77	6.09			
Comparison group						
Before the Experimentation	30	48.73	5.84	-0.189	29	0.852
After the Experimentation	30	48.50	7.51			
Outcome expectation						
Experimental group						
Before the Experimentation	30	46.27	7.59	2.360	29	0.025
After the Experimentation	30	49.50	5.61			
Comparison group						
Before the Experimentation	30	45.37	7.57	1.651	29	0.109
After the Experimentation	30	47.60	4.98			

Table 3 Comparison of mean score difference on urinary stone knowledge , perceived self-efficacy, outcome expectation, and dietary and water intake control within the experimental and the comparison groups, before and after the experimentation (Cont.)

Variables	n	$\bar{x}$	S.D	t-value	df	p-value
Dietary and water intake control						
Experimental group						
Before the Experimentation	30	29.73	3.60	2.058	29	0.049
After the Experimentation	30	31.40	2.76			
Comparison group						
Before the Experimentation	30	29.27	3.31	0.409	29	0.686
After the Experimentation	30	29.50	3.29			

Part 4: The comparison of the average mean scores of urinary stone knowledge, perceived self-efficacy, outcome expectation, and dietary and water intake control, between the experimental group and comparison group, before and after the experiment-tation (See Table 4)

The comparison analyses of the mean scores of urinary stone knowledge , perceived self-efficacy, outcome expectation, and dietary and water intake control, between the experimental and the comparison groups before and after the experimentation, were made by using t – test showed that :

4.1 Urinary Stone Knowledge

Before the experimentation, the mean score of the experimental group was 9.27 with the standard deviation of 3.78 and the mean score of the comparison group was 8.90 with the standard deviation of 3.45. The difference between the two means was not significantly different, according to the t-test, (p = .696).

After the experimentation, the mean score of the experimental group was 12.97 with the standard deviation of 2.71 compared to the mean score of 9.57 and the standard deviation of 3.78, of the comparison group. The means score of the experimental group was significant higher than of the comparison group (p <0.001).

4.2 Perceived Self-Efficacy

Before the experimentation, the mean score of the experimental group was 47.57 with the standard deviation of 8.34 compared with the mean score of 48.73 of the comparison group and the standard deviation of 5.84. After testing the difference of the mean score it was found that there was no significant difference (p = 0.533).

After the experimentation, the mean score of the experimental group, after the program, was 48.77 with the standard deviation of 6.09 compared with the mean score of the comparison group of 48.50 and the standard deviation was 7.51. The mean score of the experimental group was not significantly higher than of the comparison group (p = 0.880).

4.3 Outcome Expectation

Before the experimentation, the mean score of the outcome expectation of the experimental group was 46.27 with the standard deviation of 7.59 compared with the mean score of 45.37 and the standard deviation of 7.58. No Significant difference between the two mean scores was found (p = 0.647).

After the experimentation, the mean score of the experimental group was 49.50 and the standard deviation was 5.61 while the mean score of the comparison group was 47.60 with the standard deviation of 4.98. The comparison of the two means was found that the mean score of the experimental group was not significantly higher than of the comparison group (p= 0.171).

4.4 Dietary And Water Intake Control

Before the experimentation, the mean score of the experimental group was 29.73 with the standard deviation of 3.60 compared with the mean score of 29.27 of the comparison group, and the standard deviation of 3.31. No significant difference was found between the two means (p = 0.603).

After the experimentation, The mean score of the experimental group was 31.40 and the standard deviation was 2.76. The mean score of the comparison group was 29.50 with the standard deviation of 3.29. The difference analysis between the two means showed that the mean score of the experimental group was significantly higher than of the comparison group (p = 0.019).

Table 4 The comparison of the average mean scores difference of urinary stone knowledge, perceived self-efficacy, outcome expectation, dietary and water intake control, between the experimental group and the comparison group, before and after the experimentation

Variables	Before Experimentation					After Experimentation				
	$\bar{x}$	S.D	t-value	df	p-value	$\bar{x}$	S.D.	t-value	df	p-value
Urinary stone knowledge										
Experimental group	9.27	3.78	0.393	58	0.696	12.97	2.71	4.007	58	<0.001
Comparison group	8.90	3.45				9.57	3.78			
Perceived self-efficacy										
Experimental group	47.57	8.34	-0.628	58	0.533	48.77	6.09	0.151	58	0.880
Comparison group	48.73	5.84				48.50	7.51			
Outcome expectation										
Experimental group	46.27	7.59	0.460	58	0.647	49.50	5.61	1.387	58	0.171
Comparison group	45.37	7.58				47.60	4.98			
Dietary and water intake control										
Experimental group	29.73	3.60	0.523	58	0.603	31.40	2.76	2.424	58	0.019
Comparison group	29.27	3.31				29.50	3.29			

Part 5 : The comparison of the level of urine pH and urine specific gravity between the experimental group and comparison group after the experimentation (See Table 5)

The difference of level of urine pH and urine specific gravity after experimentation in the experimental and the comparison groups was analyzed by Z – Test. The findings are presented as follows:

5.1 Comparison of the level of urine pH

In the experimental group, after the experimentation, 70.0 percent of the experimental group had the urine pH better than before. After testing the difference of the changed levels it was found that there was no statistically significant difference between the experimental group and the comparison group ($p < 0.05$).

5.2 Comparison of the level of urine specific gravity

In the experimental group, after the experimentation, the lower values of urine specific gravity was found in 83.3 percent of the experimental group comparing with 46.7 percent of the comparison group. After testing the difference of the levels it was found that there was statistically significant difference between the experimental group and the comparison group ($p < 0.05$).

Table 5 Comparison of the changes of urine pH and urine specific gravity in the experimental and the comparison groups after the experimentation

Variables	Better		Not Better		Z
	n	%	n	%	
Urine pH					
Experimental group	21	70.0	9	30.0	1.62
Comparison group	15	50.0	15	50.0	
Urine Specific Gravity					
Experimental group	25	83.3	5	16.7	3.34*
Comparison group	14	46.7	16	53.3	

* Significant at p – value ≤ 0.05

CHAPTER 5
DISCUSSION

The results of the study on the effectiveness of the health education program to change dietary and water intake control among urinary stone patients in Ratchaburi Hospital can be discussed as follow :

Hypothesis 1.1

A health education program organized by applying self-efficacy theory can enable urinary stone patients gain better urinary stone knowledge.

Urinary Stone Knowledge

Before the experimentation, it was found that the experimental and the comparison groups had the same low level of urinary stone knowledge, 63.3 percent and 66.7 percent respectively (Table 2).

After the experimentation, the increased knowledge was found among the experimental group, 33.3 percent and 53.4 percent were in the high and the moderate levels respectively while in the comparison group, the small change of the knowledge was found, 6.7 percent and 40.0 percent were in the high and moderate level respectively (Table 2). When the test for difference of the knowledge mean scores of the after measurement of the two groups was made it was found the significant higher knowledge was found in the experimental group than before the experimentation and than the comparison group (Table 4). This finding was congruent with the Hypothesis 1.1 from the item-by-item analysis of the urinary stone knowledge it was found that the increased score of every item was found in the experimental group, particularly item 9 regarding stone recurrence. Regarding knowledge about appropriate practices of the urinary stone patients, the clearly increased mean scores of these items

were found (item numbers 12 , 13 , 15 and 18). These items were about : consuming variety of all 5 groups of nutrients, avoiding high-salt foods, animal meat, entrails , and regular exercise (Table 6). This change of knowledge among the experimental group may be due to the group discussion organized whereby the group members had exchanged experiences, learning from other members, and exchanged their opinions. Other activities organized, for example, video presentation regarding causes, sign and symptoms, medical treatment, and self-care including prevention of stone recurrence, which showed the movement and practices, had helped the experimental group understood the content easily. For the second video presentation, role model was used to explain about experiences and daily life practices including the summary made by the researcher about the key issues and other important information was added periodically by the researcher. The group members were very interested in the session and asked many questions. After the session the summary of the key issues focusing the appropriate practices was made by the researcher. These activities helped the urinary stone patients understood, remembered and be able to practice properly. The review of the key issues was made again during the Activity 2 which made the patients gained sustainable knowledge. Group process had helped the experimental group gained more knowledge, understanding, attitudes, concepts, opinions and experiences, which affected on the increased level of urinary stone knowledge at the end of the experimentation. Besides, the distribution of the materials and the Manual to the experimental group was helpful for them to read more detailed information at home, which affected on the significant higher level of knowledge among the experimental group which supported the Hypothesis 1.1 and was also similar to the result of the study of Saijai Chaisongkrarm (2002 : Abstract) who studied the effect of a health promotion program applying self-efficacy theory in changing behaviors of the elderly regarding dietary, exercise, and stress management. The sample of this study were the elderly aged 60 and higher who received the health promotion program which composed of the following activities : group discussion, skill practices, demonstration, role-model presentation through videotape. The significant increased knowledge comparing

