Abstract

Background: POP is a prevalent condition in Nepal affecting 10% of women in reproductive age and 24 % of women in post-menopausal age. Adverse symptoms related to sitting, walking and lifting have been experienced by Nepalese women. The conditions do not only lead to physical harm and imparity, but also have an impact on a person`s psychological state and social life. It is challenging for Nepalese women to seek help and to talk about their problems as they fear rejection from their husband and family. There is a lack of knowledge and understanding of conditions like UP and UI which increases the stigma surrounding them. Nepalese women do hard manual labor daily, even during pregnancy, which places them at a high risk for developing POP. PFMT is a conservative treatment for POP and UI and is a treatment option that is easy and cost effective. The treatment has shown effect on symptom relief and should be available to all women.

Objective: The purpose of the study was to explore how a PFMT-program was perceived and understood by pregnant women in Nepal. The intention was to understand what the participants gained and learned from the program, in addition to evaluating the program for gaps and areas not functioning optimally.

Method: Ten semi-structured in-depth interviews were conducted during the period of September-December 2018 at Dhulikhel Hospital, Nepal. The participants were women from Dhulikhel and the Kavre district who had given birth and had participated in a PFMT-program at Dhulikhel Hospital during pregnancy. The interviews were analyzed using an interpretive phenomenological method of analysis by Brinkman & Kvale.

Results: When exploring Nepalese women`s experiences participating in a PFMT-program during pregnancy, 6 categories were identified: 1) Experience – based knowledge preceded theoretical knowledge 2) Performed daily during pregnancy 3) Exercising after childbirth if free time 4) Family involvement and motivation 5) Desired exercising together 6) Visualization and positive feedback from health professionals.

Conclusion: Nepalese women understand the benefits of PFMT-performance. There is a need to further develop strategies to get husbands and mothers-in-laws more involved in women`s health care.

Key words: PFMT, Nepal, POP, UI, UP

Acknowledgments

This master thesis does not only represent the completion of my master's degree, but it also marks the end of my 7 year stay in Trondheim. I`m thankful for all the opportunities I`ve had during my stay in Trondheim for what I`ve learned here at NTNU.

The process of writing a master thesis has been rewarding as well as demanding. Taking a deep dive into one topic has given me knowledge I did not possess from before. I`m so grateful to have had the opportunity to travel to Nepal, experience and see the culture, and to have met so many wonderful people both in Nepal and on my way there.

I would like to express my gratitude to my supervisors, Ann-Katrin Stensdotter, Borgunn Ytterhus and Britt Stuge who have guided me, given me advice and positive feedback every step of the way. Thank you to Satya Shrestha, without whom I would not have been able to conduct the study in Nepal. Thank you to Bimika Khadgi and Ranjeeta Shijagurumayum Acharya for all the help you have given me. I truly appreciate all the hard work every one of you have put down for me to be able to complete this master thesis!

I would also like to take the opportunity to thank my classmates in the Global health program for two wonderful years in Trondheim. Finally, a big thank you to my friends and family for all the support and patience they have shown me the last year.

Trondheim, May 2019

Anette Håland

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Abbreviations

PFMT	Pelvic floor muscle training
POP	Pelvic organ prolapse
UI	Urine incontinence
UP	Uterine prolapse
PFD	Pelvic floor disorders
LIC	Low income country
HIC	High-income country

1 . Introduction

Pelvic floor disorders (PFDs) affect women worldwide, approximately 28 million people are estimated to be suffering from the disorders globally, and it is likely to increase to 44 million in the next 40 years [1]. PFDs include several conditions, two of which are urine incontinence (UI) and pelvic organ prolapse (POP) which also includes uterine prolapse (UP) [1]. Prolapse of the uterus is particularly prominent among women who have given birth [2]. More than 338.000 procedures are performed in the USA each year as a result of POP. Precise estimation of women suffering from disorders related to the pelvic floor is challenging to make as only cases treated clinically are reported, excluding all who do not seek help [3]. Women often do not seek treatment until the conditions have progressed and become severe as they are unable to identify the early symptoms as abnormal [4].

