

**PREVALENCE AND CHARACTERISTICS OF URINARY
INCONTINENCE AMONG PREGNANT WOMEN ATTENDED AT A
PRIVATE HOSPITAL IN SAVAR**

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We the under signed certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

**PREVALENCE AND CHARACTERISTICS OF URINARY
INCONTINENCE AMONG PREGNANT WOMEN ATTENDED AT A
PRIVATE HOSPITAL IN SAVAR**

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Bachelor of Science in Physiotherapy (B. Sc. PT).

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DEDICATION

Dedicated to
My Parents
Who accelerate me from behind.

DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of information of the study, I would be bound to take written consent of my supervisor & Head, Department of Physiotherapy, Bangladesh Health Professions Institute (BHPI).

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Acronyms

&	And
BHPI	Bangladesh Health Professions Institute
CRP	Center for the Rehabilitation of the Paralyzed
UI	Urinary Incontinence
NUI	No Urinary Incontinence
SUI	Stress Urinary Incontinence
UUI	Urge Urinary Incontinence
MUI	Mixed Urinary Incontinence
EMCH	Enam Medical College and Hospital
SPSS	Statistical Package for Social Sciences
USA	United States of America
BMRC	Bangladesh Medical and Research Council
WHO	World Health Organization
IRB	Institutional Research Board

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Abstract

Purpose: The purpose of the study was to identify the prevalence and characteristics of urinary incontinence among pregnant women attended at a private hospital in Savar.

Objectives: To identify the prevalence and characteristics of urinary incontinence among pregnant women, to find out the vulnerable age group and to explore the gestational age when pregnancy related urinary incontinence arises more frequently. *Methodology:*

Method of the study was a quantitative research model in the form of a prospective type survey and cross sectional study design was carried out in this study. Data was collected from conveniently chosen 50 pregnant women from a private hospital in Savar, by using questionnaire with informed consent of the participants. Data were numerically coded and captured in Excel, using an SPSS 16.0 version software program. The researcher used descriptive statistics in this research.

Results: In this study it was found that, the prevalence of urinary incontinence among the pregnant women was 74% (37). Of this 62% (23) pregnant women suffered from stress incontinence, 27% (10) from urge urinary incontinence and 11% (4) from mixed urinary incontinence. It was mostly occurred in 18-28 years old pregnant women. The housewives were mostly complaints of urinary incontinence. Most of the participants 56% (28) were primigravida and rest of the 44% (22) participants were multigravida in this study. The prevalence of urinary incontinence among primigravida and multigravida in this study was 68% (19) & 82% (18). The onset and frequency of urinary incontinence were depends on the gravida, previous delivery route, types of urinary incontinence and different gestational age of the pregnant women.

Conclusions: The prevalence of urinary incontinence during pregnancy was very high especially in stress urinary incontinence. The housewives, multigravida especially whom had history of previous vaginal delivery route and advanced gestational age contributed the major risk factor. But the pregnant women were not aware about existing physiotherapy services. Proper physiotherapy could be helpful to minimize this urinary incontinence and prevent other pregnancy related complications also.

Keywords: Urinary incontinence, stress urinary incontinence, urge urinary incontinence, pregnancy, gestational age, gravid.

1.1 Background

The standardization committee of the International Continence Society (ICS) defines urinary incontinence (UI) as “any involuntary urine leak complaint” (Abrams et al., 2012). This condition is more common in women than in men. UI can significantly impair quality of life, restricting social activity in women and usually accompanied by medical complications. Though urinary incontinence is not life-threatening, it is a very debilitating condition. “Incontinence is a condition that will not kill me, but it took my life away,” is an emotional quote that aptly describes the impact of urinary incontinence on the patient (Gartley, 2006).

UI caused health problems, personal hygiene and social problems. Several physiologic changes including enlargement of uterus, engagement of fetus, and detrusor muscle instability resulting from changes in hormone levels have been acknowledged as factors associated with UI during pregnancy (Peschers et al., 2005).

The magnitude of this problem is usually underestimated owing to the fact that the majority of pregnant women with UI did not report to their providers (Adaji et al., 2010). In previous studies, some still were not clear about causes of UI in pregnant women but some confirmed that the pregnancy has been associated with UI. The prevalence of UI during pregnancy in China, Turkey, Brazil, Denmark and Taiwan varied from 26.7 to 37.5% (Liang et al., 2012). One study in Thai pregnant women, which data collected in only late third trimester, showed very high prevalence rate (53.8%) (Tanawattanacharoen&Thongtawee, 2013). SUI was reported by most of pregnant women (13.7 – 60.5%) (Fritel et al., 2012).

The elevated levels of oestrogen and progesterone are known to make the bladder more squamous. The detrusor muscle undergoes hypertrophy and hypotonia with increased bladder capacity (Chaliha& Stanton, 2005). The bladder also undergoes anatomical changes favorable to lower urinary tract symptoms. Such changes include upwards and

anterior displacement of the bladder, making it to become abdominal. It's base also enlarges and the trigone becomes more convex than concave. Distortion of the bladder by the uterus fundus in pregnancy has also been shown in radiological investigations (Malpas et al., 2007). Several studies have linked these anatomical changes in pregnancy with lower urinary tract symptoms. In a study of 123 pregnant women that mean daily urine output, mean number of voids per day increased with gestational age and declined after delivery, while episodes of UI peaked in the third trimester of pregnancy and improved after birth (Thorp et al., 2009). The majority of urogynaecological problems can manifest during pregnancy or as a direct result of pregnancy and delivery. Those most commonly occurring during pregnancy are urinary tract infection, filling and voiding disorders, urinary incontinence, pelvic organ prolapse and fecal incontinence. The development of these may be a result of physiological changes that occur in pregnancy or a result of previous pregnancies (Law & Fiadjoe, 2012).

Age, parity, history of UI symptoms, constipation, history of UI in the mother and sister, history of UI during pregnancy and postpartum period, frequency of exercise, alcoholic intake, smoking, body mass index, waist circumference, the change of metabolic and hormonal system during pregnancy were reported as associated factors of UI by many studies (Kocaöz et al., 2010, Zhu et al., 2012, Liang et al., 2012, Fritel et al., 2012).

1.2 Rationale

In Bangladesh the promotion of proper maternity care is still remains a great challenge (World Bank Report, 2010). Women experience some anatomical and physiological changes during pregnancy which causes different type of UI during prenatal period and sometimes also in postnatal period. Obstetrics physiotherapists can help a woman during pregnancy to adjust and cope with the physical problems and also support a woman and her birth partner throughout the prenatal, labor and postnatal period (Dinc et al., 2009). In developed countries, obstetrical physiotherapy is an essential part of maternal health care. But in Bangladesh it is not well known yet. The study aimed to address the prevalence and characteristics of urinary incontinence among pregnant women attended at a private hospital in Savar. After completing this study the patients was benefited because they were aware about their maternal problems and physiotherapy services for prevention and treatment of those problems. Maternal health care is an emerging area in perspective of Bangladesh and physiotherapists can work by gather information about the prevalence of common pregnancy related incontinence complaints of women. This study is helpful for physiotherapists to aware them about the UI in women during their prenatal period and by giving them a clear reflection of the prevalence of those complaints, the most affected age group and gestational period when most of the problems occur. So it is also helpful for physiotherapists for working in maternal health care by delivering treatment service with multi professional team. This study is also helpful for different organizations working in this area by including physiotherapy service in their program for delivering a comprehensive treatment service. Research makes the profession strongest and this study can show the need to establish the skills of physiotherapists particularly in the gynecology and obstetrics area and a base for expanding the scope of practice and also create a future prospect of physiotherapy profession in this country (Walton & Schbley, 2013). However, for fulfillment the 4th year of B.Sc in Physiotherapy I had to carried out a research of my interest which accomplished the professional body of interest.

1.3 Research question

What is the prevalence and characteristics of urinary incontinence among pregnant women attended at a private hospital in Savar?

1.4 Objectives

1.4.1 General objective

To explore prevalence and characteristics of urinary incontinence among pregnant women attended at a private hospital in Savar.

1.4.2 Specific objectives

1. To identify the prevalence and characteristics of urinary incontinence among pregnant women of both primigravida & multigravida.
2. To find out the vulnerable age group of having incontinence problems during pregnancy.
3. To explore the gestational age when pregnancy related urinary incontinence arises more frequently.
4. To find out the characteristics or frequency of urinary symptoms in pregnant women.
5. To determine about the frequency of physiotherapy treatment received by pregnant women for urinary incontinence.

1.5 Conceptual framework

Independent variable

Dependent variable

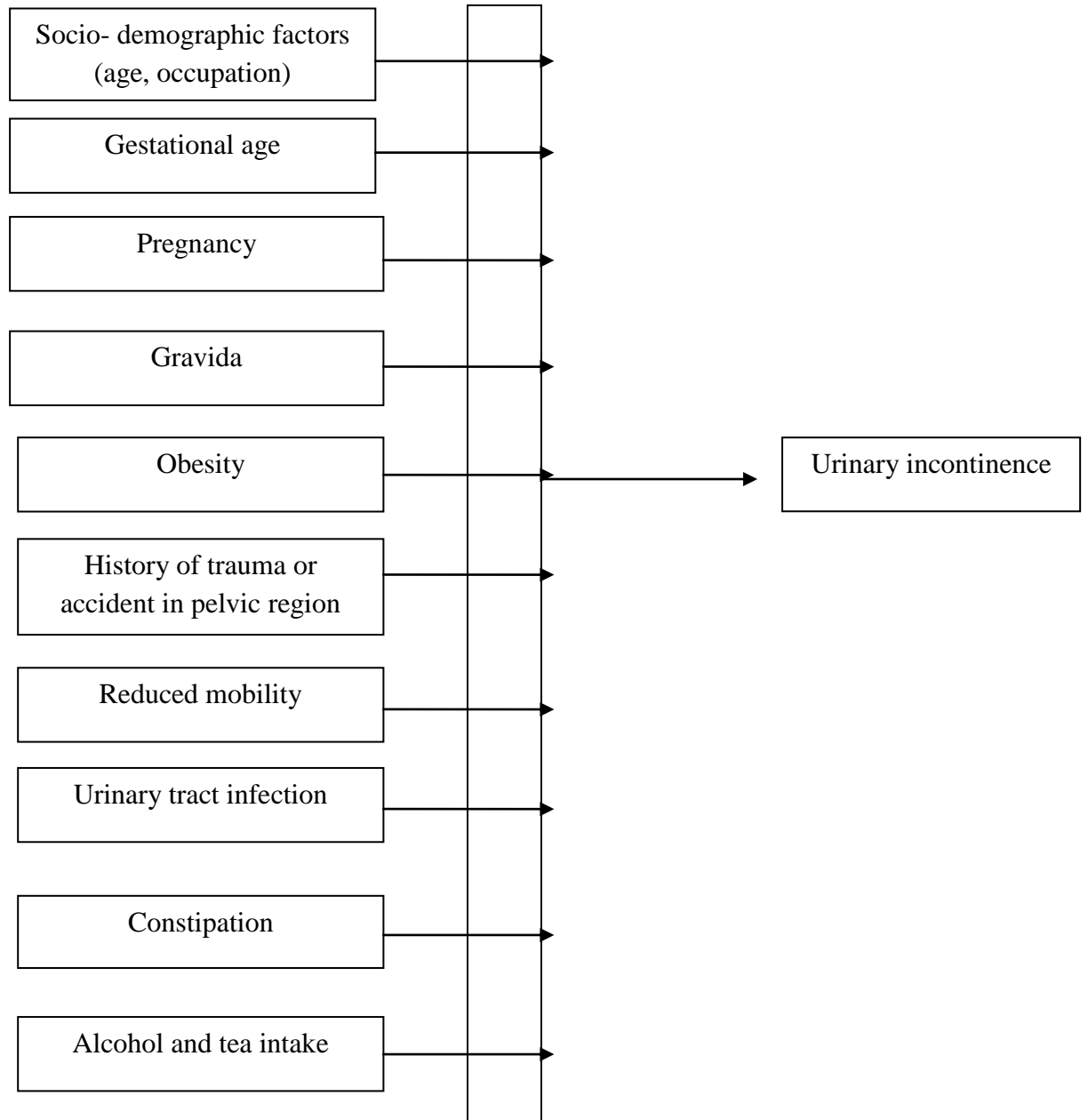


Table 1: Conceptual framework

1.6 Operational definitions

The definitions of UI were updated in 2010 in the report from the standardization subcommittee of the International Continence Society and International Urogynecology Association (Haylen,2010).

Urinary incontinence: The complaint of any involuntary leakage of urine.

Stress urinary incontinence: The complaint of any involuntary leakage of urine on effort or exertion or sneezing or coughing.

Urge urinary incontinence: The complaint of any involuntary leakage of urine accompanied by or immediately proceeded by urgency.

Mixed urinary incontinence: The complaint of any involuntary leakage of urine associated with urgency and also with effort or exertion or sneezing or coughing.

Pregnancy: Pregnancy is the condition of having a developing embryo on fetus in the body after successful conception. The length of pregnancy according to recent embryologist is 266 days. Total pregnancy divided into 3 trimesters.

First trimester: 1st 3 months of pregnancy (1 to 12 weeks)

Second trimester: 4 to 6 months (13 to 24 weeks).

Third trimester: 7 to 9 months (25 weeks up to delivery).

Prenatal period: Period of time from conception to delivery (the pregnancy period)

Gestational age: Period of time for intrauterine development.

Gravida: Number of pregnancies including the current one.

Primigravida: A woman who is pregnant for the first time.

Multigravida: A women who has been pregnant more than once.

Data from a large number of cross-sectional studies and cohort studies indicate that UI in women is highly prevalent in pregnancy. More than 50 % of all pregnant women experience UI. UI when running, jumping, coughing or laughing (SUI) is the most common symptom of UI in association with pregnancy (Wesnes et al., 2007).

In a cross-sectional study from Ireland 7,771 women received a questionnaire on UI 2-3 days postpartum (Marshall et al., 2008). Prevalence of UI was 55 % and 66 % among primigravida and multigravida women, respectively. The study has somewhat insufficient descriptive data which makes it difficult to evaluate the external validity. In 2009 Hojberg et al found a prevalence of UI of 4 % and 14 % among 7,794 Danish primigravida and multigravida women, respectively (Hojberg et al., 2009). The low prevalence might be due to UI was reported in early in pregnancy (week 16).

Several cohorts have investigated prevalence of UI during pregnancy. One of the first studies to put focus on UI in pregnancy was done by Francis in 2005 (Francis, 2005). In this cohort he found the prevalence of UI to be 52 % and 85 % among primigravida and multigravida women, respectively. Similar results were found in an Australian cohort study that used a validated questionnaire on UI on 1,507 primigravida women (Brown et al., 2010). Prevalence of UI at least once a month was found to be 56 % in week 31 of pregnancy. New cases of stress UI accounted for more than two thirds of the reported UI prevalence in pregnancy. A study from USA found by structured questionnaire interview on 553 women a prevalence 60 % for UI during pregnancy (Burgio et al., 2007). In the large Norwegian mother and child cohort the prevalence of any UI in third trimester was 48 % among primigravida and 67 % among multigravida women (Wesnes et al., 2007). Stress UI was the most common type of UI, affecting 31 % and 41 % of all primigravida and multigravida women. The majority of women leaked only small amounts.

Lower prevalence estimates are reported in other cohorts; Dolan et al investigated prevalence of any UI in week 32 to term in a cohort of 492 primigravida women in England (Dolan et al., 2006). Prevalence of UI was 36 % in pregnancy. However, prevalence of UI before pregnancy was only 2.6 %, which might explain a somewhat low UI prevalence in pregnancy. The majority of the women reported little impact on quality of life. The highest prevalence estimates were reported from a very small cohort recruiting 113 women from an American tertiary care hospital (Razaet al., 2006). A prevalence of 70 % and 75 % were found among primigravida and multigravida women, respectively.