with before the experimentation was found. This finding was also similar to the finding of the study carried out by Jutharatna Gumpalanont (1997 : Abstract), who studied knowledge, attitudes and practices regarding self-care of the elderly people in an Elderly Club, Nakonrajchasrima Province by employing self-help group. After the program, the significant increased knowledge, attitudes and practices regarding self-care of the elderly was found ($p<0.001$). The similar finding was also found in the study by Sasithon Saiwongs (2004 : Abstract), which showed that after organizing the health promotion program for changing behaviors of diabetic patients regarding dietary control and exercise by applying self-efficacy theory and the activities employed were : video presentation ; group activities ; and sending the warning card, the experimental group gained significant higher knowledge comparing with before the program and with the comparison group. The result of the study carried out by Kobkul Sukonthawarin (2002 : Abstract) was also congruent with these finding, who studied the effectiveness of the program organized about thalassemia for pregnant women who were thalassemia carriers and their husbands by using video presentation, group process, and video presentation along with group process. The finding showed that the using video presentation along with group process was more significantly effective than the using of only video presentation.

Hypothesis 1.2

A health education program organized by applying self-efficacy theory can enable urinary stone patients gain higher perceived self-efficacy for dietary and water intake control

Perceived Self - Efficacy

Before the experimentation, both groups had the high level of perceived self-efficacy, 56.7 percent of the experimental group and 63.3 percent of the comparison group (Table 2).

After the experimentation, the experimental group's perceived self-efficacy level was increased, 66.7 percent had the high level of perceived self-efficacy comparing to 56.7 percent of the comparison group (Table 2). No

significant difference was found between the mean score of perceived self-efficacy of the two groups (p = 0.880) (Table 4). This finding did not agree with the Hypothesis 1.2. when the item-by-item analysis was made (Table 7), it was found that members of the items that the experimental group indicated that they " can do " was higher than those they " can't do ", the items that had higher scores were : item number 6… " can be reduce the consumption of the buds some vegetables, for example, Kneeleg, Phak Wan, Cha-em, Phak-kachid "; item number 7… " can be able to consume variety of 5 groups of nutrients each day " ; item number 8 … " can be able to consume variety of foods rotately " ; and item number 11…. " can be able to drink 10 – 12 glasses of water / day (2-3 lits / day). These are the key practices for urinary stone patients and for preventing stone recurrence. The gaining of the higher perceived self-efficacy regarding the important practices among the experimental group was due to their direct self-experiences. After the experimental group gained more knowledge about proper practices from the Activity 1 through video presentation, they have put this knowledge into their daily-living practice as related to dietary and Water intake, urine testing by using urine testing strip, and recording the result of urine testing everyday for 2 weeks. After the second activity whereby they talked to their friends about their practices regarding dietary and water intake, kinds of foods, comparing the results of urine pH and urine specific gravity values recorded, which served as the stage of performance accomplishment, those patients who could practice correctly would perceive that they have ability to perform and they would be encouraged and be ready to continue those practices. This fining agreed with Bandura belief that direct experience is the most effective method in developing people's self-efficacy (Bandura 1977 : 123). After the patients have continued their practice for 2 weeks, their joined the group again during the 3 rd session. The positive effect have been found as the result of their practices regarding dietary and water intake control on the results of urine testing at home, whereby lowered urine pH and lowered urine specific gravity were found. For the experimental group who participated in the Activity 2 and the assessment of dietary habits showed the incorrect practices and the high urine pH and urine specific gravity values were found, they were asked about their

incorrect practices regarding dietary intake and urine testing. If the problems were found, they have been corrected. The group members were free to talk about their performance accomplishment to the group, for example, bringing extra water to the office or bringing drinking water to the farms where they work. The group members also provided psychological support for other group members. These activities served the principle of "vicarious experience" and "verbal persuasion" clearly. The activities organized were effective in helping the experimental group learned and understood their own ability and perceived the level of task that they can make. But there was no significant difference between the perceived self-efficacy mean scores of the two groups ($p = 0.880$) as shown in Table 4. This finding was not similar to the study carried out by Saijai Chaisongkram (2002 : Abstract) who studied the effective of the health promotion program organized for the elderly who were the members of the Elderly Club of Muang District, Nontaburi Province. The activities employed were: group discussion; skills practices; demonstration, and video presentation, with the aim to change the elderlys' behaviors regarding dietary, exercise and stress management. The program was last for 12 weeks the sample was divided into 5 groups, 10 persons each and the activities were organized once a week and 2 hours per session, totally of 10 session. The data were collected 2 times, before and after the program, by interviewing. The results showed that the experimental group gained significantly higher level of knowledge, perceived self-efficacy, exercise, stress management, and behaviors regarding dietary intake, exercise, and stress management. But the results of this study with urinary stone patients that were not congruent with the hypothesis set and with other studies may be due to the short duration time provided for organizing the learning activities and the learning outcome of the Activity 3 has not been successful, thus more time should be provided. Like the study that was carried out by Jutharatna Kumplanont (1997 : Abstract) who studied the knowledge, attitude and practices regard self-care among 50 members of the elderly Club in Nakonratchasrima Province by using group process. The group process activities have been organized for 14 days and 1:30 hours per day. The results of the study showed that knowledge, attitudes and practices regarding

self-care of the sample measured at the end of the program were significantly higher than the ones that measured before the program ($p < 0.01$)

Hypothesis 1.3

A health education program organized by applying self-efficacy theory can enable urinary stone patients gain higher perceived outcome expectation from dietary and water intake control

Perceived Outcome Expectation

Before the experimentation, both groups had the moderate level of outcome expectation from dietary and water intake control, 53.4 percent and 60.0 percent of the experimental group and the comparison group respectively and no statistical significantly difference was found between the mean score of outcome expectation of the two groups (Table 2 and 4).

After the experimentation, it was found that the both groups had the high level of outcome expectation. When the analysis of difference of the means was made it was found that the mean score of the experimental group was not significantly higher than before the experimentation and of the comparison group (Table 4 and 5). This finding was not congruent with the Hypothesis 1.3. But when the item-by-item analysis was made (Table 9), it was found that the outcome expectation of the experimental group for almost items was increased, especially item number 5, the outcome expectation of lowering the consumption of some green-leaf vegetables, for example, Bai-yo , Sadao, Bai-Chaplu, and spinach in order to lower the risk of stone composition, and item number 10 , 11 and 12 , which indicated that the experimental group gained higher outcome expectation from drinking 10-12 glasses of water or 2-3 lits of water per day and drinking water periodically during the day and drinking one glass of water before going to bed will dilute the urine concentration and lower the composition of stone. It was found that the small changes of mean scores of these items among the comparison group were found (Table 10) comparison with the experimental group. The increased

outcome expectation of the experimental group may be due to the health education activities organized as follows : the learning of the practices for dietary and water intake from video presentation ; comparing their own behaviors for dietary and water intake control with the results of urine testing made at home which they talked about this with the group members during Activities 2 and 3 ; warning and encouraging the practices by using the result of urine testing ; exchanging practice experiences with other group members ; talking about the changes of behaviors during Activities 2 and 3 helped the patients got the feeling of achievement, another words, performance accomplishment ; observing the positive change of the urine testing results which was the direct experience that make them get the expectation that they can do it ; and receiving psychological support from the group members including suggestions which will motivate them to expect good outcome from their own practice, so they can understand and predict the future outcome. This finding was congruent with the study carried out by Saijai Chaisongkram (2002 : Abstract) which studied the effectiveness of the health promotion program organized for the elderly who were the members of the Elderly Club of Muang District, Nontaburi Province by applying self-efficacy theory. The health promotion activities were included group discussion, skills practices, demonstration, and role-model presentation including video presentation, with the aim to change the elderly as related to dietary intake, exercise and stress management. It was found that after the experimentation the experimental group had significant increase of perceived self-efficacy, outcome expectation and behaviors regarding dietary intake, exercise, and stress management. But this finding were not congruent with the result of the study carried out by Chutiwan Purintarapibol (1998 : Abstract) who studied the effectiveness of the application of self-effication theory in promoting the health of the elderly in the Elderly Club in Patumthani Province regarding dietary intake. It was found that after the experimentation the sampled elderly have changed their knowledge, perceived self-efficacy, outcome expectation and consuming healthy food for promoting health. These changes were significantly better than before the program and of the comparison group. The finding of the urinary stone patients as already

mentioned, may be due to the short time allotment provided and during the activity 3, the experimental group may have not learned effectively therefore the result of the learning assessment by using the interviewing schedule has not indicated the change. Thus, no significant difference was found between the outcome experimental and the comparison group.

