

Report

Pelvic Floor Exercise

# Table of Contents

<b>1</b>	<b>Background</b> .....	<b>1</b>
<b>2</b>	<b>Training Session</b> .....	<b>1</b>
2.1	Day 1 and 2 .....	1
2.2	Day 3: Follow-up Session.....	5
<b>3</b>	<b>ANNEXURE</b> .....	<b>7</b>
3.1	Annexure 1: Training Agenda.....	7
3.2	Annexure 2: Pre and Post Test.....	8
3.3	Analysis of pre and post test results: Difference of Proportions .....	14
3.4	Annexure3: Daily record- Kegel’s Exercise.....	16

# Table of Figures

<b>Figure 1: Knowledge about Urinary Incontinence</b> .....	<b>9</b>
<b>Figure 2: Meaning of the word “incontinence”</b> .....	<b>10</b>
<b>Figure 3: Knowledge regarding the treatment of Urinary Incontinence</b> .....	<b>11</b>
<b>Figure 4: Knowledge about the risk factors regarding the pelvic/uterus prolapse</b> .....	<b>Error! Bookmark not defined.</b>
<b>Figure 5: Sign and symptoms of Pelvic/uterus prolapse</b> .....	<b>12</b>

## 1 Background

The pain and embarrassment of pelvic floor disorders affect millions of women every day. During a women's lifespan, there is 11% risk of surgery for pelvic floor disorders such as urinary incontinence and pelvic floor prolapse. This is a silent disorder with a huge impact on women's quality of life. Moreover, due to unfavorable attitude of women to report or seek care for pelvic floor dysfunctions, it becomes more difficult to advocate resources and programs for prevention and early diagnosis.

### Worrisome projection

**303 million** women are expected to be affected by pelvic floor disorders

In 2008, a total of 250 million women in Asia, South America and Africa were affected by urinary incontinence and this number is expected to increase to approximately 303 million by 2018.<sup>1</sup> A recent study conducted in a district of South India, found that urinary incontinence affects at least three out of ten community dwelling women and the estimated prevalence in the study (33.85%) was higher than the rates reported generally for developing countries (28.7%).

Urinary incontinence is an embarrassing problem to many women and thus its presence may be significantly underreported. The women have been predisposed to a higher risk of urinary incontinence mainly because of the damage to the pelvic floor as a result of pregnancy, multiple deliveries and the child birth process. There are significant mechanical and hormonal changes during the pregnancy, which impairs the pelvic floor muscle strength. Other factors that come together synergically to cause the pelvic floor dysfunction are standards of living, poor nutrition (causing poor tissue tensile strength), anemia, and regular physical heavy work.

In Nizamuddin Basti, the family health folders have underpinned the information regarding the extent of morbidity of the family members through the prevalence of the pelvic floor disorders in the basti women. Many women shy away from this subject, finding it taboo or embarrassing and suffer from the uncomfortable symptoms often in silence. Also, health workers are also not able to respond appropriately to their problems related to pelvic floor disorders as they have not received the training in this respect.

In the light of above factors, it was decided to organize a training programme for the health workers on pelvic floor disorders and the exercises as an instrument for treatment. The objective is that the health workers can further guide and monitor the women of the *basti* in doing the pelvic floor exercises and raise awareness regarding the role of these exercises in maintaining good reproductive health. In December 2013, the training was conducted in two modules. Each module was carried out in the batches of two because of the large batch size. The training agenda has been given in the

Annexure

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<sup>1</sup><http://www.biomedcentral.com/1472-6874/13/16>

## 2 Training Session

### 2.1 Day 1 and 2

The training programme had been structured in a way to cover all the important aspects related to the pelvic floor muscles. The various aspects covered during the training included introductory session on pelvic floor dysfunction like urinary incontinence and pelvic prolapse, identification of pelvic floor muscles and strengthening exercises for the pelvic floor muscles and the core abdominal muscles.

The session commenced with a round of introduction and each participant introduced themselves one by one. A total of 40 participants attended the training session.

#### **Session 1: Pre- test and Introduction to pelvic floor dysfunction**

Subsequent to the round of introductions, all the participants were administered a pre-test questionnaire to assess their current knowledge and awareness regarding pelvic floor disorders. The detailed analysis is presented in Annexure 2.

The participants were then introduced to common pelvic floor problems focusing on areas like pathophysiology i.e. altered physiology which is the cause of the health condition, common causes and treatment modes followed for the prolapse of the pelvic and urinary incontinence.