Prevalence estimates for UI in pregnancy among primigravida women vary from 4 – 70 %, while estimates for multigravida women vary from 14 – 85 %. However, the majority of studies appear to report prevalence estimates between 35 – 55 % among primigravida women, and somewhat higher figures for multigravida women. No systematic review on UI in pregnancy has been published (Wesnes et al., 2007). The International consultation on incontinence published in 2009 their latest report “Epidemiology of Urinary (UI) and Faecal (FI) Incontinence and Pelvic Organ Prolapse (POP)” (Milsom et al., 2009). It describes period prevalence of any UI in pregnancy of 32 – 64% among all women.

According to Dorland illustrated medical dictionary (2014), pregnancy is the condition of having developing embryo or fetus in the body after successful conception. The average duration of pregnancy is about 280 days. Estimation of the date on which delivery may occur is calculated from the first day of the last menstrual period. Pregnancy is the state of carrying a developing embryo or fetus into the female body and indicated by positive results of urine test and confirmed through a blood test, ultrasound, and detection of fetal heartbeat or an X-ray. Pregnancy lasts for about nine months, measured from the date of the women’s last menstrual period (LMP) and conveniently divided into three trimesters, each roughly three months long.

Prenatal development refers to the process in which a baby develops from a single cell after conception into an embryo and later a fetus. The average length of time to complete

prenatal development is 38 weeks from the date of conception. During this time, a single-celled zygote develops in a series of stages into a full-term baby. The germinal, embryonic and fetal stages are the three primary stages of prenatal development (Children's health, 2012).

Postnatal means 'after birth' derived from Latin word 'post' means after and 'natis' means birth. It is the period which starts immediately after the birth of a child and lasts for about six weeks. The postnatal period is also known as the postpartum period (Ask define, 2012).

Normal anatomy and physiology of the lower urinary tract plays an important role in the background of the knowledge of the continence mechanism. Thorough knowledge of the anatomy and physiology provides the concept of the UI. The normal anatomy, the pelvic floor musculature complex, and its normal physiology are beyond the scope of the review. Pregnancy has significant effect on lower urinary tract function. In uncomplicated pregnancy, micturition frequency is influenced by the physiologic state of the bladder. Frequency has been described as diurnal changes, which may be up to seven times or more of normal, and slight nocturnal changes of one or more times during the night. The incidence is the same in both primigravidae and multigravidae women. The first trimester is the most common time of onset. The uterine weight is the most important factor affecting frequency throughout the pregnancy. Uterine weight not only exerts pressure on the bladder but also irritates the bladder. Normal bladder capacity in the first trimester is 410 ml. In late pregnancy, descent of the presenting part of fetus has an additional effect on bladder irritation. Bladder capacity in the third trimester reduces to 272 ml in conjunction with increased irritability of detrusor muscles. Alternative causes include nervous and hormonal influences. Indeed, the onset of frequency in late pregnancy is a common symptom of engagement of the fetal head. Approximately 80% of pregnant women, both primigravidae and multigravidae, experience increased micturition frequency at some time during pregnancy. Increased frequency usually begins in early pregnancy but can occur in the later stage; it disappears in mid pregnancy, which may be due to the increase in bladder capacity to 460 ml in the second trimester, and

returns in the later weeks. Once increased frequency has occurred, it is nearly always progressive and becomes increasingly worse until term. Increased frequency during pregnancy results in polyuria and is associated with increased fluid intake. However, which is the cause and which the effect remains an unsolved issue. Average daily excretion, output, and fluid intake are highest in the second trimester and lowest in the third. Uterine position is another issue that plays a significant role. The impacted retrovert gravid uterus causes fluid retention because it interferes with the obliteration of the posteriorurethrovesical angle. It does not elevate the urethrovesical junction in the pelvis, nor does it elongate the urethra (Davis & Kumar, 2008).

Urinary incontinence indicates an involuntary loss of urine and is generally more common among women rather than in men. Women of all ages may be affected by UI and its prevalence usually increases with age; moreover UI is characterized by a wide range of severity and nature of symptoms. The prevalence of UI depends also by the definition in use: while some studies used daily incontinence to define women affected by UI, others used a weekly, monthly, or even a yearly occurrence to define incontinence (Tettamanti et al., 2013).

Based on etiology and pathophysiology, UI is classified into three types – Stress Urinary Incontinence (SUI), Urge Urinary Incontinence (UUI), and Mixed Urinary Incontinence (MUI) (Abrams et al., 2012).

According to the International Continence Society, SUI is defined as the involuntary leakage of urine with exertion such as coughing, sneezing, and laughing. An increase in abdominal pressure due to physical exertion places stress on the bladder, causing urine to leak. The basic mechanisms of failure of the urethra to maintain a water-tight seal are poor urethral support by the pelvic floor muscles and intrinsic sphincter deficiency. Some of the main etiologic factors for SUI include anatomic and neurological injury to the pelvic floor during childbirth. Genetic susceptibility or predisposition to having poor tissue strength can be considered a contributing factor. Individual behavioral aspects such as smoking, obesity, alcohol consumption, excessive liquid intake, caffeine consumption,

and rigorous exercise can be factors leading to SUI. Medical conditions such as chronic obstructive pulmonary disease, estrogen deficiency, and aging may be considered confounding factors for SUI(Abrams et al., 2012).

UUI is the involuntary leakage of urine accompanied by or immediately preceded by a strong sudden urge to urinate. Commonly referred to as “Overactive Bladder,” this incontinence is usually caused by involuntary contractions of the detrusor muscles of the bladder wall at inappropriate times. There is no gradual buildup of desire to urinate in this type of incontinence and a large amount of urine is lost during each incontinence episode. UUI may be triggered by simple everyday occurrences such as the sound of running water, exposure to cold temperatures, or drinking cold beverages. A classic example of a trigger is the notorious “Key in the lock” syndrome. Women are able to hold their urine until they get home, but when they insert the key in their door the urine just pours out beyond their control. Idiopathic etiologic factors include myogenic, neurogenic, and urethrogenic manifestations. Anatomical factors such as bladder outlet obstruction, pelvic masses, urethral diverticulum, or pregnancy play a key role. Bladder inflammation, urinary tract infections, urinary stones, bladder cancer, or benign urothelial growths could cause UUI. Behavioral factors like excess fluid and caffeine intake, habitual increased voiding frequency, and obsessive anxiety about urinary problems have a significant effect. Chronic medical conditions like diabetes, multiple sclerosis, Parkinson’s disease, brain tumors, other neurological diseases, and spinal cord injury also contribute to UUI (Abrams et al., 2012).

MUI is the involuntary leakage of urine associated with exertion and urgency. It is a mixture of stress and urge urinary incontinence. Basically the bladder is overactive and the urethra and urethral sphincter muscles are underactive or deficient. In some cases the stress symptoms are more defined than the urge symptoms, and the patients are categorized as stress predominant-MUI sufferers. If it is the other way around and urge symptoms are the primary complaint, then they are categorized as urge predominant-MUI sufferers. Etiologic factors for MUI are a combination of the factors described for stress and urge urinary incontinence (Abrams et al., 2012).

Risk factors for UI can be classified as predisposing, obstetric and gynecologic, and promoting factors. Predisposing factors include race, genetics, congenital defects and neurologic abnormalities. Obstetric and gynecologic factors include pregnancy/childbirth/parity, pelvic surgery and radiotherapy, and pelvic organ prolapse. Promoting factors include increased age, comorbidities (such as diabetes and vascular disease), changes in mobility, obesity, conditions associated with increased abdominal pressure, cognitive impairment, urinary tract infection, and medications such as oral estrogen substitutes, diuretics and anticholinergic agents (Deng, 2011).

Diagnosis is made on the history taking, physical examination and laboratory examination. History taking includes assessment of urinary symptoms such as stress, urge or mixed, past history or current symptoms of urinary tract infection, medical problems, prior surgeries and consumption of bladder irritants & excessive fluid intake. Physical examination includes BMI, enlarged bladder, pelvic organ prolapse, cough to assess for leakage, evaluate for edema, which can increase nocturia and Neurologic: In cases of sudden-onset incontinence. Laboratory evaluation includes infection, hematuria & dehydration or excessive fluid intake (Gormley, 2012).

The goal of management is to reduce UI episodes. A multi component, stepped approach focused on the aspects of incontinence the patient considers most bothersome is the key to successful therapy (Dubeau, 2012). Start with non-pharmacologic options- lifestyle modification and behavioral therapy should be offered as first-line therapy for managing all types of urinary incontinence. These approaches have no side effects and are more effective than drug therapy. Typically, it takes a few weeks to 3 months of lifestyle modification and/or behavioral therapy for the full effects to become noticeable (Fritel, 2010).

Lifestyle modifications: Weight loss for moderately and morbidly obese women, dietary change- avoiding foods and drinks that can adversely affect normal bladder function, Smoking cessation for patients with SUI or stress-predominant MUI, reduction of fluid

intake in patients who are drinking excessive amounts, to avoid the risk of urinary tract infections, constipation, and dehydration, patients generally should not lower their intake below six to eight ounce glasses of fluid each day (Fritel, 2010).

Behavioral therapy: Behavioral therapy, which includes Kegel exercises and bladder training, should be offered as a first-line therapy for the management of urgency, stress, and mixed UI. Behavioral therapy has been found to be more effective and to provide more sustained improvement in symptoms than pharmacologic therapy (Kafri, 2008).

Kegel exercises: These should be offered as first-line conservative therapy for women with stress, urgency, or mixed UI. Kegel exercises are based on the principle of strength training, and involve squeezing and releasing the pelvic floor muscles used to stop urination. These contractions increase the strength and tone of the pelvic floor muscles, which increases the force of urethral closure, which in turn prevents stress incontinence during an abrupt increase in intra-abdominal pressure. Kegel exercises are also helpful in the management of urge incontinence as the detrusor contractions can be reflexively or voluntarily inhibited by tightening the pelvic floor. The basic recommended regimen involves 3 sets of 8–12 slow-velocity contractions sustained for 6–8 seconds each, performed 3–4 times a week and continued for at least 20 weeks (Dubeau, 2012). The success of the treatment depends on the patient's motivation and ability to perform it correctly. It is most effective when it is done for at least 3 months, and is more beneficial in women with stress incontinence. Studies have showed up to 70% improvement in symptoms of stress incontinence following appropriately performed Kegel exercises (Price, 2010).

Bladder training is an appropriate first-line treatment for urgency urinary incontinence, and is also effective for stress and mixed UI. The goal is to have a schedule for voiding once every 2–4 hours. A woman who feels an urge to urinate outside the schedule should try to hold it for more and more minutes each time until she can keep the schedule. Timed voiding is done only when the patient is awake. A combination of Kegel exercises with bladder training may be more effective than either one used alone (Ghoniem, 2008).

Lifestyle modifications and behavioral therapy used for treatment are also effective interventions for preventing UI (Thüroff, 2011). UI may not be prevented completely, but there are things that can do to reduce the severity or frequency. Here are a few steps that can take to help reduce the UI during pregnancy. Get plenty of rest, use exercises approved by health care provider that support and help strengthen the back and abdomen, avoid high heels and sleeping on the back (Cunningham & Gary, 2011). Reduce some physical activities; if possible, minimize certain activities that maximally stress the lower back and pelvis. These activities include standing on one leg, climbing stairs, walking long distances and standing for long periods of time, maximize vocational ergonomics, take many short breaks, try to lie down, and educate pregnant women on structural fitness, i.e., body ergonomics, to avoid low back stress. Also, avoid lifting anything over several pounds; strengthen back muscles (Antoniadis, 2012). Avoid bending, arching and twisting motions and sleeping on side lying with a body pillow in the arms and between the knees may help as well. Make sure that the mattress is firm. If not, place a board underneath for the duration. A body pillow (at least 5 feet long) can also help to find stress-minimizing sleeping positions, Think good thoughts. A calm mind leads to a looser back, can also try some yoga, which will relax both mind and back (Ingrid et al., 2005).

3.1 Study design

It was used a cross sectional research model to find out the prevalence and characteristics of urinary incontinence among pregnant women.

3.2 Study site

The study was conducted on obstetrics and gynecology department of Enam Medical College & Hospital in Savar city. As this was a survey on prevalence and characteristics of urinary incontinence during pregnancy, researcher was interested to collect data from the pregnant women who came for clinical checkup as outpatient at gynecology department in this hospital throughout their pregnancy, so study sites was selected EMCH in Savar city for the study, because permission taking & data collection was easier for the researcher from this hospital as through pilot study.

3.3 Study population

The criteria of study populations were determined from a literature review and the goals for the study. All the pregnant women of EMCH who came for clinical checkup as outpatient were considered as the study population.

3.4 Sample selection

Sample was selected from pregnant women who came for clinical check-up at outdoor service of gynecology departments in EMCH.

3.5 Sample size

It is very difficult to establishing the best size of sample since this decision depends very largely on the investigator which is being undertaken. Statistical studies are always better when they are carefully planned. In the study, sample must be adequate in size, relative to the goals of the study. Study sample must be “big enough” that an effect of such magnitude as to be of scientific significance will also be statistically significant.

The equation of sample size calculation is given bellow:

$$n = \left\{ \frac{Z \left(1 - \frac{\alpha}{2} \right)}{d} \right\}^2 \times pq$$

Here,

$$z \left(1 - \frac{\alpha}{2} \right) = 1.96 \text{ \{linked to 95\% confidential interval (used to 1.96)\}.}$$

$$p = 0.22 \text{ (p = prevalence and p = 22\%)}$$

$$q = 1 - 0.22$$

$$= 1 - 0.22$$

$$= 0.78$$

$$d = 0.05 \text{ \{margin of error at 5\% (value of 0.05)\}.}$$

According to formula of sample size calculation for a cross sectional study, it would require total 264 subjects, but the researcher were selected 50 pregnant women as the sample of this study because the study was performed as a part of academic research project and there were some time limitations.

3.6 Sampling procedure

Fifty (50) pregnant women were selected through convenience sampling and as it was one of the easiest, cheapest and quicker methods of the sample selection. Data was collected from outdoor service of gynecology departments at EMCH.

3.7 Inclusion criteria

Participants were outdoor pregnant women of EMCH because the investigator wanted to explore the prevalence and characteristics of urinary incontinence among pregnant women at EMCH in Savar in this study.

Multigravida or primigravida both were selected to identify the frequency of pregnancy related urinary incontinence in both gravida.

Pregnant women with any age because investigator wanted to find out the prevalence and characteristics of urinary incontinence during pregnancy of different age groups and to identify the most affected age group.

Subjects who were participated willingly and had interest, otherwise they did not give exact information and that was not helpful for the study.

3.8 Exclusion criteria

Those who did not fulfill the inclusion criteria were excluded.

Subjects who were medically unstable because medically unstable patient can confused with the question that can mislead the result of the study.

Persistent or previous pathological and neurological condition of the body because investigator wanted to find out the prevalence and characteristics of urinary incontinence during pregnancy if there was previous history of pathological and neurological condition then it could mislead the study results.

3.9 Data collection instruments and tools

To collect data, the informed consent forms, questionnaire forms, pens, papers, and files were used as data collection tools.

3.9.1 Questionnaire

Data was collected using a questionnaire form. Questionnaire is a method of collecting information whereby subjects answer a set of questions usually pre defined by the researcher. In this questionnaire form structured questions were included for collecting data from the participants. So the investigator reviewed some relevant previous studies questionnaires that help to design the questionnaire in order to identify important part of questions that needed to include. Open ended and close ended, mixed type of questions were selected to make the questionnaire. Questionnaire must be kept in short that the respondent would finish it but long enough to obtain the desired information and the question should be sequenced in a logical order that they follow one another. In this questionnaire researcher tried to keep the questions very easy, so that participants can understand to answered. Investigator collected data from questionnaire form and setup sequentially. The questions in the questionnaire are in two parts, one is about socio demographic information and another is directly related to pregnancy related incontinence complaints among the pregnant women.