Hypothesis 1.4

A health education program organized by applying self-efficacy theory can enable urinary stone patients have desirable behaviors regarding dietary and water intake control.

Dietary and water Intake Control

Before the experimentation, it was found that the behaviors of both group regarding dietary and water intake control were not different (Table 2 and 4).

After the experimentation, it was found that the mean score of dietary and water intake control of the experimental group was significantly higher than before the experimentation and than of the comparison group ($p=0.019$) (Table 5). The large changes of behaviors been found in the experimental group, from the low and moderate levels to the high and moderate levels. These findings supported Hypothesis 1.4 . According to item-by-item analysis, it was found that the mean score of almost all of the item among the experimental group were increased, especially the items that the mean score were highest were items number 12 … " drinking 10 – 12 glasses of water (2 – 3 lits / day)" and number 11…. " drinking one glass of water before going to bed. Regarding the frequency of practices in items number 11 and 12, the experimental group's practices have been significantly increase to be the 3 rd level (Table 11) . But in the comparison group, the small changes of the mean scores was found. The increase appropriate practices among the experimental group regarding dietary and water intake control were relevant with the kinds of activities organized. The experimental group got the opportunity to do urine test every morning at home by themselves and talked about the results of the

test in the group during the activities 2 and 3 in order to assess the outcome of the practices regarding dietary and water intake, choosing the types of foods and quantity, and frequency of water intake per day. During the activities organized there were some of the patients had encountered with problems, for example, the farms were very far from their houses, so the drinking water that they brought within sometimes it was not enough which caused low quantity of water intake per day. For this problem, the group members have suggested to bring extra drinking water, etc. During activity 2, the patients could learn from various role-models including the appropriate examples from the results of their urine test as the outcomes of their real behaviors. During activity 3,which was focused on reminding the patients understand their own situation as regards to the things that they can practice appropriately. The significant changes of the outcomes were found which led them to continue those practices. This finding was congruent with the study by Clark et al. (1992 : 341-354), who with coronary heart disease for changing behaviors. The activities were composed of : 4 meetings, 1 meeting per week and 2 hours per meeting ; the group was divided into small groups, 6-8 members each ; having the group members exchanged their opinions and experiences ; video presentation regarding self-care of coronary heart disease patients ; and distribution of the self-care manual. The evaluation was made after the meetings and again at the 12 th month after the 4 meeting by telephone interview. It was found that dietary intake of the sample group was significantly better ($p < 0.05$), 77 percent have developed themselves and 3 percent have not. The study carried out by Bunchuay Na-soongnern (2000 : Abstract) showed that the health promotion program by using lecture with the slide presentation, role-model, group process, demonstration, and skill practice. The program was effective in changing health promoting behaviors of menopause women significantly. This finding was similar to the result of the study carried out by Siwaporn Mithisorn (2001 : Abstract) which was found that educating renal and ureteral stone patients regarding preparation for post-surgical practices by using tape cassette and photographs along with lecture was effective in helping the patients who received the educational program practiced better than those who did not receive this educational program, the mean score of the

post-surgical practices among the experimental group was higher than of the comparison group. Besides, it was found that the frequency of using pain-relieving drugs among the experimental group was less than the comparison group, including more frequency of movement after surgical, less post-surgical complications ; and few day of hospitalization were found among the experimental group comparing with the comparison group. Due to the correct knowledge gained among the urinary stone patients and their higher perceived self-efficacy, and higher outcome expectation, the experimental group of urinary stone patients had better practices regarding dietary and water intake control. This finding supported the study carried out by Sirima Naowaratana (1998 : a-b) who studied the application of self-efficacy theory and reference person concept in order to change behaviors regarding dietary control exercise and drug taking among non-insulin dependent diabetes mellitus patients. The experimental and the comparison group were consisted of 40 and 39 patients respectively. the result showed that the significant higher level of diabetic knowledge, self-efficacy and behaviors regarding dietary control, exercise and drug taking among the experimental group was found after the experimentation comparing with before the experimentation and with the compassion group. This result was similar to the study carried out by Jutharatna Gumpalanont (1997 : Abstract), who studied knowledge, attitudes and practices regarding self-care of the elderly people in an Elderly Club, Nakonrajchasrima Province by using group process. It was found that after the experimentation, the experimental group's knowledge, attitudes and practices regarding self-care were significant higher than before the experimentation ($p < 0.01$).

Hypothesis 2

A health education program organized by applying self-efficacy theory can lower the urine pH level to the better direction in the experimental group.

Urine pH

After the experimentation, the urine pH of the experimental group has lowered comparing with before the experimentation but when compared

with the comparison group, it was found that the proportion of change was not statistically significantly. This finding did not support Hypothesis 2 (Table 5). From the activities organized which composed of video presentation, role-model presentation, skills practice regarding dietary and water intake, and measuring the outcome of self-practices, which resulted in perceived performance accomplishment and the outcome was checked against the expectation by the experimental group, the urine pH value of the experimental group has lowered in the better direction. It was expected that the urine pH level will be helpful in encouraging the patients take care of themselves regarding dietary intake. From the record of the urine testing made by the patients at home that the patients brought to discuss with the group, the patients could understand the difference and experienced the good role-models (vicarious experience). No significant difference of the proportion of change that was found between the experimental and the comparison groups may be due to the different time of operating of urine test and other interviewing factors. However, the change of urine pH value was relevant with dietary intake of the patients in the experimental group and the comparison group which was less than water intake behavior, as shown in Table 11. therefore, the change of urine pH levels was not as clearly evidenced as the change of urine specific gravity of the sample.

Hypothesis 3

A health education program organized by applying self-efficacy theory can lower the urine specific gravity level to the better direction in the experimental group..

Urine Specific Gravity

After the experimentation, it was found that the urine specific gravity value of the experimental group has changed significantly to the better direction comparing with the value measured before the experimentation and of the comparison group (Table 5).

After 4 weeks of the experimentation, the urine specific gravity value of the experimental group was better than before the experimentation. when the comparison was made between two groups, it was found that the change proportion of urine specific gravity among the experimental group was significantly better than among the comparison group. This finding supported Hypothesis 3. However, this finding may be due to the activities implemented which consisted of receiving information from video presentation ; riewing the real examples from the role-models, practicing dietary and water control behaviors at home daily, and assessing the outcome of their behaviors. These activities helped the patients perceived their self-efficacy and they also experienced the outcome from their urine testing everyday at home. Knowing the outcome helped motivating themselves take a good care for dietary and water intake control continuously which led them to behave properly as regards to water intake. This was evidenced from the answers of the questions in Part 5 of the questionnaire. These practices resulted in the better change of urine specific gravity value of the experimental group. This finding indicated the proper practices of the experimental group regarding water intake, which were relevant with the finding that the significantly better behaviors of the experimental group regarding dietary and water intake control measured after the experimentation comparing with the behaviors measured before the experimentation. This finding was also relevant with the significantly increased mean scores of the items number 11 and 12 (Table 11) regarding " drinking 10-12 glasses of water or 2-3 litres per day " and " Drinking a glass of water before going to bed regularly 6-7 days per week ". Since the urine specific gravity will change accordingly with the quantity of water (Dusit Jirakulsomchoke, 1998 : 139), therefore, it the experimental group could drink a lot of water accordingly with the items number 11 and 12 which in turn will cause the significantly change of urine specific gravity which is the effectiveness of health education program.

CHAPTER 6
SUMMARY AND RECOMMENDATIONS

This study was a quasi-experimental research design aiming to assess the effectiveness of a health education applying self-efficacy theory to change behaviors regarding dietary and water intake control among urinary stone patients in Ratchaburi Hospital. The program was based on the principles of using vicarious experience, performance accomplishment and verbal persuasions. The activities were organized by giving information through video presentation, exchanging experiences and practice directions, distributing guideline manual for self-care of urinary stone patients, and encouraging practices by the results of urine test.

The sample composed of 60 urinary stone patients attending the Out-Patient Department of Ratchaburi Hospital. The sample was divided into experimental group and comparison group with 30 patients each. The comparison group received the regular health education program of the hospital and the experimental group received 3 sessions of health education activities organized by the researcher. The experimentation was implemented during March to July 2005.