The following areas of information were shared with the participants regarding the pelvic floor:

- What is the pelvic floor?
- What are the functions of female pelvic floor?
- What are the common pelvic floor dysfunctions?
- Causes of uterus prolapse
- Causes of urinary incontinence

#### **Session 2: Identification of pelvic floor muscles**

The participants were explained the process to identify their own pelvic floor muscles. By virtue of their size and location, it becomes difficult to identify this group of muscles. Thus, various exercises were demonstrated to recognize these muscles in our body. The following exercises were used as a medium for the identification:

##### **EXERCISE 1**

The participants were told to try stopping the stream of urine midway while emptying their bladder. Then, they should relax the muscles and allow the bladder to empty completely. The muscles which they have used to stop the flow of urine are the same muscles they will squeeze when performing the Kegel's exercises.

Also, the participants were instructed **not to practice this technique and make this a habit during voiding**, as this can cause problems such as

formation of stones in the kidneys.

**EXERCISE 2**

Identification of the pelvic muscles by stopping the wind from passing through the bowels- To do this, the participants were instructed to squeeze the muscles around the anus as if they really had to pass the wind. Simultaneously, they were instructed to touch the opening at their rectum while tightening the muscles. They were told to feel the opening of the rectum contract at the same time.

**EXERCISE 3**


Sit on a rolled hand towel and feel the movement of the pelvic floor muscles lifting and lowering when activated and trying to control the urine.

**EXERCISE 4**

Touch the perineum (the skin between the anus and vagina) with a clean finger and notice the finger lift slightly inwards as pelvic floor is activated. This technique can help to feel whether the pelvic floor is bulging outwards with their effort.

**Session3: Kegel's Exercises**

The following exercises were demonstrated in the session:

Position 1	Position2	Position3	Position4
<p>Lie on the stomach i.e. <b>Prone position.</b> (Participants who were suffering from lower back pain or are prone to lower back problems were advised to use a pillow or cushion under the hips and pelvis. This will help to avoid hyper extending their lower back and loading the joints in their lower back)</p> 	<p>If prone lying is not comfortable for the body, participants were advised to choose an alternative position such as <b>side lying.</b></p>	<p>Position the body in <b>prone lying with one leg bent and out to the side of your body.</b> This position is suitable for women without hip problems.</p>	<p><b>Kneeling position.</b> Position the body on all fours resting your forehead onto your forearms. (Participants were advised that this position is not suited to women with knee pain.)</p>
<b>PRESCRIBED REPETITION</b>			
<ul style="list-style-type: none"> <li>• Activate the pelvic floor muscles for 3-4 times.</li> <li>• Maintain the pelvic floor muscle contraction for up to 4 seconds for each contraction.</li> <li>• Relax and allow the pelvic floor muscles to recover in between each repetition or exercise performed</li> <li>• Next perform 4 consecutive brisk and fast kegel exercises in this position to complete the first set of exercises.</li> </ul>			

After explaining them the above mentioned positions, the participants were also explained regarding the exercises in sitting and standing position. These positions are referred as advanced positions.

#### **Session 4: Maintaining a pelvic floor exercise diary**

A pelvic floor exercise diary was given to each participant and method of filling this diary was explained to them. Various cues were discussed which would help them in remembering the exercises and followed by filling the diaries. These included pasting the diary on the wall of the house, setting the reminders on their phones or doing these exercises every time before they have their meals. It was emphasized that the diary has to be filled regularly and religiously.

The aim of this activity was to create awareness amongst the participants about their core (abdominal and back) muscles and encourage them to train their core regularly. The pelvic floor exercise diary will prove an important instrument in the regular follow ups which have been planned at regular intervals to assess the improvement in the strength of the muscles.

#### **Session 5: Precautions while performing the exercises, feedback and post test**

In the beginning, it was observed that the participants had difficulty in recognizing these muscles. Therefore, instead of using the correct technique of the exercise, common mistakes were being committed by them. These included:

- Squeezing the buttocks and inside thighs
- Drawing in abdominal muscles
- Breath holding
- Straining and pushing the pelvic floor downwards.

All the participants were instructed and monitored for these errors and substitutions during the training programme.

Further, the participants were explained the common causes which make it difficult to identify the pelvic floor muscles. Some of these causes are mentioned below:

- Weak pelvic floor muscles
- Overactive (too tight) pelvic floor muscles
- Previous injury and damage to the pelvic floor nerves and muscles (pregnancy /childbirth/ pelvic floor surgery)
- Wasting or thinning of the pelvic floor muscles with increasing age
- Lack of previous Kegel's Exercise
- Lack of correct instruction about the technique
- Our pelvic floor muscles are hidden from our own view
- We don't often learn to consciously contract our pelvic floor muscles in everyday life without reason to do so.