3.10 Method of data collection

Surveys usually use questionnaires or interviews by which information was gathered. Structured questions are always closed questions and most frequently used in survey research design. Open ended questions are those which allow respondents free range when supplying their answers. Open ended questions are most useful in dealing with complicated information when slight differences of opinion are important to know. And closed ended questions allow the respondents only a limited choice of how to answer the questions. In close ended questions, it gives respondents an easy way out and would rather force them into a positive or negative answer. The face to face interview was provided opportunity to observe the facial expression and this was helped the researchers to determine whether the participant understands the questions or not. The investigator went to selected hospital to take permission if they are interested in this study or not. Firstly, the researcher introduced him and described the objectives and purpose of the research project as well. Then the researcher submitted written application to the authority of the EMCH, Savar, Dhaka and took permission from the authority of selected hospital and met with the individual subject to find out if they were interested in participating in the study. For data collection, the investigator used Bengali type of questionnaire so that pregnant women understood the questionnaire in the easiest way. Data was collected by the researcher from the pregnant women who came for check-up in this hospital.

3.11 Data management and analysis

The data analysis was performed in the program ‘Statistical Package for Social Science’ (SPSS) version 16. The presentation was performed in SPSS and in Microsoft office word 2010. Every questionnaire was rechecked for missing information or unclear information. At first put the name of variables in the variable view of SPSS and the types, values, decimal, label alignment and measurement level of data. The next step was to input data view of SPSS. After input all data researcher checked the inputted data to ensure that all data had been accurately transcribed from the questionnaire sheet to SPSS data view. Then the raw data was ready for analysis in SPSS. Microsoft word excel was also used to present data using column and pie chart.

3.12 Ethical consideration

It should be ensured that it would maintain the ethical consideration at all aspects of the study. It is the crucial part of the all form of research. The study was approved by ethical committee of the research project before conducting the research project. Ethical issues will follow by World Health Organization (WHO) and Bangladesh Medical and Research Council (BMRC). At first to conduct this study, the research project was submitted to the Institutional Review Board (IRB) and obtained approval. A written application was submitted to the authority of the EMCH, Savar, Dhaka for involvement of clients and other facilities to complete this study. When the investigator had received an approval letter from the ethical committee and obtained permission from authorities of the selected hospital, then the data collection was started. Written consent was taken from the participants to ensure voluntary participation in the study and participants had the autonomy to leave the study at any time. Participants were informed about the aim, objectives and the procedures involved the study. Interviews were administered in the free time of the pregnant women, when they had no activities with the scheduled doctors of selected hospital.

The aim of the study was to find out the prevalence and characteristics of UI among pregnant women during prenatal period at a private hospital in Savar. 50 pregnant women were taken for the study and data were coded and captured in Microsoft Excel, using an SPSS 16.0 version software program. The investigator collected the descriptive data and calculated as percentages and presented by using column, and pie charts.

4.1 Socio-demographic characteristics

Socio-demographic characteristics of the respondents include their age range, religion, educational qualification and occupation.

4.1.1 Age range

The mean age of the participants in this study was 26. The majority of the respondents 64% (n= 32) were in 18 to 28 years of age, 32% (n= 16) were in 29 to 38 years of age, 2% (n= 1) were in >38 years of age and 2% (n= 1) were in <18 years of age in this study (Figure- 1).

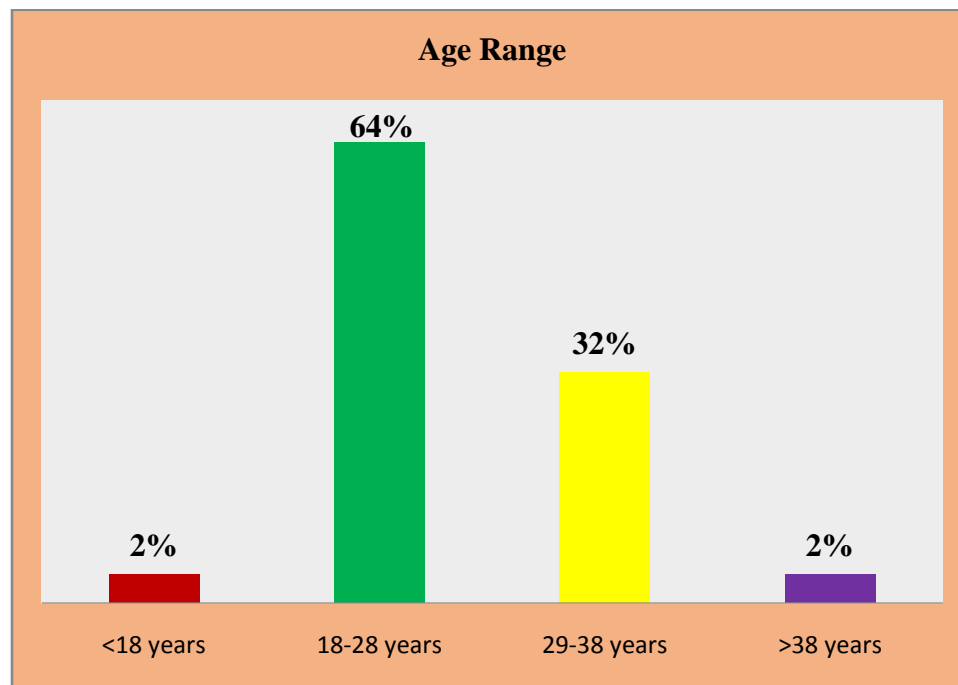


Figure 1: Age range of the participants

4.1.2 Religion

The majority of the respondents 74% (n= 37) were Muslim, 22% (n= 11) were Hindu, 4%(n= 2) were Christian in this study (Figure: 2).

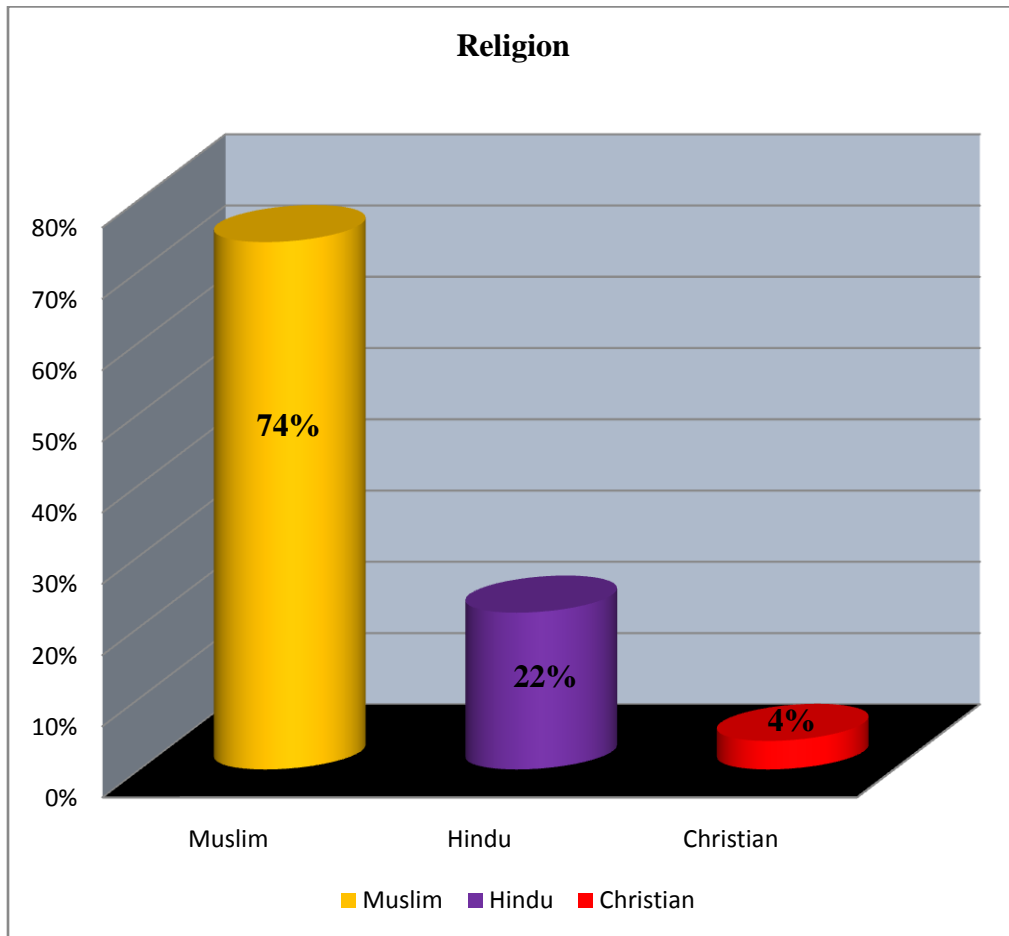


Figure 2: Religion of the participants

4.1.3 Educational qualification

Majority of the respondents 22% (n= 11) were less than secondary school certificate (< S.S.C) & 22%(n= 11) were completed their secondary school certificate (S.S.C), followed by 18%(n= 9) were higher secondary school certificate (H.S.C), 10% (n= 5) were no formal schooling, 10%(n= 5) were under primary school certificate (< P.S.C), 10% (n= 5) were completed their primary school certificate (P.S.C) and 8%(n= 4) were \geq graduation level in this study (Figure: 3).

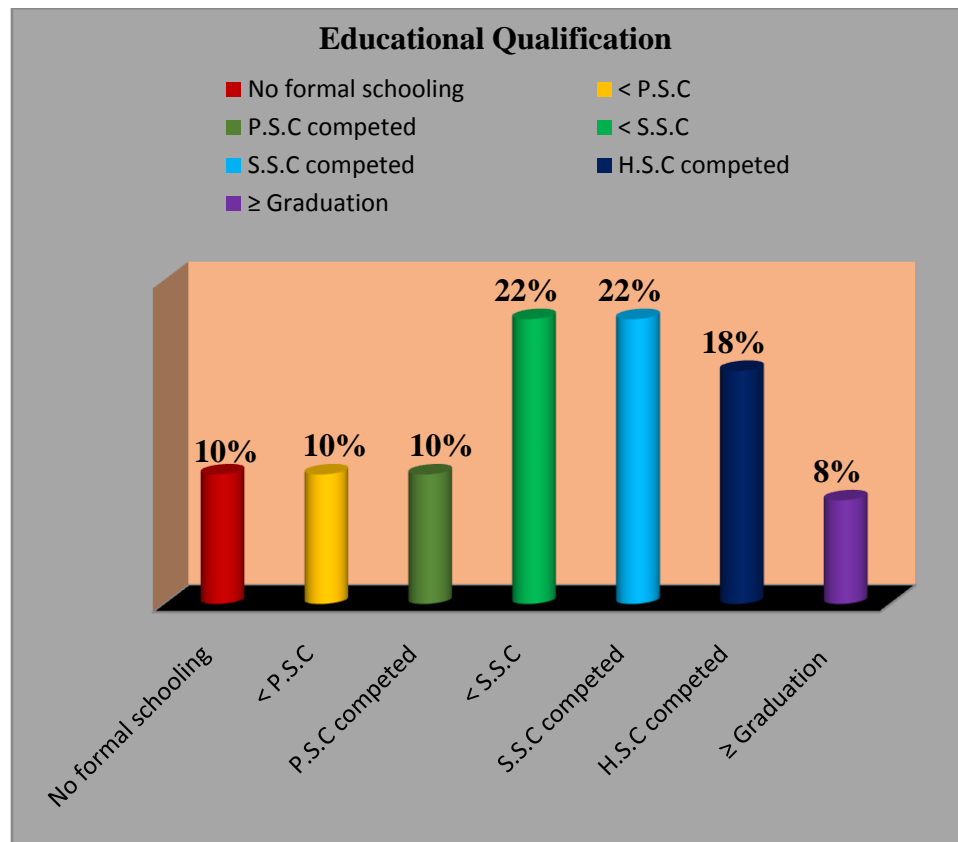


Figure 3: Educational qualifications of the participants

4.1.4 Occupation

Most of the respondents were housewife 76%(n= 38) followed by service holder 24%(n= 12) in this study (Figure: 4).

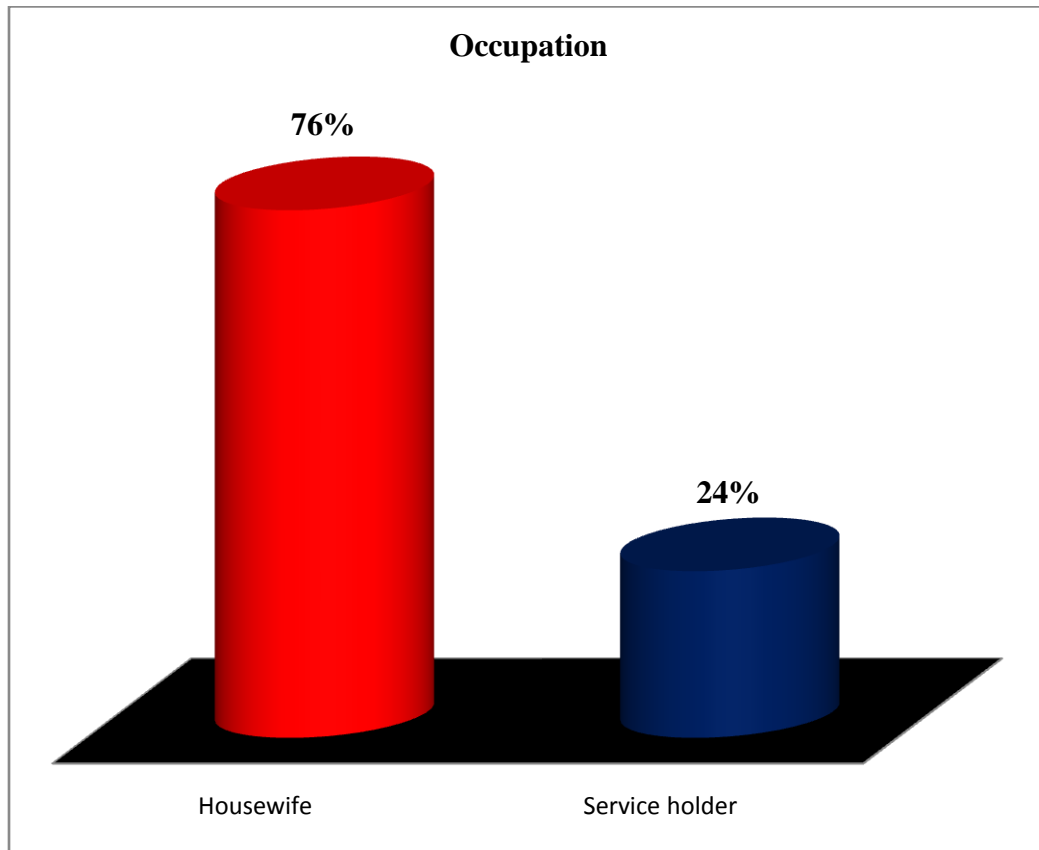


Figure 4: Occupation of the participants

4.2 Gestational age of the participants

Pregnant women of all trimesters were selected in this study. Majority of the participants 44% (n= 22) were in 3rd trimester, 38% (n= 19) were in 2nd trimester and 18% (n= 9) were in 1st trimester of their pregnancy (Figure: 5).