The data was collected before and after the experimentation by using the interviewing schedule and the record form for the urine test results of the experimental and comparison groups. The results of data analysis were summarized as follows :

1. General Information

It was found that the experimental and comparison groups were homogeneous. The majority of the sample were : almost the same number of male and female ; aged between 40-60 years, finished primary school ; were agriculturists / labors ; income of below 5,000 Baht / month ; and similar number of prevalence and recurrence of stones.

2. Effect of Implementing a Health Education Program Applying Self - Efficacy Theory to Change Behaviors Regarding Dietary and Water Intake Control Among Urinary Stone Patients, Ratchaburi Hospital

2.1 Urinary Stone Knowledge

Before the experimentation, the mean score of urinary stone knowledge of the experimental and the comparison groups was in the low level and was not different.

After the experimentation, the urinary stone knowledge mean score of the experimental group was significantly higher than before the experimentation and than of the comparison group at 0.001 level. Among the comparison group, no significant difference was found between the mean score measured before and after the experimentation.

2.2 Perceived Self-Efficacy

Before the experimentation, no significant difference was found between the mean score of perceived self-efficacy of the experimental and the comparison groups and the mean score of both groups was at the moderate level.

After the experimentation, the perceived self-efficacy mean score of the experimental group was not different comparing with before the experimentation and the comparison group.

2.3 Outcome Expectation

Before the experimentation, no significant difference was found between the mean score of outcome expectation of dietary and water intake control, of the experimentation and the comparison groups and the mean score of both groups was at the moderate level.

After the experimentation, it was found that the outcome expectation mean score of the experimental group was significantly higher than before the experimentation at the 0.05 level but was not significantly higher than of the comparison group at the 0.05 level.

2.4 Dietary and Water Intake Control

Before the experimentation, it was found that the dietary and water intake control mean score of the experimental and the comparison groups was not significantly different and the mean score was at the high level.

After the experimentation, the significant difference between the dietary and water intake control mean score of both groups was found at the 0.05 level whereby the mean score of the experimental group was higher than of the comparison group.

2.5 Urine pH

After the experimentation, the urine pH value of the experi- mental group that has changed in the better direction was not significantly different from the urine pH value of the comparison group.

2.6 Urine Specific Gravity

After the experimentation, the urine specific gravity of the experimental group has changed in the better direction and was reduced more than of the comparison group at the 0.001 level.

Recommendations from the Research Results

1. In this research project the experimental group has operated urine test by themselves at home regularly during the experimentation which was the motivation for the patients to take care of themselves continuously regarding dietary and water intake control. This condition affected on the regular practices among the patients in the experimental group. Thus, urine test or other self-assessments of the patients should be implemented but may cause problem regarding expense. Therefore, the method should be modified to make it more appropriate.

2. In organizing the activities that using role-model and group process for exchanging opinions and experiences, bringing the outcome of the patients' performances to be a part of the learning activities will be effective in helping the patients understand and continue those performance. Besides, human relationship among the group members should be developed in order to help the group members play their roles, express their opinions, and cooperate to lead the group to meet its objectives effectively.

Recommendations for Further Researches

1. This kind of research should be done with another sample since the time duration of this project was only 4 weeks, therefore the time should extended including controlling the variable, for example, the sample should be selected from the new group of patients who have urinary stone at the first time and have never know about urinary stones. The time duration between the 1 st data collection and the Activity 1 should be longer in order to have enough time for study the data of the sample by the researcher and make use of the data for developing Activities 1 , 2 and 3. Also, the time duration between Activity 3 and the post – experimentation data collection should also extended in order for the patients to have enough time to learn in accordance with the learning objectives set.

2. The further research should be include the analysis of the stone types and the activities should be prepared for preventing stone recurrence for the specific type of stone or specific groups' activities, for example, calcium stone, uric acid stone, etc.

3. Social support should be applied to the activities of the research project since from this study it was found that most of the patients were old therefore, they may change their behavior quickly and rapidly it they receive the support from family members, for example, the preparation of appropriate food each day, taking care and helping the patients continuously, etc. the patients' relatives / care takers should be the target group who can help modifying patients' behaviors.

4. The periodical and continued follow-up activities should be organized in order to assess and encourage the patients' dietary and water intake control behaviors and make the behaviors sustainable.

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APPENDIX

APPENDIX A

ตารางที่ 6 ร้อยละของความรู้เกี่ยวกับนิ่วระบบปัสสาวะรายข้อจำแนกกลุ่มทดลองและกลุ่มเปรียบเทียบ

	ข้อคำถาม	กลุ่มทดลอง(n=30)		กลุ่มเปรียบเทียบ(n=30)	
		ก่อนทดลอง	หลังทดลอง	ก่อนทดลอง	หลังทดลอง
1.	นิ่วเกิดจากการดื่มน้ำที่มีเศษหินปนอยู่	20.0	33.3	13.3	3.3
2.	นิ่วเกิดจากการดื่มน้ำกระด้างหรือน้ำที่มีเกลือแร่ปนอยู่มาก ๆ	6.7	20.0	6.7	3.3
3.	นิ่วเป็นกรรมพันธุ์ถ้าพ่อแม่เป็นนิ่วลูกก็จะเป็นนิ่วด้วย	66.7	90.0	70.0	50.0
4.	คนที่อยู่ภาคอีสานเท่านั้นที่จะเป็นนิ่ว	70.0	83.3	66.7	73.3
5.	ปวดหลัง ปวดเอว ปวดท้อง ปัสสาวะมีเลือดปนเป็นอาการของนิ่ว	90.0	90.0	86.7	70.0
6.	ไตวายเป็นโรคแทรกซ้อนของนิ่วระบบปัสสาวะ	56.7	70.0	53.3	73.3
7.	ตับอักเสบเป็นโรคแทรกซ้อนของนิ่วระบบปัสสาวะ	13.3	36.7	6.7	13.3
8.	ผู้ป่วยนิ่วต้องรักษาด้วยการผ่าตัดเท่านั้น	60.0	76.7	73.3	70.0
9.	ผู้ป่วยนิ่วรักษาแล้ว จะไม่เป็นซ้ำอีก	46.7	86.7	56.7	53.3
10	นิ่วระบบปัสสาวะส่วนใหญ่เป็นนิ่วชนิดแคลเซียม	23.3	40.0	23.3	23.3
11	แคลเซียม มีอยู่ในอาหารที่รับประทาน	56.7	76.7	36.7	43.3
12	ผู้ที่เป็นนิ่ว **ควรลด** การรับประทานอาหารเค็มจัด	66.7	80.0	53.3	66.7
13	ผู้ที่เป็นนิ่ว **ควรลด** การรับประทานอาหารประเภทเนื้อสัตว์ และเครื่องในสัตว์	23.3	63.3	36.7	56.7
14	ผู้ที่เป็นนิ่ว **ควรลดหรือหลีกเลี่ยง** การรับประทานอาหารประเภทหน่อไม้	53.3	83.3	56.7	56.7
15	ผู้ที่เป็นนิ่ว **ควร** รับประทานอาหารให้ครบทั้ง 5 หมู่ และหมุนเวียนกัน	56.7	93.3	60.0	80.0
16	ผู้ที่เป็นนิ่ว **ควร** ดื่มน้ำ 1–2 แก้วเป็นระยะ ๆ	76.7	93.3	63.3	86.7
17	ผู้ที่เป็นนิ่ว **ควร** ดื่มน้ำมาก ๆ วันละ 10 – 12 แก้วหรือประมาณ 2 – 3 ลิตรต่อวัน	83.3	100.0	83.3	80.0
18	ผู้เป็นนิ่ว **ไม่ควร** ออกกำลังกาย	56.7	80.0	43.3	53.3

ตารางที่ 7 ร้อยละของกลุ่มทดลองจำแนกตามการรับรู้ความสามารถตนเองจำแนกรายข้อก่อนและหลังทดลอง