An attempt was made to keep the sessions interactive, thus the participants were asked various questions in the beginning or in the end of every session as shown below:

Question	Response from the participants	Response from the moderator
What do you understand about pelvic prolapse?	<ul style="list-style-type: none"> <li>• Muscles are weak</li> <li>• We urinate more</li> <li>• While sitting only, the urine starts leaking</li> <li>• We get wet</li> <li>• We cannot control the our urine to leak while coughing, laughing</li> <li>• Due to some illness , there is weakness in the uterus</li> </ul>	<p>Uterine prolapse is a “fallen down” uterus or womb slipped out of position.</p> <p>It happens when the uterus (or womb) loses its strong support that holds it up inside your pelvis.</p>
What do you experience near your pelvic floor when you cough?	<ul style="list-style-type: none"> <li>• Pressure near the pelvic floor and the back bone</li> <li>• Few participants felt like urinating</li> <li>• Few experienced pain in the uterus and low back</li> <li>• Some participants mentioned they felt no pressure on the lower extremity, they felt pressure in the abdominal area</li> <li>• Some mentioned that they felt like something is coming and going inside</li> </ul>	<p>It is important that we always squeeze our pelvic floor muscles before we cough, laugh or sneeze.</p> <p>Otherwise, these activities create pressure on the abdominal and pelvic floor muscles.</p>
What are the causes of uterus prolapse?	<ul style="list-style-type: none"> <li>• Greater number of pregnancies</li> <li>• Lifting heavy weights</li> <li>• Excessively coughing</li> <li>• Muscles are weak – age, menopause, overweight</li> <li>• Straining during passing urine and stool</li> </ul>	<ul style="list-style-type: none"> <li>• Pregnancy and childbirth that causing damage to the pelvic floor during birth such as prolonged pushing, multiple births and large babies. (Injury to your pelvic floor during childbirth may not become apparent until many years later!)</li> <li>• Postnatal pelvic floor injury caused by constipation and/or inappropriate exercise.</li> <li>• Chronic constipation and straining</li> <li>• Chronic coughing</li> </ul>

		and/or sneezing <ul style="list-style-type: none"> <li>• Wasting of the supportive structures in the pelvic floor during and after menopause</li> <li>• Obesity</li> <li>• Heavy lifting</li> </ul>
How do you lift any weight lying on the ground? (The women were instructed to pick their purses lying on the floor)	<ul style="list-style-type: none"> <li>• Most of the women did not bend their knees before lifting any weight from the ground.</li> </ul>	The participants were instructed to always bend their knees before lifting the weight from the ground.

### Post Test

In the end, post test was conducted to assess whether the participants have understood the exercises as instructed in the training programme. It is important to recognize here, that was there any change in the level of awareness regarding the pelvic floor muscles after the training session.

A detailed analysis of the questionnaire asked in pre and post test has been given in the annexure 2.

## 2.2 Day 3: Follow-up Session

A follow up session was conducted for the participants in the groups of two. The summary of the session is as follow:

### Session 1: Feedback session: Group and Individual

This session began with the recap of the earlier session. Each participant was asked whether they have performed the pelvic floor exercises and the kind of difficulties they have faced while performing these exercises. The participants discussed regarding their experiences. Most of them reported that they are very religiously following the exercises which were taught to them. Few of them said that they forgot to do these exercises most of the time.

Further, to recapitulate one of the participants was told to explain the identification process of pelvic floor muscles and the pelvic floor exercises she learnt during the last training programme. Another important point that came up during the discussion was that few participants were holding their breath while doing the exercises which was immediately corrected. Thus, the entire training session on the identification of the pelvic floor muscles and the exercises were revisited.

Also, the participants were asked the number of times and the position they used to perform these exercises.

### Session2: Pelvic floor exercises



Subsequent to the revision, the participants were asked to bring their diaries one by one to get them checked. As this was the individual session, many women discussed their personal experiences, the problems that they had faced while performing these exercises and benefits that they foresee.