POP affects millions of women globally [5] but the heaviest burden fall on low-income countries (LICs). Risk factors for developing POP in LICs include hard work, poor nutrition and young age [6]. Women in LICs usually perform heavy work daily, regardless of being pregnant. In addition to often being poorly nourished, the women`s way of life increases their risk of developing POP [6]. For high-income countries (HICs), the occurrence of UP is usually found among older women, but for LICs the sufferers are more commonly found among young women [7]. Access to health care and women`s knowledge about the PFDs are lacking, forcing women to live with the repercussions for the rest of their lives [6]. Parity and vaginal deliveries are also important risk factors of POP among all women [8, 9]. Development of POP is complex and is a result of a combination of factors [6].

POP related disorders do not only lead to physical harm and imparity but they also have an impact on a person`s psychological state and social life [10]. Many men choose to separate or even remarry when discovering their wives diagnosis, especially if she is not able to engage in sexual activities [11]. Feeling humiliated, distressed and degraded are just some of the consequences women with POP have to endure. Long term effects could lead to depression, loss of self-esteem and isolation [12].

Nepal is one of the poorest countries in the world and considered one of the least developed [13]. It is a society shaped by gender inequality with women placed inferior to men. Women are more likely to have a poor diet, less education and limited access to healthcare [11]. It is uncommon for Nepalese women to have autonomy and control over own life and health [14], and most of them are dependent on a husband or another family member in order to seek health care [15, 16].

Traditionally, women in Nepal are responsible for three things: giving birth, doing household chores and providing income [17]. Like most women in LICs, they do manual labor on a day to day basis. Working during pregnancy and shortly after child birth is viewed as acceptable by many in the Nepalese culture [6]. Women who do not fulfil their expected duties as wives and daughters-in-law can experience domestic violence. Around 2 % of educated women and 10 % of women who live alone without a husband experience physical and emotional abuse during pregnancy. Being forced to do hard labor while pregnant and being bullied by family members are just some of the stressors pregnant women in Nepal face [18].

The prevalence of POP in Nepal is 10 % for women of reproductive age and 24 % for women of post-menopausal age [15]. The adverse effects reported by Nepalese women are problems related to sitting, walking and lifting. Problematic symptoms described were bulging sensations and a heavy feeling in the vaginal area, pain during urination, difficulty defecating and painful intercourse. It is hard for women in Nepal to seek help and to talk about their problems. The fear of being shamed and rejected by their husbands and families causes the women to remain silent [11]. There is a lack of knowledge and understanding of condition like UI and UP which increases the stigma surrounding them [15].

Nepalese women have heard of UP [19], but know little of the available treatment options which could have a negative effect on women`s healthcare-seeking behaviour. Through increased awareness and attention to PFDs, feelings of shame and disgrace could be minimized and with that increase the chances of women actually seeking help [20]. Additionally, education on pelvic floor muscle training (PFMT) and PFD could help increase

women`s knowledge [21] and empower women to talk about their problems [22]. Women suffering from POP experience intrusive symptoms related to herniations and descents of pelvic organs such as the uterus, bladder or vagina. The POP suffering period is estimated to last an average of 7,8 years [23].

The Ministry of Health and Population of Nepal dedicated a part of the budget in 2008 to finance free surgery for women suffering from POP [24]. Surgery as a solution to POP has proved to improve women`s experience of quality of life by reducing both physiological and psychological adverse side effects [25]. However, surgical camps in Nepal have experienced criticism related to lack of follow-up postoperative care which have resulted in postoperative complications for the women [7, 25, 26]. Usage of conservative treatment in form of pessaries presented a problem is Nepal due to poor hygiene and lack of available resources for providing quality health services [17].

1.1 Pelvic organ prolapse

Weakening of the pelvic floor, where POP is a consequence, is a problem related to childbearing and damage to the pelvic floor during childbirth [27]. The main function of the pelvic floor is to support the abdominal and pelvic viscera, hold the pelvic organs in position [28] and help maintain urination and defecation [29]. The pelvic floor muscles are weakened postpartum. The weakness can be transitory, or it can last for months [30]. Loss of muscle strength and control predisposes these women for different abnormalities such as UP and UI [28]. Having a strong and well working pelvic floor is fundamental for preserving normal defecation and urination [31] and for keeping the pelvic organs in place [2].