	การรับรู้ความสามารถตนเองในเรื่อง	ก่อนทดลอง					หลังทดลอง				
		1	2	3	4	5	1	2	3	4	5
1.	ท่านสามารถ **ลด** การรับประทานเนื้อสัตว์ เครื่องในสัตว์น้อยลงได้	10.0	0.0	10.0	36.7	43.3	0.0	3.3	16.7	40.0	40.0
2.	ท่านสามารถ **ลดหรือหลีกเลี่ยง** การรับประทานอาหารประเภทหน่อไม้ได้	3.3	6.7	13.3	23.3	53.4	3.3	3.3	13.3	33.4	46.7
3.	ท่านสามารถ **ลด** การรับประทานอาหารที่มีโซเดียมสูง เช่น อาหารเค็มจัดได้	3.3	3.3	26.7	30.0	36.7	3.3	3.3	30.0	46.7	16.7
4.	ท่านสามารถ **ลด** การรับประทานปลาเล็กปลาน้อยที่รับประทานทั้งกระดูกได้	3.3	10.0	10.0	40.0	36.7	0.0	3.3	20.0	46.7	30.0
5.	ท่านสามารถ **ลด** การรับประทานผักใบเขียวบางชนิดได้ เช่น ใบยอ สะเดา ใบชะพลู ผักโขม ใบสะระแหน่	3.3	6.7	20.0	16.7	53.3	0.0	6.6	16.7	36.7	40.0
6.	ท่านสามารถ **ลด** การรับประทานยอดผักบางชนิดได้ เช่น ขี้เหล็ก ผักหวานชะเอม ผักกระเฉด	3.3	13.3	10.0	33.4	40.0	0.0	6.7	3.3	40.0	50.0
7.	ท่านสามารถเลือกรับประทานอาหารให้ครบทั้ง 5 หมู่ในแต่ละวันได้	10.0	6.7	30.0	23.3	30.0	3.3	3.3	30.0	26.7	36.7
8.	ท่านสามารถเลือกรับประทานอาหารหลากหลายชนิดให้หมุนเวียนไม่ซ้ำกันในแต่ละวันได้	6.7	6.7	30.0	30.0	26.6	3.3	0.0	26.7	36.7	33.3
9.	ท่านสามารถ **หลีกเลี่ยง** ดื่มเครื่องดื่มที่มีคาเฟอีนได้ เช่น น้ำชา กาแฟ	10.0	3.3	13.3	26.7	46.7	3.3	10.0	13.3	36.7	36.7
10	ท่านสามารถดื่มน้ำครั้งละ 1–2 แก้วทุก 2 ชั่วโมงเป็นระยะ ๆ	0.0	10.0	13.3	26.7	50.0	0.0	0.0	26.7	43.3	30.0
11	ท่านสามารถดื่มน้ำวันละ 10 – 12 แก้ว (หรือ 2 – 3 ลิตรต่อวัน)	3.3	16.7	13.3	33.3	33.4	0.0	3.3	20.0	50.0	26.7
12	ท่านสามารถดื่มน้ำ 1 แก้ว ก่อนนอนได้	3.3	10.0	0.0	23.3	63.4	0.0	0.0	6.7	43.3	50.0

หมายเหตุ 1 = ทำไม่ได้ 2 = ไม่มั่นใจ 3 = ทำได้เป็นบางส่วน 4 = ทำได้เป็นส่วนมาก 5 = ทำได้ทั้งหมด

ตารางที่ 8 ร้อยละของกลุ่มเปรียบเทียบจำแนกตามการรับรู้ความสามารถตนเองจำแนกรายข้อก่อนและหลังทดลอง

	การรับรู้ความสามารถตนเองในเรื่อง	ก่อนทดลอง					หลังทดลอง				
		1	2	3	4	5	1	2	3	4	5
1.	ท่านสามารถ **ลด** การรับประทานเนื้อสัตว์ เครื่องในสัตว์น้อยลงได้	3.3	10.0	16.7	13.3	56.7	0.0	3.3	13.3	23.3	60.0
2.	ท่านสามารถ **ลดหรือหลีกเลี่ยง** การรับประทานอาหารประเภทหน่อไม้ได้	0.0	3.3	10.0	23.3	63.4	3.3	3.3	23.3	13.4	56.7
3.	ท่านสามารถ **ลด** การรับประทานอาหารที่มีโซเดียมสูง เช่น อาหารเค็มจัด	6.7	3.3	16.6	26.7	46.7	6.7	13.3	6.6	36.7	36.7
4.	ท่านสามารถ **ลด** การรับประทานปลาเล็กปลาน้อยที่รับประทานทั้งกระดูกได้	10.0	0.0	16.7	30.0	43.3	6.7	10.0	23.3	20.0	40.0
5.	ท่านสามารถ **ลด** การรับประทานผักใบเขียวบางชนิดได้ เช่น ใบยอ สะเดา ใบชะพลู ผักโขม ใบสะระแหน่	0.0	0.0	23.3	30.0	46.7	0.0	3.4	23.3	23.3	50.0
6.	ท่านสามารถ **ลด** การรับประทานยอดผักบางชนิดได้ เช่น ขี้เหล็ก ผักหวาน ชะเอม ผักกระเฉด	0.0	0.0	20.0	43.3	36.7	0.0	3.3	20.0	23.3	53.4
8.	ท่านสามารถเลือกรับประทานอาหารหลากหลายชนิดให้หมุนเวียนไม่ซ้ำกันในแต่ละวันได้	6.6	10.0	26.7	30.0	26.7	3.3	13.3	20.0	30.0	33.4
9.	ท่านสามารถ **หลีกเลี่ยง** ดื่มเครื่องดื่มที่มีคาเฟอีนได้ เช่น น้ำชา กาแฟ	6.7	0.0	13.3	23.3	56.7	10.0	6.6	10.0	16.7	56.7
10	ท่านสามารถดื่มน้ำครั้งละ 1–2 แก้ว ทุก 2 ชั่วโมงเป็นระยะ ๆ	10.0	0.0	10.0	33.3	46.7	0.0	6.7	13.3	20.0	60.0
11	ท่านสามารถดื่มน้ำวันละ 10 – 12 แก้ว (หรือ 2 – 3 ลิตรต่อวัน)	3.3	10.0	16.7	36.7	33.3	3.3	6.7	16.7	20.0	53.3
12	ท่านสามารถดื่มน้ำ 1 แก้วก่อนนอนได้	3.3	6.7	10.0	23.3	56.7	3.3	10.0	3.3	16.7	66.7

หมายเหตุ 1 = ทำไม่ได้ 2 = ไม่มั่นใจ 3 = ทำได้เป็นบางส่วน 4 = ทำได้เป็นส่วนมาก 5 = ทำได้ทั้งหมด

ตารางที่ 9 ร้อยละของกลุ่มทดลองจำแนกตามความคาดหวังผลการปฏิบัติจำแนกรายข้อก่อนและหลังทดลอง

	การรับรู้ความสามารถตนเองในเรื่อง	ก่อนทดลอง					หลังทดลอง				
		1	2	3	4	5	1	2	3	4	5
1.	การ **ลด** การรับประทานเนื้อสัตว์ เครื่องในสัตว์ลง **ช่วยลด** การเกิดนิ่วได้	0.0	3.3	26.7	43.3	26.7	0.0	10.0	16.7	40.0	33.3
2.	การ **ลดหรือหลีกเลี่ยง** การรับประทานอาหารประเภทหน่อไม้ **ช่วยลด**การเกิดนิ่วได้	0.0	6.7	20.0	30.0	43.3	0.0	3.3	13.3	43.4	40.0
3.	การ **ลด**การรับประทานอาหารที่มีโซเดียมสูง เช่น อาหารเค็มจัด**ช่วยลด**การเกิดนิ่วได้	0.0	6.7	33.3	30.0	30.0	0.0	3.3	13.3	43.4	40.0
4.	การ **ลด** การรับประทานปลาเล็กปลาน้อยที่รับประทานทั้งกระดูกเป็นการ **ช่วยลดการรับประทานแคลเซียม**	0.0	13.3	43.4	33.3	10.0	3.3	3.3	30.0	40.0	23.3
5.	**การลด** การรับประทานผักใบเขียวบางชนิด เช่น ใบยอ สะเดา ใบชะพลู ผักโขม **ช่วยลด**การเกิดนิ่วได้	0.0	3.3	40.0	30.0	26.7	0.0	0.0	10.0	43.3	46.7
6.	**การลด** การรับประทานยอดผักบางชนิด **ช่วยลดการเกิดนิ่วได้** เช่น ขี้เหล็ก ผักหวาน ชะเอม ผักกระเฉด	0.0	6.6	50.0	26.7	16.7	0.0	3.3	40.0	30.0	26.7
7.	การเลือกรับประทานอาหารให้ครบทั้ง 5 หมู่ในแต่ละวัน **ช่วยป้องกัน** การสะสมของสารที่รวมกันเป็นก้อนนิ่วได้	0.0	3.4	33.3	30.0	33.3	0.0	3.3	43.4	30.0	23.3
8.	การเลือกรับประทานอาหารหลากหลายชนิดให้หมุนเวียนไม่ซ้ำกันในแต่ละวัน **ช่วยป้องกัน** การสะสมของสารที่รวมกันเป็นก้อนนิ่วได้	0.0	3.3	40.0	36.7	20.0	0.0	0.0	30.0	43.3	26.7
9.	การ **หลีกเลี่ยง** ดื่มเครื่องดื่มที่มีคาเฟอีน เช่น น้ำชา กาแฟ **ช่วยลด**การเป็นนิ่วได้	0.0	0.0	30.0	40.0	30.0	0.0	3.3	16.7	43.3	36.7
10	การดื่มน้ำเป็นระยะ ๆ จะช่วยลดความเข้มข้นของปัสสาวะอย่างต่อเนื่อง จึงช่วยป้องกันการเกิดนิ่วได้	0.0	3.3	23.3	33.4	40.0	0.0	0.0	10.0	26.7	63.3
11	ควรดื่มน้ำวันละ 10–12 แก้ว หรือ 2–3 ลิตรต่อวัน **เพราะน้ำช่วยลดการเกิดนิ่วได้**	0.0	6.6	26.7	20.0	46.7	0.0	0.0	13.3	20.0	66.7
12	การดื่มน้ำ 1 แก้ว ก่อนนอนจะช่วยป้องกันการเกิดนิ่วในตอนกลางคืนได้	0.0	6.6	30.0	36.7	26.7	0.0	6.7	10.0	30.0	53.3