Before the concluding the session, the women participated in one more session of the pelvic floor exercises and also, few core abdominal strengthening exercises were taught to them like bridging, both leg raises and cat- camel opposite leg and arm raise. Few of the observations which have been recorded are as follows:

<b>Exploring the problems and benefits of exercises</b>
Few women discussed that they have adopted the practice of urinating less than two times a day. The problem of doing so was explained to them that this is not the right practice as it is against the normal physiological process and puts unnecessary pressure on the pelvic floor.
Few women reported that they feel something is coming out of their vagina
Many women reported pain in low back and knee.
Few women reported that they leak urine during sexual intercourse.
One respondent reported that she is suffering from urinary tract infection.
Women discussed that now they don't experience leakage of urine while sneezing and laughing after doing the pelvic floor exercises
Many women reported 80-90% relief in urge incontinence from the pelvic floor exercises
Many women said that they were not able to stop their urine flow after seeing or hearing the stream of urine. But after learning these exercises they are able to control the leakage of urine.



### 3 ANNEXURE

#### 3.1 Annexure 1: Training Agenda

##### Day 1 & 2

Time	Activities
10:00-10:15	Introduction and registration
10:15- 11:15	Pre- test Introduction to common pelvic floor problems Pathophysiology and common treatments of Pelvic prolapse and Urinary incontinence
11:15-11:30	<b>Tea Break</b>
11:30-13:00	What are Kegel's exercises?
	How to feel your pelvic floor muscles?
13:00-14:00	<b>Lunch</b>
14:00-15:00	Technique for strengthening pelvic floor muscles
15:00-15:30	How to fill pelvic floor diary?
15:30-15:45	<b>TeaBreak</b>
15:45- 16:00	Precautions while performing the exercises Feedback and Post test

##### Day 3: Follow up Session

Time	Activities
10:00- 11:00	Feedback session : Group and Individual Revision of pelvic floor exercises
11:00-11:15	Tea Break
11:15-12:00	Checking the pelvic floor diary
12:00-13:00	Session on Pelvic Floor Exercises and core abdominal exercises

## 3.2 Annexure 2: Pre and Post Test

### Urinary Incontinence

S.No	Questions	Response
1	Do you know what Urinary Incontinence is?	Yes..... No.....
2	What does the "incontinence" mean to you? (Tick the correct answers)	1. Involuntary leakage of urine ..... 3. Don't know ..... 4. Inability to pass urine .....
3	What are the causes of Urinary Incontinence? (Tick the correct answers)	1. Childbirth ..... 2. Weakness of pelvic floor muscles ..... 3. Ageing ..... 4. Urinary tract infection ..... 5. Chronic respiratory disorder (persistent cough) ..... 6. Don't know .....
4	Do you think Urinary Incontinence can be treated?	Yes.... No.... Don't know.....
5	Do you think Urinary Incontinence can be treated by pelvic floor exercises?	Yes.... No.... Don't know

### Pelvic prolapse

S.No	Knowledge about risk factors	Response
1.	Does carrying heavy load during pregnancy causes uterine prolapse?	Yes..... No..... Don't know.....
2.	Does undergoing labor for long periods cause uterine prolapse?	Yes..... No..... Don't know.....
3.	Do you think not having enough food during pregnancy causes uterine prolapse?	Yes..... No..... Don't know.....
4.	Can having many children reduce the risk factor for uterine prolapse?	Yes..... No..... Don't know.....
<b>Signs and Symptoms</b>		
5.	Does the woman with uterine prolapse experience something coming out of her vagina?	Yes..... No..... Don't know.....
6.	Does the woman with uterine prolapse have difficulty in standing and walking?	Yes..... No..... Don't know.....
7.	Does the women with uterine prolapse have problem while urinating?	Yes..... No..... Don't know.....

8.	Does the woman with uterine prolapse urinate often?	Yes..... No..... Don't know.....
9.	Does the woman with uterine prolapse have any back pain?	Yes..... No..... Don't know.....
<b>Preventive Measures</b>		
10.	Is uterine prolapse preventable?	Yes..... No..... Don't know.....
11.	Is uterine prolapse preventable by increasing workload?	Yes..... No..... Don't know.....
12.	Does exercise (Kegel's exercise) prevent the uterine prolapse from degrading it further?	Yes..... No..... Don't know.....
13.	Can drinking some herb prevent uterine prolapse or prevent it from further degrading?	Yes..... No..... Don't know.....