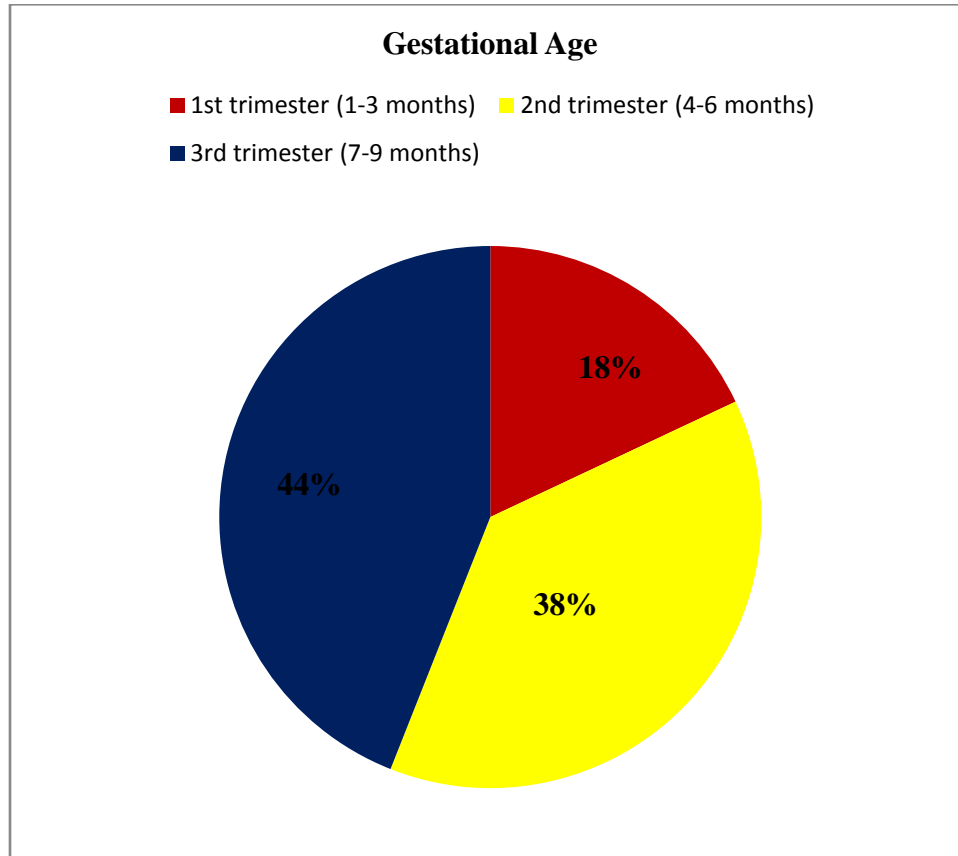


Figure 5: Gestational age of the participants.

4.3 Primigravida and multigravida

Sequential order of this child of the participants were first child in 56% (n= 28) cases, second child in 32% (n= 16) cases and more than two children in 12% (n= 6) cases. That means almost 56% participants were primigravida and rest 44% (n= 22) participants were multigravida in this study (Figure: 6).

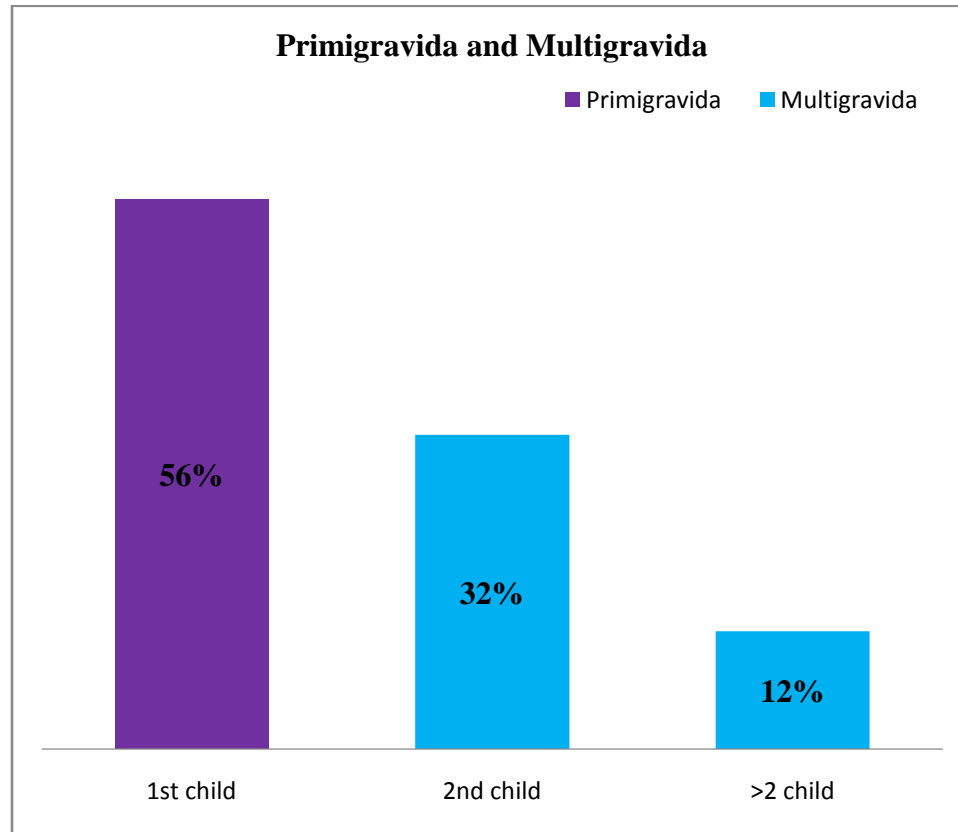


Figure 6: Primigravida and multigravida

4.4 Previous delivery route of the participant

Pregnant women of primigravida and multigravida were selected for this study. Majority of the participants 56% (n= 28) had no history of previous delivery route, 24% (n= 12) cases had previous vaginal delivery and 20% (10) cases had previous cesarean delivery route. That means almost 56% participants were primigravida, whom had no history of previous delivery route and rest 44% (n= 22) participants were multigravida, whom had history of previous delivery route in this (Figure: 7).

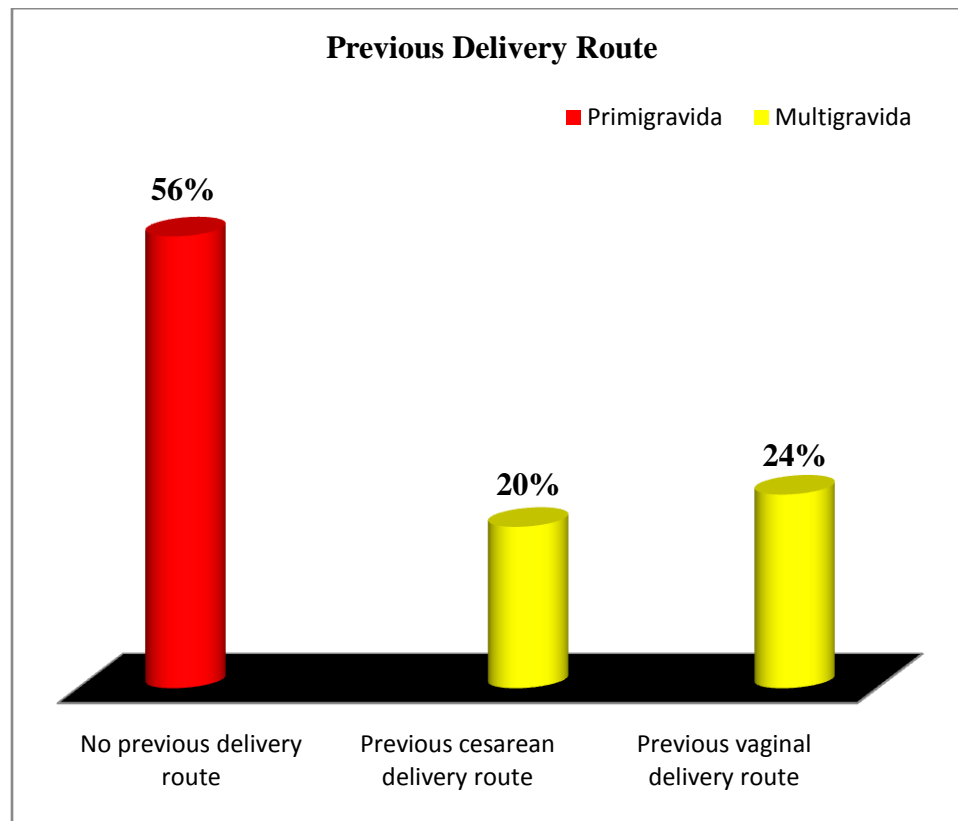


Figure 7: Previous delivery route of the participant.

4.5 Prevalence of urinary incontinence during pregnancy

The investigator found 50 pregnant women as sample. Among them 74% (n= 37) participants reported UI. So the prevalence of UI among the pregnant women was 74% and another 26% (n= 13) sample had NUI in this study (Figure: 8).

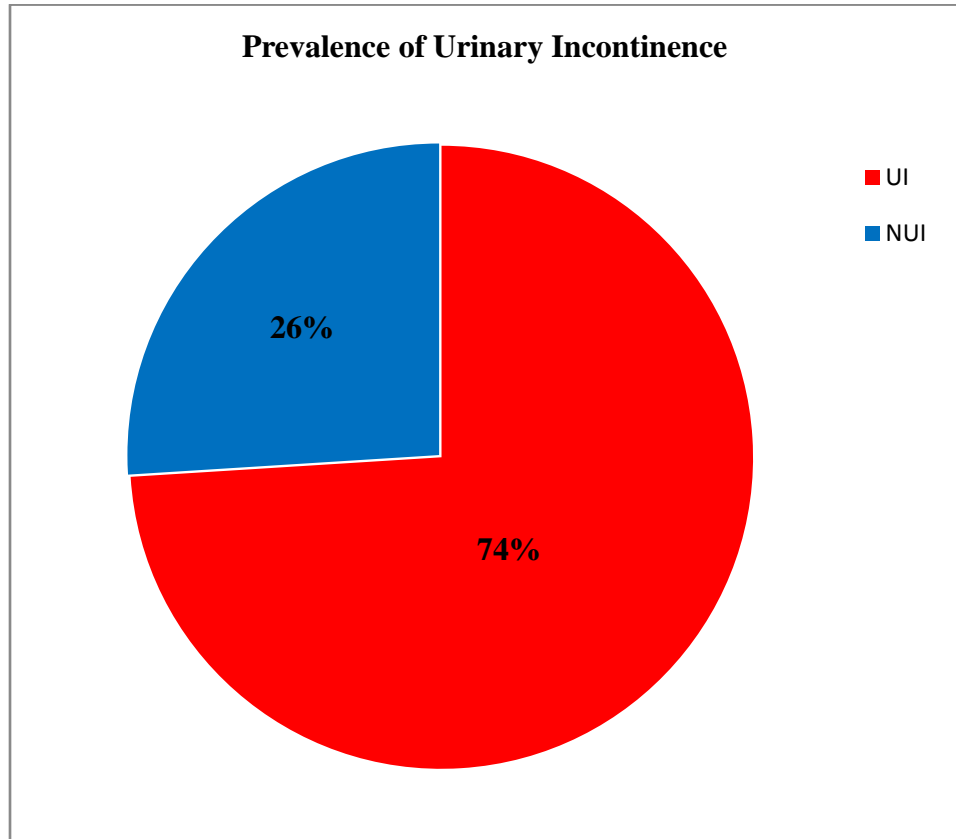


Figure 8: Prevalence of urinary incontinence during pregnancy.

4.6 Urinary incontinence in relation to gravid & previous delivery route

In this study 56% (n= 28) participants were primigravida, whom had no history of previous delivery route and rest 44% (n= 22) participants were multigravida, whom had history of previous delivery route. Among 56% of primigravida 68% (n= 19) cases had UI and 32% (n= 9) cases had NUI & among 44% of multigravida 82% (n= 18) cases had UI and 12% (n= 4) cases had NUI. Among 44% of multigravida 55% (n= 12) cases had previous vaginal delivery route and rest 45% (n= 10) cases had previous cesarean delivery route. Among 55% cases of previous vaginal delivery route 100% (n= 12) cases were experienced UI and among 45% cases of previous cesarean delivery route 60% (n= 6) cases were experienced UI & rest 40% (n= 4) cases were not experienced UI (Figure: 9).

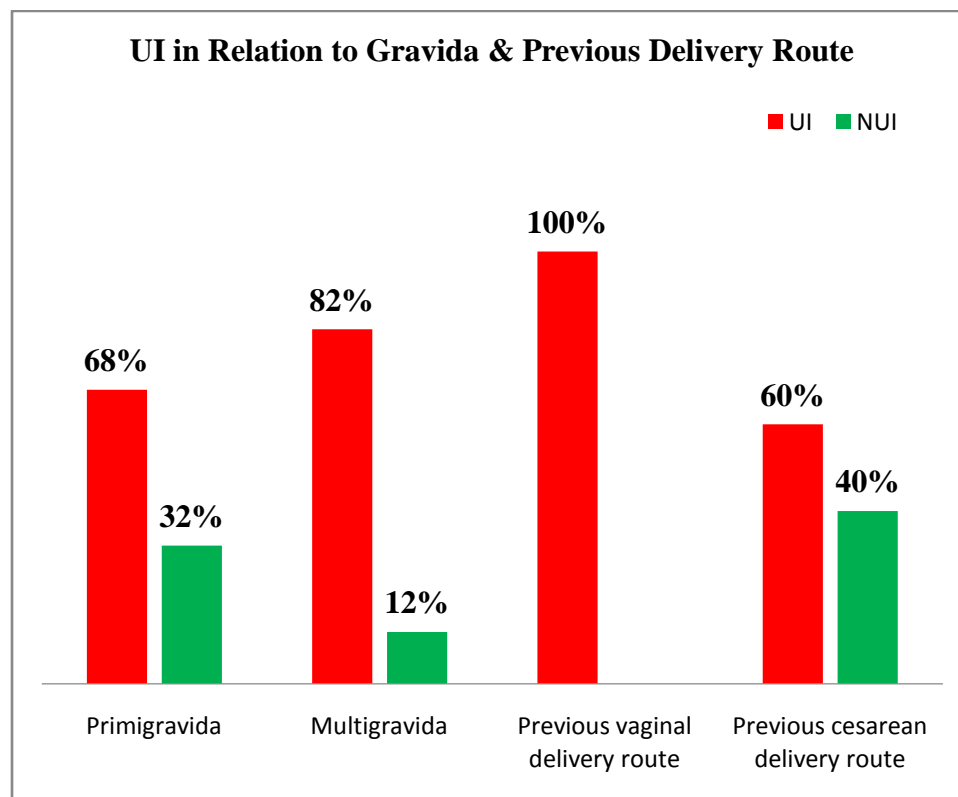


Figure 9: Urinary incontinence in relation to gravida & previous delivery route.

4.7 Types of urinary incontinence of the participant

The study result shows that UI is the most common complaint of pregnant women almost in 74% (n= 37) cases had UI and rest 26% (n= 13) participants had NUI. Among 74% of urinary incontinent women, majority of the participants 62% (n= 23) cases had SUI, 27% (n= 10) had UUI and rest 11% (n= 4) cases had MUI (Figure: 10).