หมายเหตุ 1 = ไม่เห็นด้วยมากที่สุด 2 = ไม่เห็นด้วย 3 = ไม่แน่ใจ 4 = เห็นด้วย 5 = เห็นด้วยมากที่สุด

ตารางที่ 10 ร้อยละของกลุ่มเปรียบเทียบจำแนกตามความคาดหวังผลการปฏิบัติจำแนกรายข้อก่อนและหลังทดลอง

การรับรู้ความสามารถตนเองในเรื่อง	ก่อนทดลอง					หลังทดลอง				
	1	2	3	4	5	1	2	3	4	5
1. การ **ลด** การรับประทานเนื้อสัตว์ เครื่องในสัตว์ลง **ช่วยลด**การเกิดนิ่วได้	3.3	10.0	33.3	26.7	26.7	3.3	3.3	23.4	50.0	20.0
2. การ **ลดหรือหลีกเลี่ยง** กร รับประทานอาหารประเภทหน่อไม้ **ช่วยลด** การเกิดนิ่วได้	3.4	13.3	23.3	36.7	23.3	0.0	3.3	20.0	63.4	13.3
3. การ **ลด** การรับประทานอาหารที่มีโซเดียมสูง เช่น อาหารเค็มจัด **ช่วยลด** การเกิดนิ่วได้	3.3	10.0	20.0	43.4	23.3	3.3	3.3	16.7	60.0	16.7
4. การ **ลด** การรับประทานปลาเล็กปลาน้อยที่รับประทานทั้งกระดูกเป็นการ **ช่วยลดการรับประทานแคลเซียม**	6.6	3.3	36.7	36.7	16.7	3.3	0.0	13.3	66.7	16.7
5. **การลด** การรับประทานผักใบเขียวบางชนิด เช่น ใบยอ สะเดา ใบชะพลู ผักโขม **ช่วยลด**การเกิดนิ่วได้	0.0	6.7	33.3	26.7	33.3	0.0	0.0	33.3	53.4	13.3
6. **การลด** การรับประทานยอดผักบางชนิด**ช่วยลดการเกิดนิ่วได้** เช่น ขี้เหล็ก ผักหวาน ชะเอม ผักกระเฉด	0.0	20.0	36.7	23.3	20.0	0.0	6.6	36.7	46.7	10.0
7. การเลือกรับประทานอาหารให้ครบทั้ง 5 หมู่ในแต่ละวัน **ช่วยป้องกัน** การสะสมของสารที่รวมกันเป็นก้อนนิ่วได้	6.7	6.7	20.0	36.6	30.0	0.0	3.3	13.3	60.0	23.4
8. การเลือกรับประทานอาหารหลากหลายชนิดให้หมุนเวียนไม่ซ้ำกันในแต่ละวัน **ช่วยป้องกัน** การสะสมของสารที่รวมกันเป็นก้อนนิ่วได้	0.0	10.0	36.7	36.7	16.6	0.0	0.0	16.7	60.0	23.3
9. การ **หลีกเลี่ยง** ดื่มเครื่องดื่มที่มีคาเฟอีน เช่นน้ำชา กาแฟ **ช่วยลด** การเป็นนิ่วได้	0.0	6.7	33.3	36.7	23.3	0.0	6.7	20.0	60.0	13.3
10 การดื่มน้ำเป็นระยะ ๆ จะช่วยลดความเข้มข้นของปัสสาวะอย่างต่อเนื่อง จึงช่วยป้องกันการเกิดนิ่วได้	0.0	6.7	20.0	33.3	40.0	0.0	0.0	0.0	56.7	43.3
11 ควรดื่มน้ำวันละ 10–12 แก้ว หรือ 2–3 ลิตรต่อวัน **เพราะน้ำช่วยลดการเกิดนิ่วได้**	0.0	0.0	16.7	43.3	40.0	0.0	0.0	6.7	60.0	33.3
12 การดื่มน้ำ 1 แก้ว ก่อนนอนจะช่วยป้องกันการเกิดนิ่วในตอนกลางคืนได้	0.0	3.3	20.0	40.0	36.7	0.0	0.0	6.7	70.0	23.3

หมายเหตุ 1 = ไม่เห็นด้วยมากที่สุด 2 = ไม่เห็นด้วย 3 = ไม่แน่ใจ 4 = เห็นด้วย 5 = เห็นด้วยมากที่สุด

ตารางที่ 11 ร้อยละของกลุ่มทดลองและกลุ่มเปรียบเทียบจำแนกตามการรับประทานอาหารและน้ำดื่มจำแนกรายข้อก่อนและหลังทดลอง

ความคาดการรับประทานอาหารและน้ำดื่มหวังผลการปฏิบัติในเรื่อง		กลุ่มทดลอง						กลุ่มเปรียบเทียบ					
		ก่อนทดลอง						หลังทดลอง					
		1	2	3	1	2	3	1	2	3	1	2	3
1	ท่านรับประทานเนื้อสัตว์	33.3	60.0	6.7	46.7	53.3	0.0	30.0	50.0	20.0	36.7	53.3	10.0
2	ท่านรับประทานเครื่องในสัตว์	3.3	16.7	80.0	0.0	20.0	80.0	6.6	16.7	76.7	0.0	30.0	70.0
3	ท่านรับประทานอาหารเค็มจัด	20.0	30.0	50.0	10.0	43.3	46.7	20.0	26.7	53.3	20.0	26.7	53.3
4	ท่านรับประทานปลาเล็กปลาน้อยที่รับประทานได้ทั้งกระดูก	6.7	33.3	60.0	0.	23.3	76.7	10.0	26.7	63.3	6.7	23.3	70.0
5	ท่านรับประทานหน่อไม้ต่าง ๆ	3.3	16.7	80.0	3.3	6.7	90.0	3.3	26.7	70.0	0.0	16.7	83.3
6	ท่านรับประทานผักใบเขียวจัด เช่น ใบยอ ใบชะพลู ใบสะระแหน่	6.6	16.7	76.7	3.3	10.0	86.7	3.3	23.3	73.4	3.3	16.7	80.0
7	ท่านรับประทานผักหวาน ผักโขม ผักเสี้ยน ผักกระเฉด	3.3	20.0	76.7	3.3	6.7	90.0	0.0	26.7	73.3	0.0	30.0	70.0
8	ท่านรับประทานสะเดา ยอดแค ขี้เหล็ก ชะเอมมะรุม	6.7	13.3	80.0	3.3	13.3	83.4	0.0	23.3	76.7	6.6	26.7	66.7
9	ท่านดื่มน้ำชา กาแฟ	23.3	13.3	63.4	13.3	13.3	73.4	36.7	23.3	40.0	26.7	13.3	60.0
10	ท่านดื่มน้ำเป็นระยะทุก 1 –2 ชั่วโมง	13.3	30.0	56.7	13.3	16.7	70.0	20.0	30.0	50.0	23.3	23.3	53.4
11	ท่านดื่มน้ำ 1 แก้วก่อนนอน	16.7	13.3	70.0	3.3	10.0	86.7	20.0	13.3	66.7	20.0	13.3	66.7
12	ท่านดื่มน้ำ 10 – 12 แก้ว หรือ 2 – 3 ลิตรต่อวัน	33.3	23.3	43.4	10.0	23.3	66.7	33.3	20.0	46.7	33.3	23.3	43.4