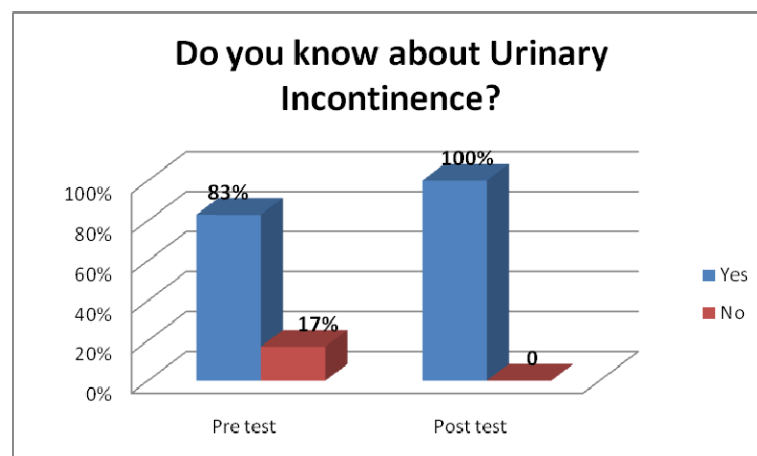
The pre and post test questionnaire largely entails the knowledge and awareness questions on urinary incontinence and uterus prolapse.

### Questions on Urinary Incontinence

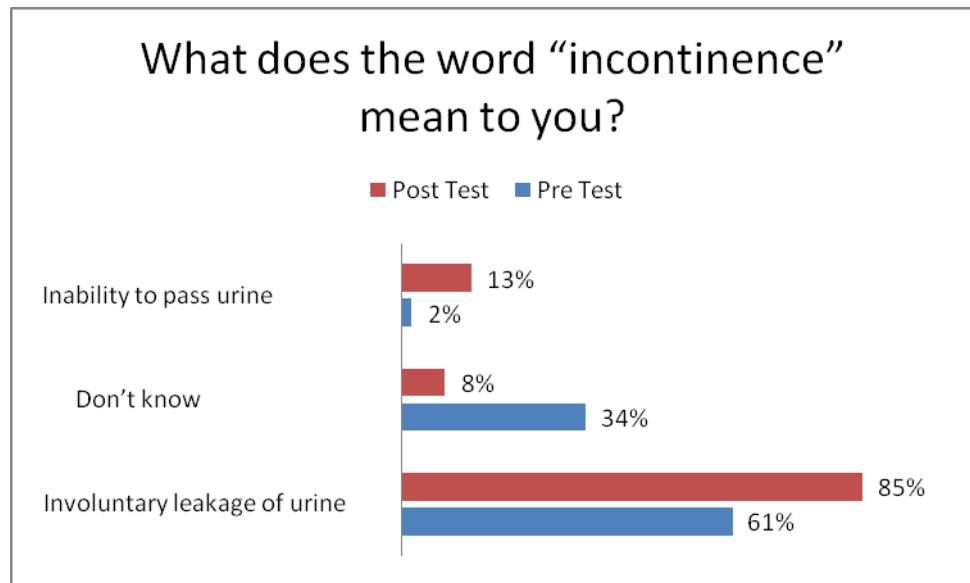
In this section, the questions mainly focus on the awareness and knowledge pertaining to urinary incontinence. It also captures the main causes and the treatment of the urinary incontinence.

The participants were asked if they know about urinary incontinence, only 83% participants reported that they know about urinary incontinence while during the post test all the participants recorded that after the training everyone was aware about it.

**Figure 1: Knowledge about Urinary Incontinence**



**Figure 2: Meaning of the word “incontinence”**



Further, the participants were asked about the meaning of the word “incontinence”. As per the pre test analysis, only 61% recorded the correct answer as “involuntary leakage of urine” whereas 85% participants stated the correct answer after the training programme.

The participants were also asked about the causes of the urinary incontinence. The following table describes the responses of the participants during the pre and the post test:

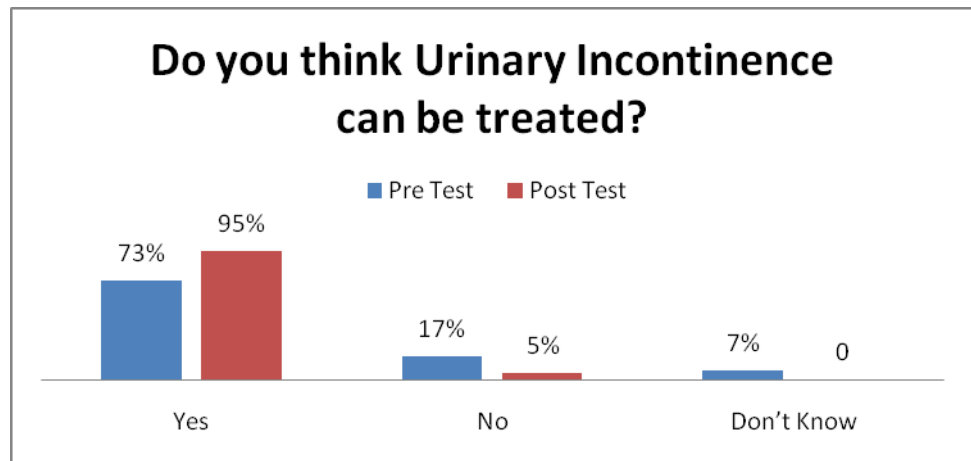
**Table 1: Causes of Urinary Incontinence**