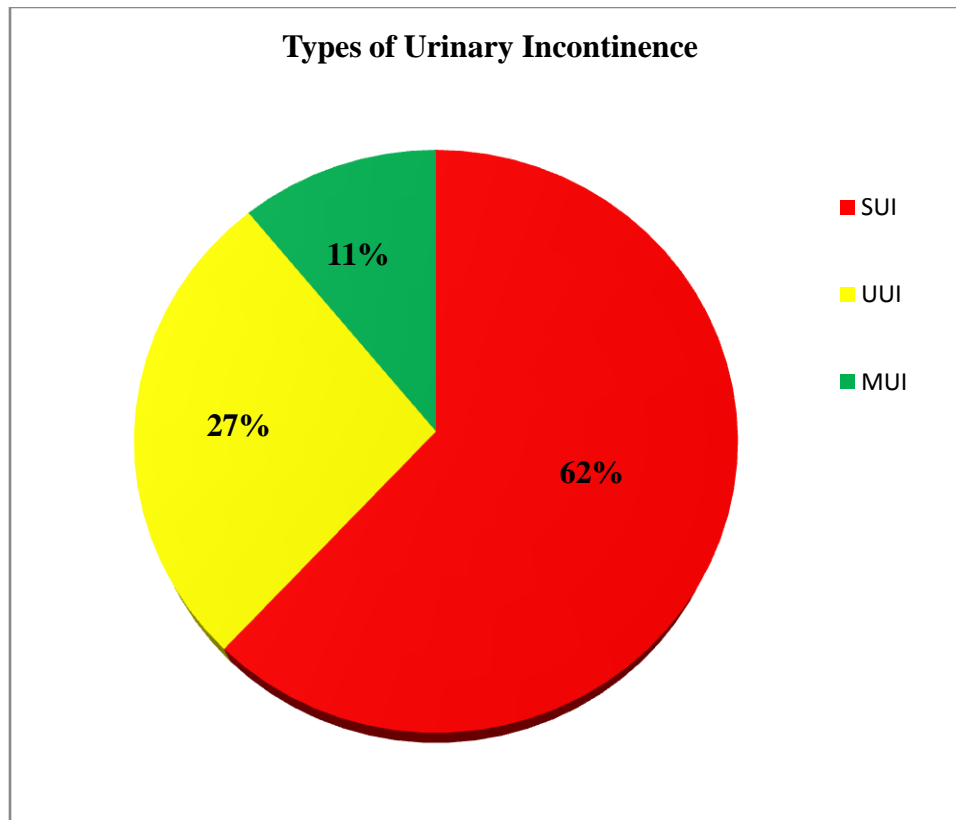


Figure 10: Types of urinary incontinence of the participant.

4.8 Gestational age of stress urinary incontinence of the participant

The study result shows that a large number of participants 62% (n= 23) complained of SUI during their pregnancy and 38% (n= 14) participants had no SUI. The study result shows in most of the cases approximately 65% (n= 15) had SUI in 3rd trimester, 35% (n= 8) had in 2nd trimester and none of them were experienced of SUI in 1st trimester of their pregnancy (Figure: 11).

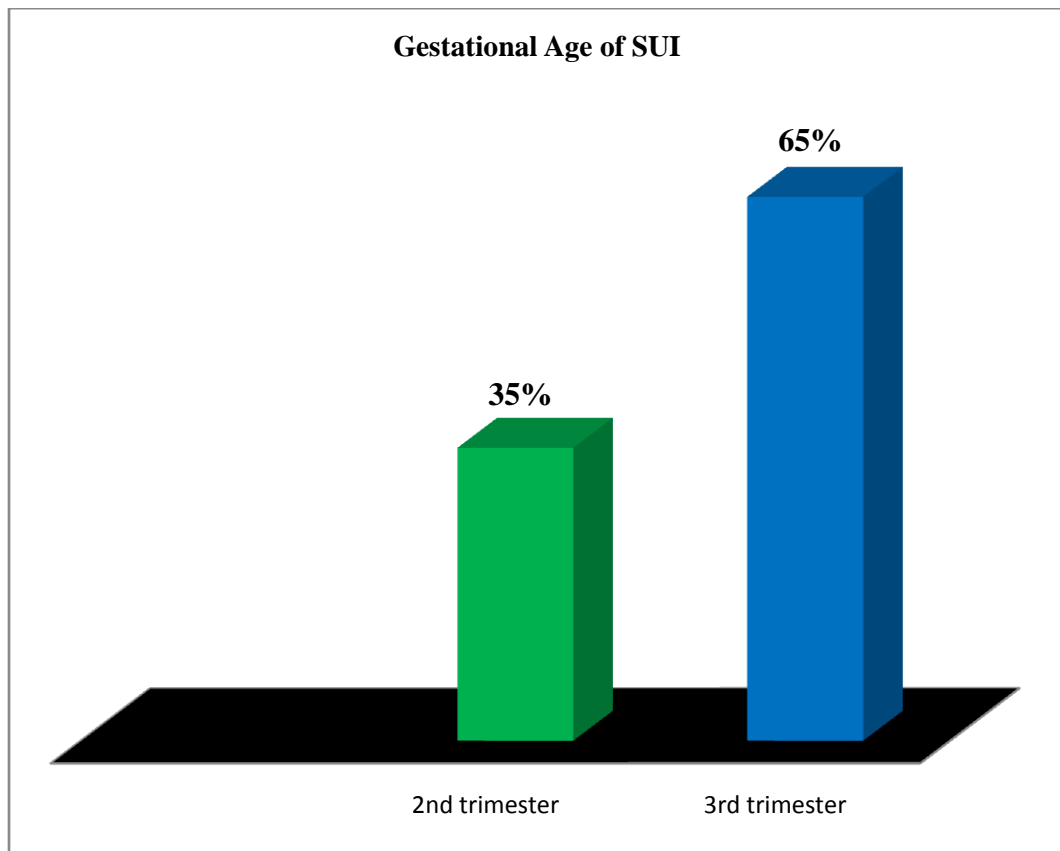


Figure 11: Gestational age of stress urinary incontinence of the participant.

4.9 Gestational age of urge urinary incontinence of the participant

In this study 27% (n= 10) participants were complained of UUI during their pregnancy and 73% (n= 27) participants were not complained of UUI. The study result shows in most of the cases approximately 70% (n= 7) had UUI in 2nd trimester, 30% (n= 3) had in 3rd trimester and none of them were experienced of UUI in 1st trimester of their pregnancy (Figure: 12).

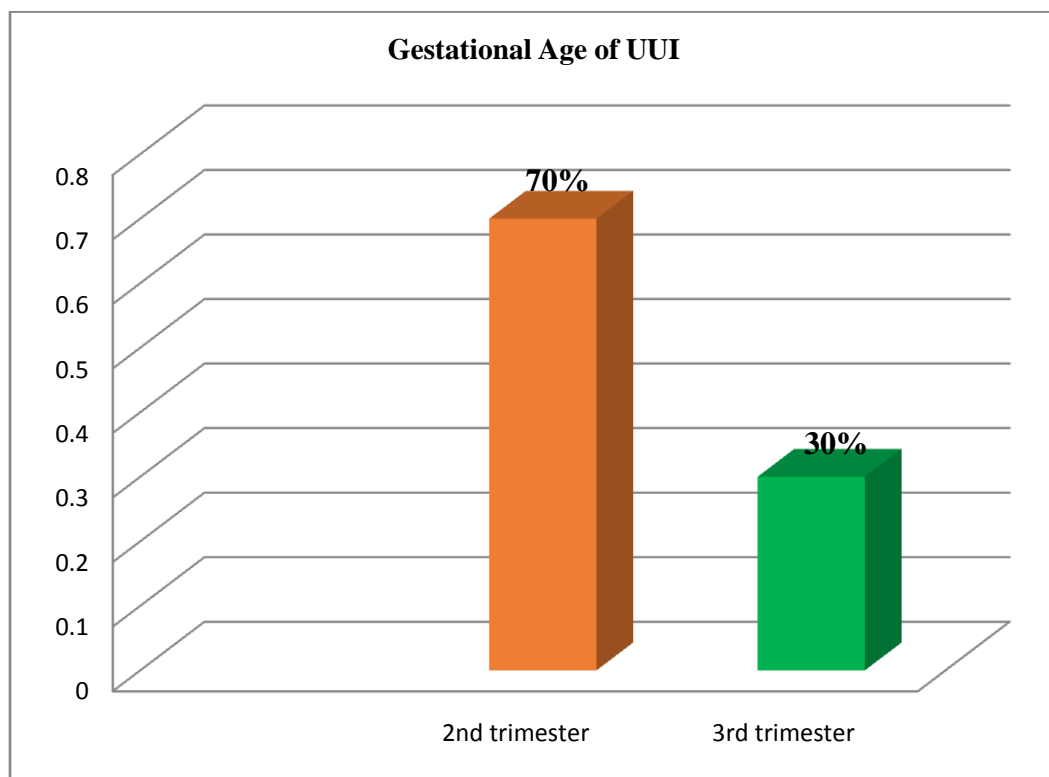


Figure 12: Gestational age of urge urinary incontinence of the participant.

4.10 Gestational age of mixed urinary incontinence of the participant

The study result shows that a small number of participants 11% (n= 4) complained of MUI during their pregnancy and 89% (n= 33) participants had no MUI. The study result shows equal number of the cases 50% (2) had MUI in 1st trimester, and 50% (2) cases had MUI cases in 3rd trimester of their pregnancy but none of them were experienced of MUI in 2nd trimester of their pregnancy (Figure: 13).

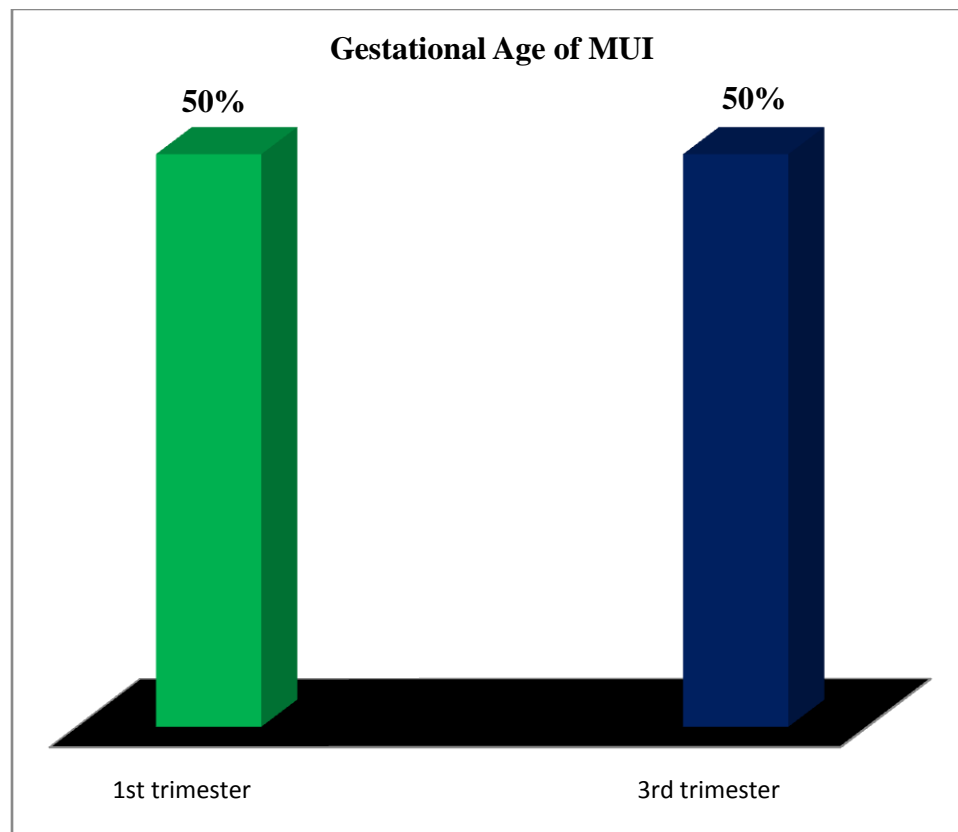


Figure 13: Gestational age of mixed urinary incontinence of the participant.

4.11 Onset of urinary incontinence of the participant

In this study, results shows that 74% (n= 37) participants complained of UI during their pregnancy and 26% (n= 13) participants had NUI. In 74% cases of urinary incontinent women, majority of the cases were experienced onset of incontinence at day time only 68% (n= 25) & 32% (n= 12) cases experienced onset of incontinence both day and night time. But none of them were experienced onset of UI at night time only of their pregnancy (Figure: 14).

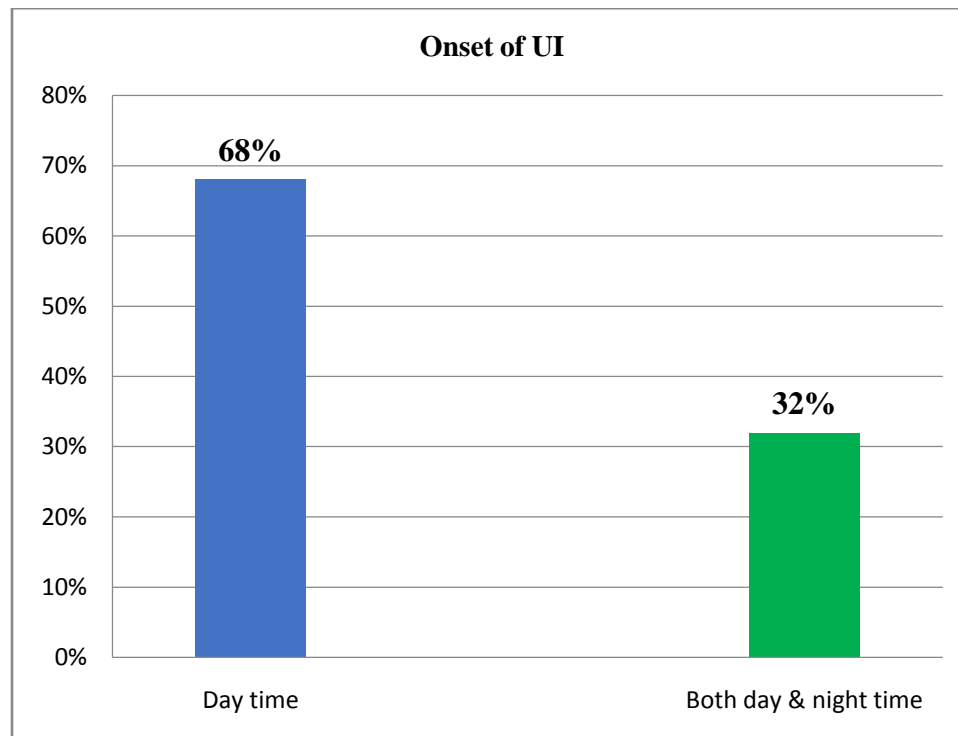


Figure 14: Onset of urinary incontinence of the participant.

4.12 Frequency of urinary incontinence of the participant

In this study, results shows that 74% (n= 37) participants complained of UI during their pregnancy and 26% (n= 13) participants had NUI. From 74% incontinent women, majority of the cases were experienced frequency of UI about once a week or less often in 76% (n= 28) and 24% (n= 9) cases were experienced frequency of UI two or three times a week. But none of them were experienced frequency of UI in several times a day and all the time of their pregnancy (Figure: 15).

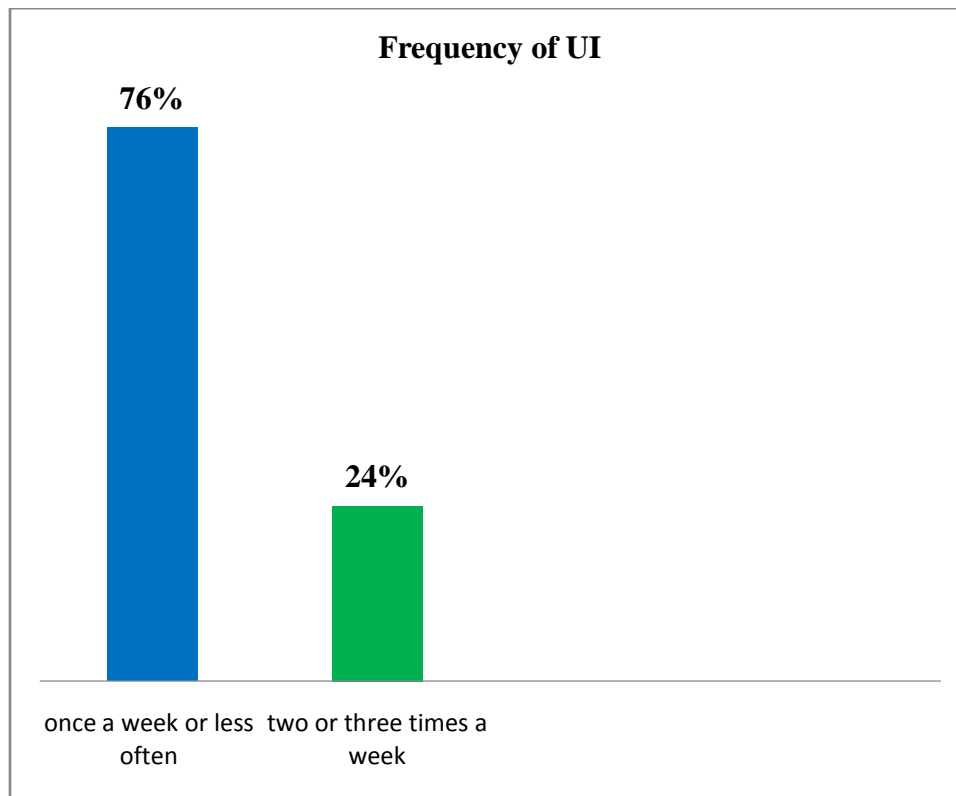


Figure 15: Frequency of urinary incontinence of the participant.