หมายเหตุ 1 = ปฏิบัติ 3 วัน / สัปดาห์ 2 = ปฏิบัติ 4 – 5 วัน / สัปดาห์ 3 = ปฏิบัติ 6 – 7 วัน / สัปดาห์

APPENDIX B

แผนการจัดกิจกรรมครั้งที่ 1

เป้าหมายของการจัดกิจกรรม

เสริมสร้างความรู้และการปฏิบัติเมื่อเป็นนิ่ว การรับรู้ความสามารถของตนเองและความคาดหวังผลในการปฏิบัติตัวด้านการควบคุมอาหารและน้ำดื่ม

แนวคิดหลัก

นิ่วในระบบปัสสาวะเป็นโรคที่มีภาวะแทรกซ้อนรุนแรง มีผลทำให้ไตสูญเสียหน้าที่จนถึงไตวายเฉียบพลันและไตวายเรื้อรังได้ นิ่วระบบปัสสาวะเป็นโรคที่สามารถกลับเป็นซ้ำได้ และสามารถป้องกันได้ ซึ่งปัจจัยทางด้านพฤติกรรมมีส่วนอย่างมาก ประกอบด้วย การควบคุมอาหารและน้ำดื่ม ซึ่งต้องปรับให้เหมาะสมกับสภาพการใช้ชีวิตประจำวันของแต่ละบุคคล ดังนั้นผู้ป่วยจึงต้องมีความรู้เรื่องโรคนิ่วระบบปัสสาวะ การดูแลตนเองที่ถูกต้อง ผู้ป่วยควรรับรู้ความสามารถของตนเองและคาดหวังผลดีในการปฏิบัติตัวที่ถูกต้อง เนื่องจากไม่มีใครจะดูแลผู้ป่วยได้ดีเท่ากับตัวผู้ป่วยเอง

วัตถุประสงค์ทั่วไป

เพื่อให้ผู้ป่วยนิ่วระบบปัสสาวะที่เข้าร่วมกิจกรรมมีความรู้ความเข้าใจเกี่ยวกับโรคนิ่วระบบปัสสาวะ รับรู้ความสามารถตนเองในการปฏิบัติเมื่อเป็นนิ่วและการป้องกันการกลับเป็นนิ่วซ้ำในเรื่องการควบคุมอาหารและน้ำดื่ม และคาดหวังผลดีในการการปฏิบัติเรื่องการควบคุมอาหารและน้ำดื่ม

วัตถุประสงค์เฉพาะ เพื่อให้ผู้ป่วยนิ่วระบบปัสสาวะที่เข้าร่วมกิจกรรมสามารถ

1. มีความรู้เกี่ยวกับนิ่วระบบปัสสาวะ
2. รับรู้ความสามารถของตนเองในการควบคุมอาหารและน้ำดื่ม
3. มีการคาดหวังผลดีที่เกิดจากการปฏิบัติของตนเองในเรื่องการควบคุมอาหารและน้ำดื่ม
4. ค้นหาพฤติกรรมที่ไม่เหมาะสมของตนเอง รับรู้ปัญหาและหาแนวทางแก้ไขได้
5. บอกการเลือกอาหารและน้ำดื่มที่ถูกต้องเหมาะสมกับตนเองได้

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อุปกรณ์

1. วิดิทัศน์เรื่องนิ่วระบบปัสสาวะ
2. แผ่นพับการปฏิบัติตัวเมื่อเป็นนิ่วระบบปัสสาวะ
3. แบบบันทึกผลการตรวจปัสสาวะที่บ้าน

กิจกรรม

1. ผู้วิจัยแนะนำตัวเองพร้อมชี้แจงวัตถุประสงค์ รูปแบบการดำเนินกิจกรรมและทำความตกลงร่วมกับกลุ่ม
2. กลุ่มสัมพันธ์ โดยผู้วิจัยเป็นผู้นำเพื่อสร้างสัมพันธภาพระหว่างสมาชิกกลุ่ม
3. ฉายวิดิทัศน์เรื่องนิ่วระบบปัสสาวะและการปฏิบัติตัวส่วนที่ 1 เรื่องนิ่วระบบปัสสาวะและการปฏิบัติเมื่อเป็นนิ่ว เพื่อให้ผู้ป่วยมีความรู้เรื่องนิ่วและการปฏิบัติตัวเมื่อเป็นนิ่ว และตอนที่ 2 ประสบการณ์การปฏิบัติเมื่อเป็นนิ่วของตัวแบบ เพื่อให้ผู้ป่วยมีการรับรู้ความสามารถของตนเองที่จะสามารถปฏิบัติตัวเช่นเดียวกับการปฏิบัติของตัวแบบ รวมทั้งผลดีของการปฏิบัติเรื่องการควบคุมอาหารและน้ำดื่ม
4. ผู้วิจัยทบทวนและสรุปประเด็นเนื้อหาจากวิดิทัศน์ซ้ำอีกครั้งให้กับกลุ่ม
5. แจกคู่มือความรู้เรื่องนิ่วระบบปัสสาวะและการปฏิบัติตัวเมื่อเป็นนิ่ว
6. ผู้วิจัยอธิบายวิธีการตรวจปัสสาวะที่บ้านด้วยแถบทดสอบปัสสาวะสำเร็จรูป และให้ผู้ป่วยฝึกการตรวจปัสสาวะด้วยแถบทดสอบและการลงบันทึกผลการตรวจปัสสาวะลงในแบบบันทึกที่แจกให้
7. เปิดโอกาสให้สมาชิกซักถามปัญหา สรุปประเด็นสำคัญของกิจกรรม นัดหมายการทำกิจกรรมครั้งต่อไปอีก 2 สัปดาห์ พร้อมทั้งแจกใบนัด

การประเมินผล

1. สังเกตความสนใจในการร่วมกิจกรรม
2. การร่วมอภิปรายแสดงความคิดเห็นในกลุ่ม
3. ให้ผู้ป่วยสรุปประเด็นความรู้เกี่ยวกับนิ่วระบบปัสสาวะและการปฏิบัติตัวในการควบคุมอาหารและน้ำดื่ม

แผนการจัดกิจกรรมครั้งที่ 2

เป้าหมายของการจัดกิจกรรม

เพื่อเสริมสร้างและกระตุ้นการรับรู้ความสามารถของตนเองในการปฏิบัติตัวเมื่อเป็นนิ่วในเรื่องการควบคุมอาหารและน้ำดื่มจากการทดลองปฏิบัติด้วยตนเอง และความคาดหวังผลดีในการปฏิบัติตนเมื่อเป็นนิ่วในเรื่องการควบคุมอาหารและน้ำดื่ม รวมทั้งมีการเสริมแรงและสนับสนุนการปฏิบัติตัวที่ถูกต้อง

แนวคิดหลัก

เป้าหมายในการดูแลผู้ป่วยนิ่วระบบปัสสาวะ คือ การไม่เพิ่มขนาดของก้อนนิ่ว นิ่วก้อนเล็ก ๆ สามารถหลุดเองได้ และป้องกันการเกิดนิ่วซ้ำ ซึ่งการจะบรรลุเป้าหมายนั้น ปัจจัยหนึ่งคือการปฏิบัติของผู้ป่วยในเรื่องการควบคุมอาหารและการดื่มน้ำของผู้ป่วย ดังนั้นนอกจากผู้ป่วยจะต้องมีความรู้ความเข้าใจในเรื่องโรคแล้ว ผู้ป่วยต้องรับรู้ความสามารถของตนเองและผลดีในการปฏิบัติตัวที่ถูกต้องที่ผู้ป่วยสามารถปฏิบัติได้ และทดลองปฏิบัติแล้วว่าสามรถปฏิบัติได้ ซึ่งจะทำให้ผู้ป่วยมีแนวโน้มที่จะกระทำพฤติกรรมนั้นต่อไปมากขึ้น

วัตถุประสงค์ทั่วไป

มีการรับรู้ความสามารถตนเองและความคาดหวังในผลดีของการปฏิบัติตัวด้านการควบคุมอาหารและน้ำดื่ม