Causes of Urinary Incontinence	Pre Test	Post Test
Childbirth	32%	56%
Weakness of pelvic floor muscles	54%	85%
Ageing	27%	67%
Urinary tract infection	20%	21%
Chronic respiratory disorder (persistent cough)	29%	41%
Don't know	22%	3%

Childbirth weakness of the pelvic floor muscles and chronic respiratory disorder are the major causes of urinary incontinence. Ageing, leads to decreased production of estrogen which further weakening of the pelvic floor muscles. (Other neurological conditions leading to urinary incontinence were discussed during the training session. Urinary tract infection is usually not the cause of urinary incontinence in women.

The participants were asked if they think urinary incontinence can be treated, 95% participants reported that it can be treated after the training session.

**Figure 3: Knowledge regarding the treatment of Urinary Incontinence**

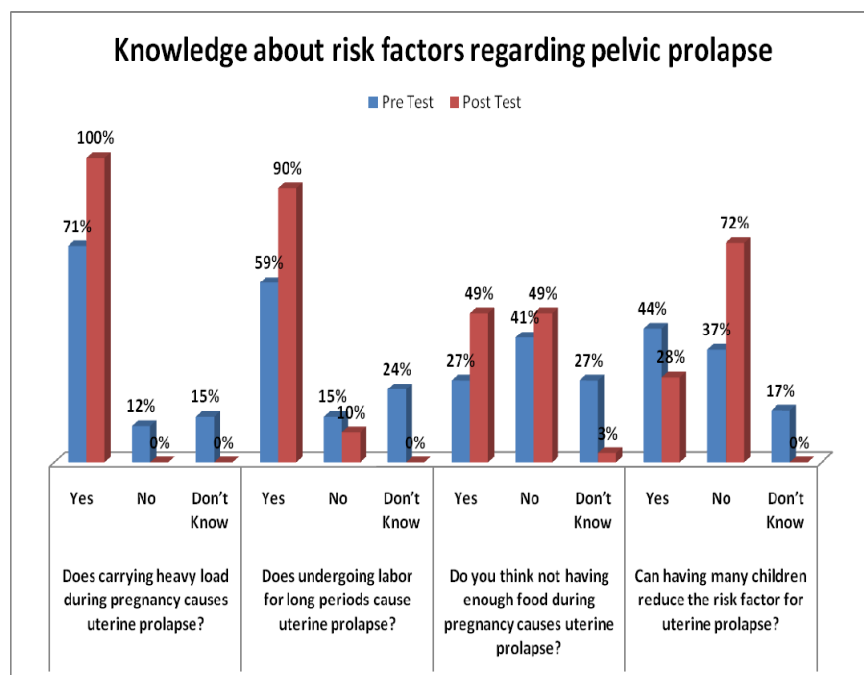


Further, participants were asked if urinary incontinence can be treated by pelvic floor exercises. Before the training session, 73% participants reported that urinary incontinence can be treated by pelvic floor exercises while this number increased to 95% after the training programme.

**Questions on Pelvic /Uterus Prolapse**

The participants were assessed on their present knowledge about the risk factors pertaining to the prolapse of the uterus. The four questions captured the knowledge of the participants on this subject are as follows:

- Does carrying heavy load during pregnancy causes uterine prolapse?
- Does undergoing labor for long periods cause uterine prolapse?
- Do you think not having enough food during pregnancy causes uterine prolapse?
- Can having many children reduce the risk factor for uterine prolapse?