4.13 Participants who received physiotherapy treatment for the pregnancy related incontinence complaints

The investigator also did survey on the participants to know who received physiotherapy treatment for the pregnancy related incontinence complaints, as physiotherapy is the very effective treatment procedure to recover the complains. But in Bangladesh, Gynecological physiotherapy is very new treatment procedure and not well known to the people of this country. And in this study, the investigator found that there was no one of the participants who received physiotherapy treatment for the incontinence complaints during prenatal period. They were not aware about the role of physiotherapy in gynecological area. So physiotherapists need to advertise about their service on Gynecological physiotherapy and its effectiveness to the whole country people.

The aim of the study was to identify the prevalence and characteristics of UI among pregnant women attended at a private hospital in Savar. There were 50 samples in this study to find out the prevalence and characteristics of UI during pregnancy. Study result shows that the prevalence of UI during pregnancy was very high 74% (n= 37). It was nearly similar to another study in Brazilian women. In that study Oliveira et al. (2013) reported that about 71% Brazilian women had UI during in the last four weeks of pregnancy. At a study in Spanish women, Gorbea et al. (2011) also reported that the prevalence of UI among pregnant women was 58.2%. Many studies of UI during pregnancy have reported that the prevalence for all UI was 32% to 64% (Milsom et al., 2006). The prevalence of UI during pregnancy varied among population. The difference of the reported may be due to different baseline characteristics of the participants such as inclusion criteria and different ethnics, genetics, and environment.

The majority of the respondents were young aged almost 64% (n= 32) were between 18 to 28 years of age. Pregnancy and delivery seem to be risk factors for UI, especially among young and middle-aged women (Labrecque et al., 2009).

In this study found that, sequential order of this child of the participants were first child in 56% (n= 28) cases, second child in 32% (n= 16) cases and more than two children in 12% (n= 6) cases. That means almost 56% (n= 28) participants were primigravida and rest 44% (22) of the participants were multigravida. In this study most of the participants 44% (n= 22) were in third trimester of their pregnancy, 38% (n= 19) were in second trimester of their pregnancy and 18% (9) were in first trimester of their pregnancy. In this study reported the prevalence of UI among primigravida&multigravidawomens were 68% (n= 19) & 82% (n= 18) which is significantly similar to most other countries. At a study on American women the highest prevalence estimates were reported from a very small cohort recruiting 113 women from an American tertiary care hospital (Raza et al., 2006). In that study found that the prevalence of UI in 3rd trimester of pregnancy among

primigravida and multigravida women were 70% and 75%. In Norway, Wesnes et al. (2007) also reported that the prevalence of UI during 3rd trimester of pregnancy among primigravida and multigravida women were 48% and 67%. In another study in England women Francis (2005) found that the prevalence of UI during pregnancy in primigravida and multigravida women were 53% and 85%.

In this study 44% (n= 22) cases were multigravida in which 55% (n= 12) participants had history of previous vaginal delivery route and 45% (n= 10) participants had history of previous caesarian delivery route. Among 55% cases of previous vaginal delivery route 100% (n= 12) cases were experienced UI and among 45% cases of previous cesarean delivery route 60% (n= 6) cases were experienced UI & rest 40% (n= 4) cases were not experienced UI. So the prevalence of UI in case of previous vaginal delivery route and previous caesarian delivery route in this study was 100% & 60%. That means in case of multigravida, or who had history of previous delivery route, the occurrence of UI in case of previous vaginal delivery route was higher than the previous caesarian delivery route. Previous study in Brazil noted that the prevalence of UI directly associated with number of previous pregnancy (Valeton&Amaral, 2011). Caesarian delivery is associated with lower rates of stress incontinence than vaginal delivery (Fritel et al., 2012).

Vaginal delivery has been associated with damage to pelvic floor and thus disturbance in mechanism of urinary continence. Advanced age, gravida especially multigravida and previous delivery route has been shown to be a major risk factor for developing UI during pregnancy (Solans et al., 2010). Sharma et al. (2009) also stated that, UI was seen more often with advancing age and parity. In this study stress incontinence was most common 62% (23) followed by urge incontinence 27% (10) and mixed incontinence 11% (4). Among these type of UI, SUI was experienced most in 3rd trimester 65% (15) & in 2nd trimester it was experienced in 35% (8) of cases. These findings were significantly higher to a study which was conducted in Karachi. In that study Jamil et al. (2013) found that SUI (78.5%) was more common during 3rd trimester of pregnancy than MUI (21.5%). Whitford et al. (2007) also found that SUI (53.4%) is most common in 3rd trimester of pregnancy. Another study in Taiwanese women's also found SUI (26.7%) was more

common during 3rd trimester of pregnancy followed by MUI (6.1%) & UUI (4.7%) (Liang et al., 2012).

Sangsawang et al. (2012) showed that the important of pelvic floor muscle exercises were effective for prevention of SUI development during pregnancy and in the postpartum period. The 6-week pelvic floor muscle exercise program was able to decrease the severity of symptoms in pregnant women with SUI (Kocaöz et al., 2010). In this study showed that the majority of pregnant women 68% (25) had onset of UI at day time only and 32% (n= 12) cases had onset of UI both day and night time. In addition most of the pregnant women 76% (28) were experienced frequency of UI about once a week or less often and 24% (9) had frequency of UI two or three times a week. These results were almost similar in a study in Lahore women in which the frequency of urination during pregnancy was increased at day time as well as nocturia in 72% patient (Salick et al., 2005). In another study in Norway women reported that majority of the women 94% had leakage of urine less than once a week during their pregnancy (Wesnes et al., 2007).

The researcher found in this study that among the pregnant women, none of them received physiotherapy treatment for their incontinence problem during prenatal period. They were not aware about the role of physiotherapy in gynecological area. Intensive pelvic floor muscle training during pregnancy prevents UI during pregnancy and after delivery. Pelvic floor muscle strength improved significantly after intensive pelvic floor muscle training (Morkved et al., 2008). In Bangladesh, obstetric physiotherapy is a very new concept and is not well established, so it needs to organize awareness program of gynecological physiotherapy and its effectiveness in Bangladesh.

The study should be considered in some limitations. In the study there were only 50 participants which were very little to represent the whole population of pregnant women. The findings of the study were not generalized to the wider population; the most easily accessible participants were collected from Savar city only and not other area of the country. This small number of sample is not enough to generalize the result. In the study data was collected from one hospital. If investigator got more time, a larger data could be

collected from different parts of Bangladesh. If it could possible, it may make the result more valid and reliable.

6.1 Conclusion

Pregnancy is associated with many lower urinarytract symptoms but urinary incontinence is particularly troublesome. Moreover presence ofurinary incontinence in pregnancy may persist postpartum. Compared with women, who werecontinent in pregnancy, women reporting UI inpregnancy had a seven-fold increase in odds ofpersistent UI (Gartland et al., 2012). Women with UI during their first pregnancy were more likely to develop UI five years postpartum than those without it (Liang et al., 2013). Thusit is important to detect this symptom in pregnancy

The aim of the study was to identify the prevalence and characteristics of urinary incontinence among pregnant women attended at a private hospital in Savar. This study shows that the prevalence of UI among the pregnant women was 74%. It was mostly occurred in the ages of 18-28 years old pregnant women. The prevalence of UI amongprimigravidaand multigravida in this study was 68% (19) & 82% (18) and the prevalence of UIamong previous vaginal delivery route andprevious cesarean delivery routewas 100% (12) & 60% (6). That means in multigravida whom had history of previous vaginal delivery route the occurrence of UIwas higher than previous caesarian delivery route.

Majority of the respondent 62% (23) pregnant women suffered from SUI, 27% (10) from UUI and 11% (4) from MUI. Among these type of UI, SUI was experienced most in 3rd trimester. The housewives, multigravida especially whom had history of previous vaginal delivery route and advanced gestational age were mostly prone to developed UI during pregnancy. The onset and frequency of urinary incontinence is depends on the gravida, previous delivery route, types of UI and different gestational age of the pregnant women.

In this study it was found that none of the participants received physiotherapy for their pregnancy induced UI and they did not know the role of physiotherapy for this condition.

That means pregnant women were not concern about physiotherapy treatment for UI. If the general people and pregnant women are aware about the physiotherapy service, more people will come to receive physiotherapy regularly and maintain the therapeutic activities at their home, so the SUI and most of the other complications can be minimized during pregnancy and the complications which arise after pregnancy can be avoided. It will be also helpful for other health care professionals to understand the importance of physiotherapy during pregnancy and will also ensure a good referral system.

6.2 Recommendations

Like other countries, UI among pregnant women is likely to be an upcoming burden for Bangladesh. For this reason, it is important to develop research based evidence of physiotherapy practice in this area. Physiotherapist's practice which is evidence based in all aspect of health care. Presently, lots of NGOs working on disability are included the services of physiotherapy. But physiotherapy for pregnancy induced UI is newly introduced in Bangladesh. It is crucial to develop research based findings about the prevalence of the UI among the pregnant women. This study can be considered as a ground work for the physiotherapy service provision for the pregnant women with UI. Proper physiotherapy can reduce pregnancy related UI and prevents post partum complications. There are few studies on obstetrics area. These cannot cover all aspect of the vast area. So, it is recommended that the next generation of physiotherapy members continue study regarding this area, this may involve-use of large sample size and participants form different districts of Bangladesh. Conduct research on other maternal health problems where physiotherapist can work. Like common musculoskeletal problems among pregnant women, prevalence of LBP before and after cesarean section, effectiveness of physiotherapy for the pregnancy induced LBP, prevalence of urinary incontinence in postpartum period, common physiotherapeutic intervention to reduce the complications of pregnant women are some areas of further studies for future researchers. The Government should aware the people about physiotherapy in obstetrical area, and create post in government hospitals and community hospital. So, that the people can get the physiotherapy service. The NGOs should take proper initiative to promote physiotherapy services for the pregnancy induced UI.

REFERENCES

Abrams, P., Cardozo, L., Fall, M., Griffiths, D., Rosier, P., Van, K.P., Victor, A., and Wein, A., (2012). The standardization of terminology of lower urinary sub-committee of the international continence society. *Neurourology and Urodynamics*, 21:167–178.

Adaji, S.E., Shittu, O.S., Bature, S.B., Nasir, S., and Olatunji, O., (2010). Suffering in silence: pregnant women's experience of urinary incontinence in Zaria, Nigeria. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 150: 19-23.

Antoniadis, S., (2012). Preventing Back Pain During Pregnancy. Retrived from <http://www.midwife.org/ACNM/files/ccLibraryFiles/Filename/000000000624/Back%20Pain%20During%20Pregnancy.pdf> [accessed on 12.09.2015].

Ask define, (2012). The postnatal period, [Online]. Ask Define Ltd. available: <http://postnatal.askdefine.com> [accessed on 20.08.2015].

Brown, S.J., Donath, S., Macarthur, C., Mcdonald, E.A., and Krastev, A.H., (2010). Urinary incontinence in nulliparous women before and during pregnancy: prevalence, incidence, and associated risk factors. *International Urogynecology Journal and Pelvic Floor Dysfunction*, 21(2):193-202.

Burgio, K.L., Locher, J.L., Goode, P.S., Hardin, J.M., Mcdowell, B.J., Dombrowski, M., and Candib, D., (1995). Behavioral vs drug treatment for urge urinary incontinence in older women: a randomized controlled trial. *The Journal of the American Medical Association*, 16(4):280-288.

Burgio, K.L., Zyczynski, H., Locher, J.L., Richter, H.E., Redden, D.T., and Wright, K.C., (2007). Urinary incontinence in the 12-month postpartum period. *Obstetrics&Gynecology*, 102(6):1291-1298.

Chaliha, C. and Stanton, S., (2005). Urological problems in pregnancy. *British Journal of Urology*, 89:469–476.

Children's health, (2012). Prenatal Development, [Online]. Children's Health Association. available:<http://www.healthofchildren.com/P/Prenatal-Development.html> [accessed on 18.08.2015].

Cunningham, F. and Gary, R., (2011). Williams's Obstetrics. Retrived from <http://www.mayoclinic.com> [accessed on 19.10.2015].

Davis, K. and Kumar, D., (2008) Pelvic floor dysfunction: a conceptual framework for collaborative patient-centred care. *Journal of Advanced Nursing*, 43(6):555–568.

Deng, D.Y., (2011). Urinary incontinence in women. **Medical Clinics of North America**, (1):101-109.

Dinc, A., Kizilkaya, B.N., and Yalcin, O., (2009). Effect of pelvic floor muscle exercises in the treatment of urinary incontinence during pregnancy and the postpartum period. *International Urogynecology Journal and Pelvic Floor Dysfunction*, 20(10):1223–1231.

Dolan, L.M., Walsh, D., Hamilton, S., Marshall, K., Thompson, K., and Ashe, R.G., (2005). A study of quality of life in primigravidae with urinary incontinence. *International Urogynecology Journal and Pelvic Floor Dysfunction*, 15(3):160-164.

Dorland, E.D., (2014). Dorland illustrated medical dictionary. 28th edn. WB Saunders Company: Philadelphia.

Dubeau, C.E., (2012). Treatment of urinary incontinence. In:UpToDate. Basow DS (Ed), UpToDate, Waltham.

Francis, W.J.A., (2005). The onset of stress incontinence. The Journal of Obstetrics and Gynaecology of the British Empire Appeared ,67:899-903.

Fritel, X., Fauconnier, A., Bader, G., Cosson, M., Debodinance, P., Deffieux, X., Denys, P., Dompeyre, P., Faltin, D., Fatton, B., Haab, F., Hermieux, J.F., Kerdraon, J., Mares, P., Mellier, G., Michel, L.N., Nadeau, C., Robain, G., de Tayrac, R., and Jacquetin, B., (2010). Diagnosis and management of adult female stress urinary incontinence: guidelines for clinical practice from the French College of Gynaecologists and Obstetricians. European Journal of Obstetrics & Gynecology and Reproductive Biology, 151(1):14-19.

Fritel, X., Ringa, V., Quiboef, E., and Fauconnier, A., (2012). Female urinary incontinence, from pregnancy to menopause, a review of epidemiologic and pathophysiologic findings. ActaObstetriciaetGynecologicaScandinavica, 91: 901-910.

Gartley, C., (2006). Life with incontinence. Lancet, 367, 68.

Gartland, D., Donath, S., Macarthur, C., and Brown, S.J., (2012). The onset, recurrence and associated obstetric risk factors for urinary incontinence in the first 18 months after a first birth: an Australian nulliparous cohort study. International Journal of Obstetrics and Gynaecology, 119(11):1361-1369.

Ghoniem, G., Stanford, E., Kenton, K., Achtari, C., Goldberg, R., Mascarenhas., T., Parekh, M., Tamussino, K., Tosson, S., Lose, G., and Petri, E., (2008).

Evaluation and outcome measures in the treatment of female urinary stress incontinence: International Urogynecological Association (IUGA) guidelines for research and clinical practice. *An International Journal of Obstetrics & Gynaecology*, 19(1):5-33.