วัตถุประสงค์เฉพาะ เพื่อสร้างความคิดให้ผู้ป่วยที่เข้าร่วมกิจกรรมในเรื่อง

1. บอกผลดีของการปฏิบัติในเรื่องการควบคุมอาหารและการดื่มน้ำได้
2. ค้นหาพฤติกรรมที่ไม่เหมาะสมของตนเองรับรู้ปัญหาและหาแนวทางแก้ปัญหาได้
3. มีพฤติกรรมการควบคุมอาหารและน้ำดื่มที่ถูกต้อง

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แบบแสดงผลการตรวจปัสสาวะที่บ้านของผู้ป่วย

กิจกรรม

1. ผู้วิจัยแนะนำตัวเองพร้อมชี้แจงวัตถุประสงค์ และกิจกรรมกลุ่มสัมพันธ์ โดยผู้วิจัยเป็นผู้นำเพื่อสร้างสัมพันธภาพระหว่างสมาชิกกลุ่ม
2. อธิบายการปฏิบัติตัวของผู้ป่วยร่วมกับผลการตรวจปัสสาวะที่ผู้ป่วยบันทึกมาจากบ้าน ประเมินผลการปฏิบัติตัวของผู้ป่วยการควบคุมอาหารและน้ำดื่มจากการสัมภาษณ์ผู้ป่วยร่วมกับแบบบันทึกผลการตรวจปัสสาวะที่บ้านที่ผู้ป่วยจดบันทึกมาแต่ละคน
3. อภิปรายกลุ่มประเมินความก้าวหน้าในการปฏิบัติตัว
4. วิเคราะห์ผลเพื่อหาปัญหาร่วมกับผู้ป่วยโดยใช้กระบวนการกลุ่ม ร่วมกันแสดงความคิดเห็น แลกเปลี่ยนความคิดเห็นในกลุ่ม และร่วมกันอภิปรายเกี่ยวกับการปฏิบัติด้านการควบคุมอาหารและน้ำดื่ม ปัญหา อุปสรรค และแนวทางแก้ไขปัญหา
5. สนับสนุนพฤติกรรมการบริโภคที่ถูกต้อง หลีกเลี่ยงการตำหนิติเตียนพฤติกรรมที่ผิด มุ่งเน้นเปลี่ยนพฤติกรรมที่พึงประสงค์
6. กำหนดเป้าหมายร่วมกันกับผู้ป่วย ปรับแผนการปฏิบัติกิจกรรมประจำวันที่เป็นไปได้และเหมาะสมกับวิถีชีวิต
7. วางแผนการบริโภคอาหารและแนะนำให้รู้จักการเลือกรับประทานอาหารโดยใช้หลักอาหารหมุนเวียน
8. ชี้แนะแนวทางการปฏิบัติตัวด้านการบริโภคอาหารโดยให้ผู้ป่วยได้มีโอกาสเลือกและตัดสินใจด้วยตัวเอง
9. เปิดโอกาสให้ผู้ป่วยได้ซักถามปัญหา สรุปเนื้อหาในการทำกิจกรรมครั้งนี้และนัดหมายการเข้าร่วมกิจกรรมครั้งต่อไปอีก 2 สัปดาห์พร้อมแจกใบนัด และแบบบันทึกผลการตรวจปัสสาวะที่บ้านของผู้ป่วย

การประเมินผล

1. สังเกตความสนใจในการร่วมกิจกรรม
2. การร่วมอภิปรายแสดงความคิดเห็นในกลุ่ม
3. ให้ผู้ป่วยสรุปประเด็นการปฏิบัติตัวในการควบคุมอาหารและน้ำดื่ม

แผนการจัดกิจกรรมครั้งที่ 3

เป้าหมายของการจัดกิจกรรม

เพื่อกระตุ้นการรับรู้ความสามารถของตนเองในการปฏิบัติตัวเมื่อเป็นนิ่วในเรื่องการควบคุมอาหารและน้ำดื่ม และความคาดหวังผลดีในการปฏิบัติตนเมื่อเป็นนิ่วในเรื่องการควบคุมอาหารและน้ำดื่ม รวมทั้งเป็นการเสริมแรงและสนับสนุนการปฏิบัติตัวที่ถูกต้องและต่อเนื่องต่อไป

แนวคิดหลัก

เป้าหมายในการดูแลผู้ป่วยนิ่วระบบปัสสาวะ คือ การไม่เพิ่มขนาดของก้อนนิ่ว นิ่วก้อนเล็ก ๆ สามารถหลุดเองได้ และป้องกันการเกิดนิ่วซ้ำ ซึ่งการจะบรรลุเป้าหมายนั้น ปัจจัยหนึ่งคือการปฏิบัติของผู้ป่วยในเรื่องการควบคุมอาหารและการดื่มน้ำของผู้ป่วย ดังนั้นนอกจากผู้ป่วยจะต้องมีความรู้ความเข้าใจในเรื่องโรคแล้ว ผู้ป่วยต้องรับรู้ความสามารถของตนเองและผลดีในการปฏิบัติตัวที่ถูกต้องที่ผู้ป่วยสามารถปฏิบัติได้จากการทดลองปฏิบัติด้วยตนเอง ซึ่งจะทำให้ผู้ป่วยมีแนวโน้มที่จะกระทำพฤติกรรมนั้นมากขึ้น

วัตถุประสงค์ทั่วไป

มีการรับรู้ความสามารถตนเองและเห็นผลดีของการปฏิบัติตัวด้านการควบคุมอาหารและน้ำดื่ม

วัตถุประสงค์เฉพาะ เพื่อสร้างความคิดให้ผู้ป่วยที่เข้าร่วมกิจกรรมในเรื่อง

1. บอกผลดีของการปฏิบัติในเรื่องการควบคุมอาหารและการดื่มน้ำได้
2. มีพฤติกรรมการควบคุมอาหารและน้ำดื่มที่ถูกต้อง
3. รับรู้ปัญหาและหาแนวทางแก้ปัญหาได้

ระยะเวลา 45 นาที

อุปกรณ์

แบบแสดงผลการตรวจปัสสาวะที่บ้านของผู้ป่วย

กิจกรรม

1. ผู้วิจัยทักทายกลุ่ม โดยผู้วิจัยเป็นผู้นำเพื่อสร้างสัมพันธภาพระหว่างสมาชิกกลุ่ม
2. ประเมินผลการปฏิบัติตัวของผู้ป่วยการควบคุมอาหารและน้ำดื่มจากการสัมภาษณ์ผู้ป่วย ร่วมกับแบบบันทึกผลการตรวจปัสสาวะที่บ้านที่ผู้ป่วยจดบันทึกมาให้
3. อภิปรายกลุ่มประเมินความก้าวหน้าในการปฏิบัติตัว เปรียบเทียบกับผลการตรวจปัสสาวะเมื่อ 2 สัปดาห์ก่อน
4. วิเคราะห์ผลเพื่อหาปัญหาร่วมกับผู้ป่วยโดยใช้กระบวนการกลุ่ม ร่วมกันแสดงความคิดเห็น แลกเปลี่ยนความคิดเห็นในกลุ่ม และร่วมกันอภิปรายเกี่ยวกับการปฏิบัติด้านการควบคุมอาหารและน้ำดื่ม ปัญหา อุปสรรค และแนวทางแก้ไขปัญหา
5. สนับสนุนพฤติกรรมการบริโภคที่ถูกต้อง หลีกเลี่ยงการตำหนิติเตียนพฤติกรรมที่ผิด มุ่งเน้นเปลี่ยนพฤติกรรมที่พึงประสงค์
6. ร่วมกับผู้ป่วยปรับแผนการปฏิบัติกิจกรรมประจำวันที่เป็นไปได้และเหมาะสมกับวิถีชีวิต วางแผนการบริโภคอาหารและทบทวนการปฏิบัติ การเลือกรับประทานอาหารโดยใช้หลักอาหารหมุนเวียน
7. สรุปเนื้อหาในการทำกิจกรรม

การประเมินผล

1. สังเกตความสนใจในการร่วมกิจกรรม
2. การร่วมอภิปรายแสดงความคิดเห็นในกลุ่ม
3. สังเกตการเปลี่ยนแปลงของผลตรวจปัสสาวะ

No. 34/2005

Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to Human Experimentation
Mahidol University, Bangkok

Title of Project. Health Care Program fro Dietary and Water Intake Control among Urinary Stone Patients at Ratchaburi Hospital
(Thesis for Master Degree)

Principle Investigator. Miss Nongnuch Junklai

Name of Institution. Faculty of Public Health

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman. .....
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Signature of Head of the Institute. .....
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Date of Approval. - 8 APR 2005

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