1.2 Uterine prolapse and urine incontinence

UP is a term used when the uterus moves down through the pelvic floor and into the vagina. UP is divided into stages depending on how severe the prolapse is [32]. Management of UP is based on the stage of prolapse. For mild forms (stage 1), observation is enough to see if the condition progresses. Conservative and surgical treatments are options available for stages more serious than stage 1. Conservative treatment includes PFMT and pessaries [33].

UI refers to the loss of control over one`s bladder to the point of inability to control the time of urination. This problem presents a social as well as hygienic problem for the affected persons. UI is a common condition among women, but the numbers are underreported as many women feel embarrassed and often do not admit they have the problem. UI is categorized based on signs and symptoms and the most prevalent conditions are urgency incontinence, stress incontinence and mixed incontinence, which involves a combination of the first two types [32].

1.3 Physiotherapy and pelvic floor muscle exercises

Physiotherapy is a profession working with movement and the body to promote good health. A physiotherapists aim is to treat and prevent injuries and diseases affecting the musculoskeletal system [34]. Conservative treatment is a method of preventing POP progression by managing the pelvic floor muscles in order to ameliorate symptoms and postpone the need for surgical intervention [35]. Physical therapy for PFD is about providing information regarding possible lifestyle intervention, manual techniques and PFMT. The training combines teaching correct muscle contraction, coordination and control, with body and muscle awareness, relaxation, muscle strength and endurance [36].

PFMT refers to the repeated contraction and relaxation of the pelvic floor muscles [37]. PFMT increases muscle strength and helps prevent further prolapse. The PFMT has mainly been used to treat UI [38-40], but during the last 30 years it showed an additional positive effect on POP [32]. Women should perform the training during pregnancy [41] and continue postpartum as PFMT has documented effect on pelvic floor strength and symptoms relief [31]. The intervention is easy and cost effective and should be available to all.

1.4 The PFMT-program at Dhulikhel Hospital

The present study was part of an ongoing feasibility study that introduced a PFMT-program at Dhulikhel Hospital. The PFMT-program was and still is a collaboration between the University Hospital of Oslo and Kathmandu University School of Medical Science. The PFMT-program was developed as a preventative intervention for the development of POP among pregnant women in Nepal. The focus was to teach Nepalese women to perform the

PFMT every day during pregnancy. The women were advised to perform the PFMT in 3 sets of 10 repetitions or 30 repetitions a day in different positions. To be able to record adherence, the women were given an exercise diary to fill in whenever they performed the PFMT. In addition to the diary, the PFMT-program also consisted of different educational materials for motivational purposes such as an informative video in Nepali with information about pelvic floor muscles, daily lifestyles of Nepalese women, information about the importance of performing the PFMT as well as demonstrations and animations of PFMT contractions. Participants were also given a leaflet containing illustrations of six PFMT positions and written information on the symptoms of UI and POP as well as possible side effects of weak pelvic floor muscles. In addition to this, a biofeedback tool was utilized to help participants understand the pelvic floor muscle contractions through visualization. Monthly phone calls were made to check up on participants and encourage PFMT performance.

1.5 Purpose of the study

Teaching women to do PFMT is not enough to gain successful and satisfactory result [31]. Previous research indicate that women do not adhere to the exercise routine as a result of not knowing how to perform the exercises correctly. They lack awareness of the importance of duration and frequency and do not fully understand the preventative effect of the PFMT [41]. Furthermore, the desired effect is determined by the frequency and the intensity of the training itself [31]. A recently published study from 2017 [20] showed that giving brief verbal instructions on how to do the PFMT combined with an illustrated leaflet was not enough to motivate the participants to perform the exercises correctly [20], indicating that there is a need for further research on factors influencing women`s willingness and desire to perform PFMT. Uncovering motivation for PFMT is important for adherence and exercise performance [42].