Gorbea, C.V., Navarro, S. K., Escobar, D.B., and Rodriguez , L. C.S., (2011). Prevalence of urinary incontinence in pregnant women with prenatal care at the National Institute of Perinatology Isidro Espinosa de los Reyes. *Genecology Obstetricia de México*, 79(9):527-532.

Gormley, E.A., Lightner, D.J., Burgio, K.L., Chai, T.C., Clemens, J.Q., Culkin, D.J., Das, A.K., Foster, H.E.J., Scarpero, H.M., Tessier, C.D., and Vasavada, S.P., (2012). Diagnosis and treatment of overactive bladder (non-neurogenic) in adults. *The Journal of Urology*, 188(6):2455-2463.

Hojberg, K.E., Salvig, J.D., Winslow, N.A., Lose, G., and Secher, N.J., (2009). Urinary incontinence: prevalence and risk factors at 16 weeks of gestation. *British Journal of Obstetrics and Gynaecology*, 106(8):842-850.

Haylen, B.T., Ridder, D., Freeman, R.M., Swift, S.E., Berghmans, B., Lee, J., Monga, A., Petri, E., Rizk, D.E., Sand, P.K., and Schaer, G.N., (2010). An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. *Neurourology and Urodynamics*, 29: 4-20.

Ingrid, M., Anna, M., and Pohjanen, I., (2005). Low back pain and pelvic pain during pregnancy: prevalence and risk factors. 30(8):983-991. Retrieved from <http://www.mendeley.com> [accessed on 27.08.2015].

Jamil, A., Sultana, R., Feroze, and Quratulain, (2013). The Prevalence of urinary incontinence in pregnancy. *Pakistan Journal of Surgery*, 29(1):66-69.

Kafri, R., Shames, J., Raz, M., and Katz, L.M., (2008). Rehabilitation versus drug therapy for urge urinary incontinence: long-term outcomes. *An International Journal of Obstetrics & Gynaecology*, 19(1):47-52.

Kocaöz, S., Talas, M.S., and Atabekoglu, C.S., (2010). Urinary incontinence in pregnant women and their quality of life. Journal of Clinical Nursing, 19:3314-3323.

Labrecque, L., Eason, E., Marcoux, S., Lemieux, F., Pinault, J., Feldman, P. and Laperriere, L., (2009). Perineal massage increase the likelihood of delivering with an intact perineum in women without previous birth. *Australian Journal of Physiotherapy*, 46: 62-80.

Law, H. and Fiadjoe, P., (2012). Urogynaecological problems in pregnancy. **Journal of Obstetrics and Gynaecology**, 32(2):109-112.

Liang, C.C., Chang, S.D., Lin, S.J., and Lin, Y.J., (2012). Lower urinary tract symptoms in primiparous women before and during pregnancy. *Archives of Gynecology and Obstetrics*, 285:1205-1210.

Liang, C.C., Wu, M.P., Lin, S.J., Lin, Y.J., Chang, S.D., and Wang, H.H. (2013). Clinical impact of and contributing factors to urinary incontinence in women 5 years after first delivery. *International Urogynecology Journal*, 24(1):99-104.

Malpas, P., Jeffcoate, T.N.A., and Lister, U.M., (2007). Displacement of the bladder and urethra in late pregnancy. *Journal of obstetrics and gynaecology of the British Common wealth*, 56:949–960.

Marshall, K., Thompson, K.A., Walsh, D.M., and Baxter, G.D., (2008). Incidence of urinary incontinence and constipation during pregnancy and postpartum:

survey of current findings at the Rotunda Lying-In Hospital. British Journal of Obstetrics and Gynaecology, 105(4):400-402.

Milsom, I., Altman, D., Lapitan, M.C, Nelson, R., Sillèn, U., and Thom, D., (2009). Epidemiology of urinary (UI) and faecal (FI) incontinence and pelvic organ prolapse (POP). Incontinence, 4th ed. Paris, France: Health Publication Ltd.

Morkved, S., Bo, K., Schei, B., and Salvesen, K.A., (2008). Pelvic Floor Muscle Training During Pregnancy to Prevent Urinary Incontinence: A Single- Blind Randomized Controlled Trial. The American College of Obstetricians and gynecologist, 101(2):303-309.

Oliveira, C.D.,Selemeb, M., Cansic, F.P., Consentinoc, R.F.D.C., Kumakurac, F.Y., Moreirac, G.A., and Berghmansd, B., (2013). Urinary incontinence in pregnant women and its relationwith socio-demographic variables and quality of life. Elsevier Journal, 59(5):460–466.

Peschers, U., Schaer, G., Anthuber, C., Delancey, J.O., and Schuessler, B., (2005). Changes in vesical neck mobility following vaginal delivery. Obstetric Gynecology, 88(6):1001-1006.

Price, N., Dawood, R., and Jackson, S.R., (2010). Pelvic floor exercise for urinary incontinence: A systematic literature review. Maturitas Journal, 67(4):309-315.

Raza, K.F., Graziano, S., Kenton, K., Shott, S., and Brubaker, L., (2006). Peripartum urinary incontinence in a racially diverse obstetrical population. International urogynecology journal and pelvic floor dysfunction, 17(5):525-530.

Salick, A., Tajammul, A., Iqbal, S.S.J., Razzaq, N., and Wazir, S., (2005). Frequency of Urinary Symptoms In Pregnancy. Biomedical, 21:1.

Sangsawang, B. and Serisathien, Y., (2012). Effect of pelvic floor muscle exercise programme on stress urinary incontinence among pregnant women. Gynecologic and Obstetric Investigation,75(1):34-40.

Sen, B.B., Svare, J., Viktrup, L., Jorgensen, T., and Lose, G., (2012). Urinary incontinence during pregnancy and 1 year after delivery in primiparous women compared with a control group of nulliparous women. Neurourology and Urodynamics, 31(4):475-480.

Sharma, J.B., Aggarwal, S., Singhal, S., Kumar, S., and Roy, K.K., (2009). Prevalence of urinary incontinence and other urological problems during pregnancy: a questionnaire based study. Archives of Gynecology and Obstetrics, 279(6):845-851.

Solans, D.M., Sanchez, E., and Espuna, P.M., (2010). Urinary and anal incontinence during pregnancy and postpartum: incidence, severity, and risk factors. Obstetrics & Gynecology, 115(3):618-628.

Tanawattanacharoen, S. and Thongtawee, S., (2013). Prevalence of urinary incontinence during the late third trimester and three months postpartum period in King Chulalongkorn Memorial Hospital. Journal of the Medical Association of Thailand, 96:144-149.

Tettamanti, G., Iliadou, A.N., Pedersen, N.L., Bellocco, R., and Altman, D., (2013). Association between a history of gestational diabetes mellitus and subsequent overactive bladder among premenopausal female twins. An International Journal of Osbtetrics&Gynecology, 120(10):1289-1295.

Thorp, J.M., Norton, P.A., Wall, L.L., Kuller, J.A., Euker, B., and Wells, E., (2008). Urinary incontinence in pregnancy and the puerperium: a prospective study. American Journal of Obstetrics and Gynecology, 181:266–273.

Thüroff, J.A., Abrams, P., Andersson, K.E., Achtari, C., Goldberg, R., Mascarenhas, T., Parekh, M., Tamussino, K., Tosson, S., Lose, G., and Petri, E.,(2011). EAU guidelines on urinary incontinence. European Urology, 59(3):387- 400.

Valeton, C.T., and do Amaral, V.F., (2011). Evaluation of urinary incontinence in pregnancy and postpartum in Curitiba mothers program: a prospective study. International Urogynecology Journal, 22:813-820.

World Bank Report, (2010). Poverty Assessment for Bangladesh: Creating opportunities and bridging the East-West Divide. Bangladesh: Bangladesh Development Series No. 26.

Walton, L.M. and Schbley, B., (2013). Maternal Healthcare in Bangladesh and Gender Equity: A Review Article. Online Journal of Health Ethics, 9(1).

Wesnes, S.L., Rortveit, G., Bo, K., and Hunskaar, S., (2007). Urinary incontinence during pregnancy. Obstetric Gynecology, 109(4):922-928.

Whitford, H.M., Alder, B., and Jones, M., (2007). A cross-sectional study of knowledge and practice of pelvic floor exercises during pregnancy and associated symptoms of stress urinary incontinence in North-East Scotland. Midwifery, 23(2):204–217.

Zhu, L., Li, L., Lang, J.H., and Xu, T., (2012). Prevalence and risk factors for peri and postpartum urinary incontinence in primiparous women in China: a prospective longitudinal study. International Urogynecology Journal, 23(5):563-572.

Appendix-I: Informed Consent (English)

VERBAL CONSENT FORM

(Please read out to the participant)

Assalamualaikum\ Namashker,

My name is IsahakHembrom, I am conducting this study for a Bachelor project study titled “**Prevalence And Characteristics Of Urinary Incontinence Among Pregnant Women Attended At A Private Hospital InSavar**”from Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related questions about your pregnancy related of urinary incontinence complaints. This will take approximately 10-15 minutes.

The aim of the study is to determine the prevalence and characteristics of urinary incontinence among pregnant women. The study will provide us important information on how many women’s are suffering from urinary incontinence among per one hundred pregnant women’s, subsequently possible causes of urinary incontinence with also be emerged.

I would like to inform you that this is a purely academic study and obtain information will not be used for any other purpose. All information provided by you will be kept confidential and also the source of information will remain anonymous. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don’t like or do not want to answer during interview.If you have any query about the study or your right as a participant, you may contact with me and/or Md. Millat Hossain, Senior Lecturer of Physiotherapy,BHPI, CRP, Savar, Dhaka.

Do you have any questions before I start?

.....

So, may I have your consent to proceed with the interview?

YESNO

Signature of the participant:

Date.....

Signature of the researcher:

Date.....

Signature of the Witness:

Date.....

Appendix-II: Informed Consent (Bangali)

মৌখিক অনুমতিপত্র

(অংশগ্রহনকারীকে পড়ে শোনাতে হবে)

আসসালামুআলাইকুম/নমস্কার,

আমার নাম ইসাহাক হেন্সম, আমি এই গবেষণাটি বাংলাদেশ হেলথ প্রফেসনশ ইনস্টিটিউট বিএইচপিআই, ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা অনুষদের-এর অধীনে করছি যা আমার ফিজিওথেরাপি স্নাতক কোর্সের অধিভুক্ত। যার শিরোনাম হলো “সভারের একটি প্রাইভেট হাসপাতালে আগত গর্ভবতী মহিলাদের গর্ভকালীন সময়ে যে সকল নিয়ন্ত্রণহীন মূত্রজনিত সমস্যা হয় তার ব্যাপকতার হার ও বৈশিষ্ট্য নিরূপণ”। আমি এক্ষেত্রে কিছু ব্যক্তিগত এবং আপনার সম্পর্কে আনুষ্ঠানিক কিছু তথ্য জানতে চাচ্ছি যা আনুমানিক ১০-১৫ মিনিট সময় নিব।

এই গবেষণার লক্ষ্য মহিলাদের গর্ভকালীন সময়ে যেসকল নিয়ন্ত্রণহীন মূত্র জনিত সমস্যা হয় তার ব্যাপকতার হার ও বৈশিষ্ট্য সম্পর্কে জানা। এই গবেষণা থেকে আমরা কিছু গুরুত্বপূর্ণ তথ্য জানতে পারবো যেমন একশজন গর্ভবতী মহিলাদের মধ্যে কত জনের নিয়ন্ত্রণহীন মূত্র জনিত সমস্যা আছে সাথে নিয়ন্ত্রণহীন মূত্রসমস্যার কিছু কারণ ও জানতে পারবো।

আমি আপনাকে অবগত করছি যে এটা কেবলমাত্র আমার অধ্যয়নের সাথে সম্পর্ক যুক্ত এবং এইতথ্য গুলো অন্য কোন উদ্দেশ্যে ব্যবহৃত হবেনা। আমি আপনাকে আরও নিশ্চয়তা প্রদান করছি যে, আপনার দেওয়া সকল তথ্যের গোপনীয়তা বজায় থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহন স্বেচ্ছাপ্রণোদিত এবং আপনি যেকোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রত্যাহার করতে পারবেন। এছাড়াও আপনি যদি চান তবে এই সাক্ষাত কারের যেকোন প্রশ্নের উত্তর নাও দিতে পারেন যেটা আপনার পছন্দনা। এই অধ্যয়নে অংশগ্রহনকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে এবং / অথবা মোঃ মিল্লাত হোসেন, সিনিয়র প্রভাষক, ফিজিওথেরাপি বিভাগ, বিএইচপিআই, সিআরপি, সভার, ঢাকা- ১৩৪৩-তে যোগাযোগ করতে পারেন। সাক্ষাতকার শুরু করার আগে আপনার কি কোন প্রশ্ন আছে?

.....

আমি আপনার অনুমতি নিয়ে এই সাক্ষাতকার শুরু করতে যাচ্ছি।

হ্যাঁ

না

অংশগ্রহনকারীর স্বাক্ষর:.....

তারিখ:.....

সাক্ষাত গ্রহনকারীর স্বাক্ষর:.....

তারিখ:.....

সাক্ষীর স্বাক্ষর:.....

তারিখ:.....

Appendix-III: Questionnaire (English)

Research Title: “Prevalence and Characteristics of Urinary Incontinence Among Pregnant Women Attended At A Private Hospital in Savar.”

English Questionnaire

<input type="text"/>	<input type="text"/>	<input type="text"/>	ID NO. :	DATE	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
			OFINTERVIEW:						

DAYMONTHYEAR

PATIENTS ID / REGISTRATION NO. :

CONTACT NO. :

NAME OF INTERVIEWER:

NAME OF RESPONDENT:

PLACE OF DATA COLLECTION:

0	<input type="text"/>
1	<input type="text"/>
2	<input type="text"/>

ADDRESS:

PART- A (PATIENTS SOCIO-DEMOGRAPHIC INFORMATION)

Serial No.	Question	Coding Category
1.	What is your current age? (In years) 	<input type="checkbox"/> < 18 years = 0 <input type="checkbox"/> 18-28 years = 1 <input type="checkbox"/> 29-38 years = 2 <input type="checkbox"/> > 38 years = 3
2.	What is your educational qualification?	<input type="checkbox"/> No formal schooling = 0 <input type="checkbox"/> Less than primary = 1 <input type="checkbox"/> Primary completed = 2 <input type="checkbox"/> Less than S.S.C = 3 <input type="checkbox"/> S.S.C completed = 4 <input type="checkbox"/> H.S.C completed = 5 <input type="checkbox"/> ≥ Graduation = 6
3.	What is your religion?	<input type="checkbox"/> Muslim = 0 <input type="checkbox"/> Hindu = 1 <input type="checkbox"/> Christian = 2 <input type="checkbox"/> Buddhist = 3

4.	Residential Area:	<input type="checkbox"/> Rural = 0 <input type="checkbox"/> Urban = 1
5.	What is your occupation?	<input type="checkbox"/> Housewife = 0 <input type="checkbox"/> Service holder = 1 <input type="checkbox"/> Others = 2

PART- B (SAMPLE RELATED QUESTIONS)

Serial No.	Question	Coding Category
1.	Did you have urinary incontinence before pregnancy? (If “No”, then answer the following questions)	<input type="checkbox"/> Yes = 0 <input type="checkbox"/> No = 1
2.	Which month of pregnancy it is?	<input type="checkbox"/> 1st trimester (1 to 3months) = 0 <input type="checkbox"/> 2nd trimester (4 to 6months) = 1 <input type="checkbox"/> 3rd trimester (7 to 9months) = 2