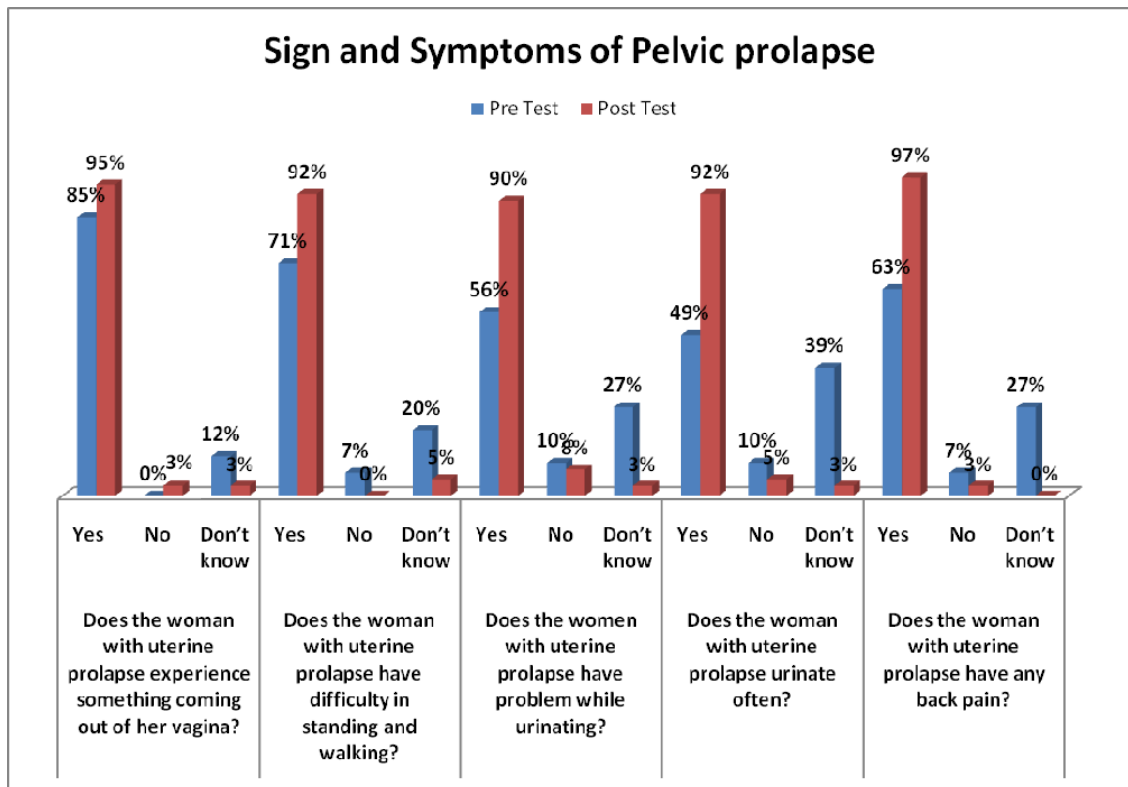


Further, the participants were asked about the sign and symptoms of the prolapse of the uterus. The following questions were asked to capture this area of enquiry:

- Does the woman with uterine prolapse experience something coming out of her vagina?
- Does the woman with uterine prolapse have difficulty in standing and walking?
- Does the women with uterine prolapse have problem while urinating?
- Does the woman with uterine prolapse urinate often?
- Does the woman with uterine prolapse have any back pain?

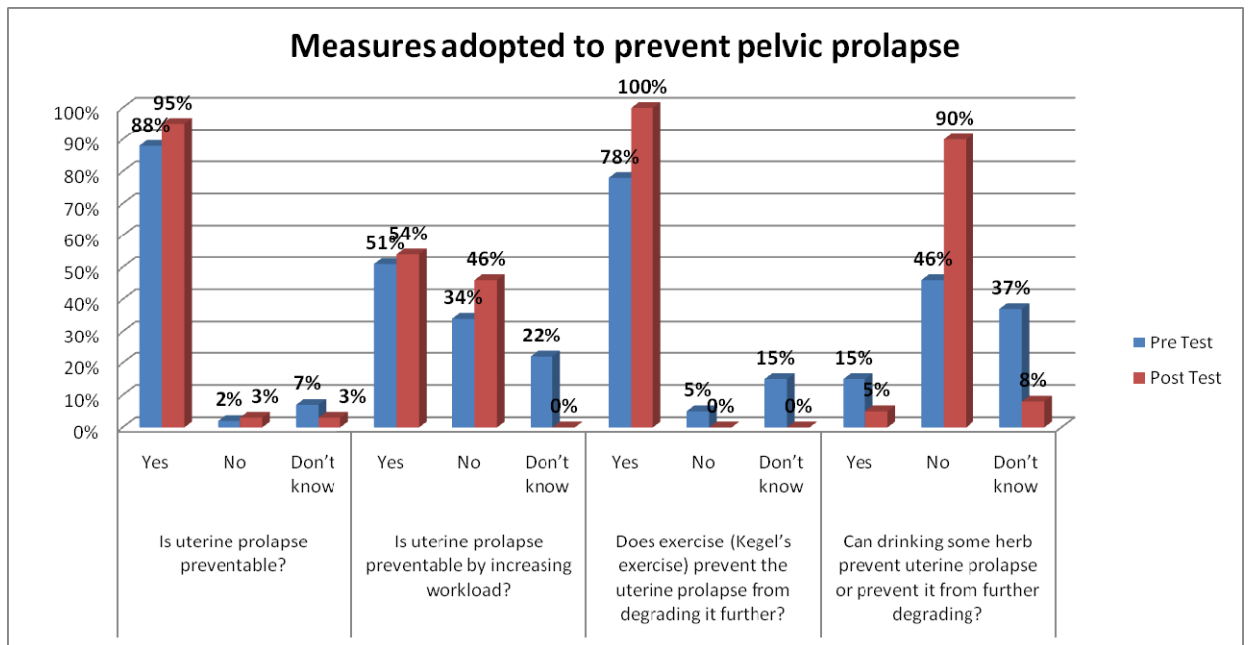
The detailed responses have been described in the graph below:

**Figure 4: Sign and symptoms of Pelvic/uterus prolapse**



The participants were subsequently asked about the preventive measures which should be adopted to prevent prolapse of uterus. The following questions were asked to assess the knowledge of the participants:

- Is uterine prolapse preventable?
- Is uterine prolapse preventable by increasing workload?
- Does exercise (Kegel's exercise) prevent the uterine prolapse from degrading it further?
- Can drinking some herb prevent uterine prolapse or prevent it from further degrading?





### 3.3 Analysis of pre and post test results: Difference of Proportions

In order to prove that the post test results after the training are significant we will establish our null and alternative hypothesis as:

Ho= There is no difference between pre and post test values.

H1= There is difference between the pre and post test value..

Across the indicators, the table below captures the test of difference between proportions:

S.No	Questions	Response	Pre Test (N=40)	Post Test (N=39)	P value	Decision
1	Do you know what Urinary Incontinence is?	Yes	34	39	0.005	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
2	What does the "incontinence" mean to you?	Involuntary leakage of urine	25	33	0.013	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
4	Do you think Urinary Incontinence can be treated?	Yes	30	37	0.006	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
5	Do you think Urinary Incontinence can be treated by pelvic floor exercises?	Yes	27	37	0.001	There is significant difference between pre and post group. After the training the group has better understanding regarding this.

#### Pelvic Prolapse

S.No	Knowledge about risk factors	Response	Pre Test (N=40)	Post Test (N=39)	Pvalue	Decision
1.	Does carrying heavy load during pregnancy causes uterine prolapse?	Yes	39	29	0.001	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
2.	Does undergoing labor for long periods cause uterine prolapse?	Yes	35	24	0.001	There is significant difference between pre and post group. After the training the group has better

						understanding regarding this.
3.	Do you think not having enough food during pregnancy causes uterine prolapse?	Yes	19	11	0.02	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
	Signs and Symptoms					
4.	Does the woman with uterine prolapse experience something coming out of her vagina?	Yes	37	35	0.12	There is no significant difference between pre and post group. This requires further explanation to the group.
5.	Does the woman with uterine prolapse have difficulty in standing and walking?	Yes	36	29	0.010	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
6.	Does the woman with uterine prolapse urinate often?	Yes	36	20	0.001	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
	Preventive Measures					
7.	Is uterine prolapse preventable?	Yes.....	37	36	0.2	There is no significant difference between pre and post group. This requires further explanation to the group.
8.	Is uterine prolapse preventable by increasing workload?	No.....	18	14	0.15	There is no significant difference between pre and post group. This requires further explanation to the group.
9.	Does exercise (Kegel's exercise) prevent the uterine prolapse from degrading it further?	Yes.....	39	32	0.001	There is significant difference between pre and post group. After the training the group has better understanding regarding this.
10.	Can drinking some herb prevent uterine prolapse or prevent it from further degrading?	No.....	35	19	2.7	There is significant difference between pre and post group. After the training the group has better understanding regarding this.

### 3.4 Annexure3: Daily record- Kegel's Exercise

Week 1			Number of Sets			
	Date	Position	Morning	Afternoon	Evening	Total
	23-12-2013					
	24-12-2013					
	25-12-2013					
	26-12-2013					
	26-12-2013					
	27-12-2013					
	28-12-2013					