3.	What is the serial no. of your this child?	<input type="checkbox"/> 1st = 0 <input type="checkbox"/> 2nd = 1 <input type="checkbox"/> More than two(Specify_____) = 2
4.	If multigravida, in which route of previous delivery occurred?	<input type="checkbox"/> Caesarian = 0 <input type="checkbox"/> Vaginal = 1 <input type="checkbox"/> Not applicable = 2
5.	Do you have urinary incontinence during pregnancy?	<input type="checkbox"/> Yes = 0 <input type="checkbox"/> No = 1
6.	If yes, then from which month of pregnancy?	<input type="checkbox"/> 1st trimester (1 to 3months) = 0 <input type="checkbox"/> 2nd trimester (4 to 6months) = 1 <input type="checkbox"/> 3rd trimester (7 to 9months) = 2
7.	When does the urine loss occur?	<input type="checkbox"/> Day time only = 0 <input type="checkbox"/> Night time only = 1 <input type="checkbox"/> Both day and night time = 2
8.	How often do you leak urine?	<input type="checkbox"/> About once a week or less often = 0 <input type="checkbox"/> Two or three times a

		<p>week = 1</p> <p><input type="checkbox"/> About once a day = 2</p> <p><input type="checkbox"/> Several times a day = 3</p> <p><input type="checkbox"/> All the time = 4</p>
9.	When you lose urine, does it usually :	<p><input type="checkbox"/> Just create some moisture = 0</p> <p><input type="checkbox"/> Wet your underwear = 1</p> <p><input type="checkbox"/> Trickle down your thigh = 2</p> <p><input type="checkbox"/> Wet the floor = 3</p>
10.	When you leak urine, in which character you lose it?	<p><input type="checkbox"/> Droplets = 0</p> <p><input type="checkbox"/> Overflow = 1</p>
11.	While awake, when you are having urine loss problems, how much urine would you say lose without control EACH TIME ?	<p><input type="checkbox"/> A few drops to less than ½ teaspoon = 0</p> <p><input type="checkbox"/> ½ teaspoon to less than 2 tablespoons = 1</p> <p><input type="checkbox"/> 2 tablespoons to ½ cup = 2</p> <p><input type="checkbox"/> ½ cup or more = 3</p>

12.	<p>Generally, how many times do you usually urinate from the time you wake up to the time before you go to bed?</p> <p style="text-align: right;">----- Times</p>	<input type="checkbox"/> <6 times = 0 <input type="checkbox"/> 6-12 times = 1 <input type="checkbox"/> 13-18 times = 2 <input type="checkbox"/> >18 times = 3
13.	<p>Generally, how many times do you usually urinate after you have gone to sleep at night?</p> <p style="text-align: right;">----- Times</p>	<input type="checkbox"/> 1-2 times = 0 <input type="checkbox"/> 3-4 times = 1 <input type="checkbox"/> > 4 times = 2
14.	<p>Does your urine leak out with coughing or sneezing?</p>	<input type="checkbox"/> Yes = 0 <input type="checkbox"/> No = 1
15.	<p>If yes, then from which month of pregnancy?</p>	<input type="checkbox"/> 1st trimester (1 to 3months) = 0 <input type="checkbox"/> 2nd trimester (4 to 6months) = 1 <input type="checkbox"/> 3rd trimester (7 to 9months) = 2
16.	<p>Does your urine leak out to the feeling of urgency?</p>	<input type="checkbox"/> Yes = 0 <input type="checkbox"/> No = 1

17.	If yes, then from which month of pregnancy?	<input type="checkbox"/> 1st trimester (1 to 3months) = 0 <input type="checkbox"/> 2nd trimester (4 to 6months) = 1 <input type="checkbox"/> 3rd trimester (7 to 9months) = 2
18.	Have you received treatment for your bladder symptom?	<input type="checkbox"/> Yes = 0 <input type="checkbox"/> No = 1
19.	If “Yes” please specify:	<input type="checkbox"/> Medication = 0 <input type="checkbox"/> Surgery = 1 <input type="checkbox"/> Physiotherapy = 2 <input type="checkbox"/> Others (Specify _____) = 3

*****Thank you very much for answering these questions.**

With thanks -

Isahak Hembrom
4th Year BSc. in Physiotherapy
BHPI, Savar, Dhaka- 1343.

Appendix-IV: Questionnaire (Bangali)

গবেষণা শিরোনাম: “ সাত্তাৰেৰ একটি প্ৰাইভেট হাসপাতালে আগত গৰ্ভবতী মহিলাদেৰ গৰ্ভকালীন সময়ে যে সকল নিয়ন্ত্ৰণহীন মূত্ৰজনিত সমস্যা হয় তাৰ ব্যাপকতাৰ হাৰও বৈশিষ্ট্য নিৰূপণ” ।

বাংলা প্ৰশ্নাবলী

তাৰিখ:

আইডি নং: সাক্ষাতগ্ৰহণেৰ

দিন মাস বছৰ

ৰোগীৰ আইডি/নিবন্ধনসংখ্যা:

যোগাযোগেৰ নম্বৰ:

সাক্ষাতগ্ৰহণকাৰীৰ নাম:

উত্তৰদাতাৰ নাম:

তথ্যসংগ্ৰহেৰ স্থান:

০	<input type="text"/>
১	<input type="text"/>
২	<input type="text"/>

ঠিকানা:

পর্ব-১ (রোগীর সমাজ কাঠামো ভিত্তিক তথ্যসমূহ)

ক্রমিকনং.	প্রশ্ন	কোডিং এর নমুনা
১.	আপনার বর্তমান বয়স কত? (বছর)	<input type="checkbox"/> < ১৮ বছর = ০ <input type="checkbox"/> ১৮-২৮ বছর = ১ <input type="checkbox"/> ২৯-৩৮ বছর = ২ <input type="checkbox"/> > ৩৮ বছর = ৩
২.	আপনার শিক্ষাগত যোগ্যতাকতটুকু?	<input type="checkbox"/> কখনও স্কুলে যাওয়া হয়নি = ০ <input type="checkbox"/> < প্রাইমারি = ১ <input type="checkbox"/> প্রাইমারি সমাপ্ত = ২ <input type="checkbox"/> < এস.এস.সি = ৩ <input type="checkbox"/> এস.এস.সি = ৪ <input type="checkbox"/> এইচ.এস.সি = ৫ <input type="checkbox"/> অনার্স/ডিগ্রী = ৬
৩.	আপনি কোন ধর্মপালন করেন?	<input type="checkbox"/> ইসলাম = ০ <input type="checkbox"/> হিন্দু = ১ <input type="checkbox"/> খ্রীস্টান = ২ <input type="checkbox"/> বৌদ্ধ = ৩
৪.	আবাসিক এলাকা:	<input type="checkbox"/> গ্রাম = ০

		<input type="checkbox"/> শহর= ১
৫.	আপনারপেশাকি?	<input type="checkbox"/> গৃহিণী = 0 <input type="checkbox"/> চাকুরিজীবি = ১ <input type="checkbox"/> অন্যান্য = ২

পর্ব-২ (নমুনা সংক্রান্ত প্রশ্নসমূহ)

ক্রমিকনং	প্রশ্ন	কোডিং এর নমুনা
১.	গর্ভধারণের আগে আপনার কি নিয়ন্ত্রণহীন মূত্রজনিত কোন সমস্যা ছিল? (যদি “না” হয়ে থাকে, তাহলে নিচের প্রশ্নগুলির উত্তর দিন)	<input type="checkbox"/> হ্যাঁ = 0 <input type="checkbox"/> না = ১
২.	এখন আপনার গর্ভধারণের কততম মাস চলছে?	<input type="checkbox"/> ১ম ট্রাইমেস্টার (১ম-৩য় মাস) = 0 <input type="checkbox"/> ২য় ট্রাইমেস্টার (৪র্থ-৬ষ্ঠ মাস) = ১ <input type="checkbox"/> ৩য় ট্রাইমেস্টার (৭ম- ৯ম মাস) = ২
৩.	এটি আপনার কততম সন্তান?	<input type="checkbox"/> ১ম = 0 <input type="checkbox"/> ২য় = ১ <input type="checkbox"/> ২এর অধিক (সুনির্দিষ্টভাবে

		উল্লেখকরুন_____)= ২
৪.	যদি আপনি এক সন্তানের অধিক মা হয়ে থাকেন, তাহলে পূর্বের সন্তানটি আপনার কোন পথে হয়েছিল?	<input type="checkbox"/> সিজারিয়ান = 0 <input type="checkbox"/> ভেজাইনাল= ১ <input type="checkbox"/> প্রযোজনয় = ২
৫.	গর্ভধারণের সময়ে আপনার কি নিয়ন্ত্রণহীন মূত্রজনিত কোন সমস্যা আছে?	<input type="checkbox"/> হ্যাঁ = ০ <input type="checkbox"/> না = ১
৬.	যদি হ্যাঁ হয়, তাহলে গর্ভধারণের কততম মাসে?	<input type="checkbox"/> ১ম ট্রাইমেস্টার (১ম-৩য় মাস) =0 <input type="checkbox"/> ২য় ট্রাইমেস্টার (৪র্থ-৬ষ্ঠ মাস) =১ <input type="checkbox"/> ৩য় ট্রাইমেস্টার (৭ম-৯ম মাস)=২
৭.	কখন আপনার মূত্র বের হয়?	<input type="checkbox"/> শুধুমাত্র দিনের সময় = 0 <input type="checkbox"/> শুধুমাত্র রাতের সময়=১ <input type="checkbox"/> উভয়দিনএবংরাতেরসময়= ২
৮.	কতবার আপনার মূত্র বের হয়ে থাকে?	<input type="checkbox"/> সপ্তাহেএকবারবাকমপ্রায়ই= 0 <input type="checkbox"/> সপ্তাহেদুইবাতিনবার = ১ <input type="checkbox"/> দিনে একবার = ২ <input type="checkbox"/> দিনে বেশকয়েকবার = ৩

		<input type="checkbox"/> সবসময় = ৪
৯.	যখন আপনার মূত্র বের হয় , এটাসাধারণতঃ আপনার:	<input type="checkbox"/> শুধু কিছু আর্দ্রতাই=০ <input type="checkbox"/> আপনার অন্তর্বাস ভেজায় = ১ <input type="checkbox"/> আপনার উরুতে চুইয়ে পড়ে = ২ <input type="checkbox"/> মেঝেভেজায় = ৩
১০.	যখন আপনার মূত্র বের হয় , তখন তা কোন ধরনের হয়ে থাকে?	<input type="checkbox"/> ফোঁটায় ফোঁটায় =০ <input type="checkbox"/> ওভারফ্লো = ২
১১.	সজাগ অবস্থায় যখন আপনার নিয়ন্ত্রণহীন মূত্রজনিত সমস্যাগুলো হয়, তখন প্রতি সময়ে কতটুকু পরিমাণ মূত্র আপনার নিয়ন্ত্রণের বাইরে বের হয় বলে মনে করেন?	<input type="checkbox"/> কয়েকফোঁটাথেকে ১/২ চামচের কম = ০ <input type="checkbox"/> ১/২চামচ থেকে ২ টেবিল চামচের কম = ১ <input type="checkbox"/> ২ টেবিল চামচ থেকে ১/২ কাপ = ২ <input type="checkbox"/> ১/২কাপ বা তার বেশী= ৩
১২.	আপনিসাধারণতআপনারজেগেওঠাসময়থেকে ঘুমাতেযাওয়ারআগ পর্যন্ত সময়ে কতবারমূত্র করে থাকেন? ----- বার	<input type="checkbox"/> <৬বার = ০ <input type="checkbox"/> ৬-১২বার = ২ <input type="checkbox"/> ১৩- ১৮বার = ৩ <input type="checkbox"/> >১৮বার=৪
১৩.	আপনিরাতেঘুমিয়ে যাওয়ার পরেসাধারণতকতবারমূত্র করে থাকেন?	<input type="checkbox"/> ১-২বার = ০

	----- বার	<input type="checkbox"/> ৩-৪বার = ২ <input type="checkbox"/> >৪বার = ৩
১৪.	আপনার কি হাঁচি বা কাঁশি সাথে মূত্র বের হয়ে আসে?	<input type="checkbox"/> হ্যাঁ = ০ <input type="checkbox"/> না = ২
১৫.	যদি হ্যাঁ হয়, তাহলে গর্ভধারণের কততম মাসে?	<input type="checkbox"/> ১ম ট্রাইমেস্টার (১ম-৩য় মাস) = ০ <input type="checkbox"/> ২য় ট্রাইমেস্টার (৪র্থ-৬ষ্ঠ মাস) = ১ <input type="checkbox"/> ৩য় ট্রাইমেস্টার (৭ম-৯ম মাস) = ২
১৬.	আপনার কি মূত্রের বেগের অনুভূতির সাথে মূত্র বের হয়?	<input type="checkbox"/> হ্যাঁ = ০ <input type="checkbox"/> না = ২
১৭.	যদি হ্যাঁ হয়, তাহলে গর্ভধারণের কততম মাসে?	<input type="checkbox"/> ১ম ট্রাইমেস্টার (১ম-৩য় মাস) = ০ <input type="checkbox"/> ২য় ট্রাইমেস্টার (৪র্থ-৬ষ্ঠ মাস) = ১ <input type="checkbox"/> ৩য় ট্রাইমেস্টার (৭ম-৯ম মাস) = ২
১৮.	আপনি আপনার নিয়ন্ত্রণহীন মূত্র জনিত সমস্যাগুলোর চিকিৎসা নিয়েছেন কি?	<input type="checkbox"/> হ্যাঁ = ০ <input type="checkbox"/> না = ২

১৯.	যদি “হ্যাঁ” হয়, দয়াকরে সুনির্দিষ্টভাবে উল্লেখ করুন:	<input type="checkbox"/> মেডিসিন = ০ <input type="checkbox"/> সার্জারি = ১ <input type="checkbox"/> ফিজিওথেরাপি = ২ <input type="checkbox"/> অন্যান্য(_____) = ৩
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*** এই প্রশ্নের উত্তরে দেওয়ার জন্য আপনাকে অনেক ধন্যবাদ।

ধন্যবাদান্তে-

ইসাহাক হেমরম

৪র্থ বর্ষবি এস সি ইন ফিজিওথেরাপি

বিএইচপিআই, সাভার, ঢাকা-১৩৪৩।

Appendix-IV: Permission letter



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)

CRP-Chapain, Savar, Dhaka, Tel: 7745464-5, 7741404, Fax: 7745069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178, 8053662-3, Fax: 8053661

তারিখ : ১৮.১০.২০১৫

প্রতি

পরিচালক- ব্যবস্থাপনা ও পরিকল্পনা
এনাম মেডিকেল কলেজ ও হাসপাতাল
সাভার, ঢাকা।

বিষয় : রিসার্চ প্রজেক্ট এর জন্য আপনার প্রতিষ্ঠান সফর ও তথ্য সংগ্রহ প্রসঙ্গে।

জনাব,

আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্রে-সিআরপি'র শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন ফিজিওথেরাপি কোর্স পরিচালনা করে আসছে।

উক্ত কোর্সের ছাত্রছাত্রীদের কোর্স কারিকুলামের অংশ হিসাবে বিভিন্ন বিষয়ের উপর রিসার্চ ও কোর্সওয়ার্ক করা বাধ্যতামূলক।

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন ফিজিওথেরাপি কোর্সের ছাত্র ইসহাক হেমব্রম তার রিসার্চ সংক্রান্ত কাজের তথ্য সংগ্রহের জন্য আপনার সুবিধামত সময়ে আপনার প্রতিষ্ঠানে সফর করতে আশ্রয়ী। তার রিসার্চ শিরোনাম
“ Prevalence and Characteristics of Urinary Incontinence among Pregnant Women at attended at a private Hospital in Savar.”

তাই তাকে আপনার প্রতিষ্ঠান সফর এবং প্রয়োজনীয় তথ্য প্রদান সহ সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

মোঃ ওবায়দুল হক
সহযোগী অধ্যাপক ও বিভাগীয় প্রধান
ফিজিওথেরাপি বিভাগ
বিএইচপিআই, সিআরপি।



Approved
Dr. Md. Arzamanul Islam
Director
Management & Planning
Enam Medical College & Hospital