The purpose of the study was to explore how a PFMT-program was perceived and understood by pregnant women in Nepal. The intention was to understand what the participants had gained and learned from the program, in addition to evaluating the program for gaps and areas not functioning optimally.

2 Method

This chapter gives a description of the methodological approach used for this study. It will present the choices made and give a theoretical insight into what qualitative method is. It will then go on to presenting the study setting, study population and design, and then describe the recruitment process and data collection, before explaining how the analysis was conducted. Finally, this chapter will comment on ethical considerations of the study and review the methodological strengths and limitations.

2.1 Study setting

The study was conducted at Dhulikhel Hospital, Nepal. Dhulikhel is a community located 1650 meters above sea level in the Kavre district, approximately 30 km northeast of Kathmandu. The community has a population of around 14.000, while the entire Kavre district consists of almost 1,6 million people. Dhulikhel Hospital is the only hospital in the area and is responsible for providing care to the 1,9 million people living in Kavre and the surrounding districts. The hospital is founded on the principles of social equality and sustainable operation and strives through its activities to provide health services to everyone regardless of socio-economic status [43].

2.2 Study population

The study population was Nepalese women from the area of Dhulikhel and the Kavre district who had previously given birth. The women were chosen based on the inclusion criteria and exclusion criteria set for the study.

2.2.1 Inclusion criteria

Individuals were included in the study based on the following inclusion criteria: women in the postpartum period, who during pregnancy had completed a PFMT-program at Dhulikhel Hospital and were able to understand information and instructions given in the Nepalese language.

2.2.2 Exclusion criteria

Participants for the study were excluded based on the following exclusion criteria: women with a history of mental illness and women who had not completed their attendance at the PFMT-program at Dhulikhel Hospital.

2.3 Study design

A cross-sectional study was carried out qualitatively to explore pregnant women`s experiences participating in a PFMT-program during pregnancy in Nepal. The qualitative approach was chosen because this method allows the researcher to describe, understand and interpret behavior, feelings and experiences as they are perceived by the individual [44]. The master study emerged as a part of an ongoing feasibility study at Dhulikhel Hospital. The feasibility study was a woman`s health project focusing on primary and secondary prevention of POP and UI among pregnant women which had implemented a physiotherapy program at Dhulikhel Hospital to offer pregnant women in Nepal PFMT as a preventative measure for UP and UI. Adherence and continuance of the PFMT-program is necessary for an optimal result; therefore, it is necessary to understand how the program is perceived by the women participating in order to uncover potential areas for improvement.

The data builds on ten semi-structured in-depth interviews with Nepalese women who had attended the PFMT-program at Dhulikhel Hospital. Individual in-depth interviews are recommended when looking at the participants` experiences and understanding of the study`s phenomenon [45]. Additionally, they are well suited when the topics addressed are potentially sensitive by nature.

The interview guide was outlined in collaboration between the researcher and her supervisors. The intention of creating an interview guide was to have a framework to ensure similar themes were touched upon in the dialogues by using similar questions. The interview guide was, when finished, sent to Nepal to verify that the questions asked would not be received as intrusive or offensive by Nepalese women. The goal was not only to detect mistakes, but also to make sure the questions were open-ended.

A pilot interview was conducted at Dhulikhel Hospital prior to the interviews used in the study, to see whether the interview guide was suited to provide us with the elaborate and nuanced answers needed to address the aim of the study. The transcribed pilot interview was sent to my supervisors in Trondheim for review and was returned including comments on improvement. Suggested improvements were to avoid asking leading questions and to be clear and precise when asking questions so that the both the researcher and the interviewee had the same understanding of the questions asked. An example of this was a question on UI, when the interviewer asked if the participant had experienced UI or anything like that, and the interviewee made the association of breast-feeding and started talking about difficulties related to breast feeding instead of talking about disorders related to the pelvic floor.

The interviews were conducted in Nepal and had to be performed in the local language, Nepali, as the participants were unable to speak or understand English. A research assistant was assigned to help with translating between English and Nepali. The research assistant was a local Nepalese nurse who taught nursing students at Dhulikhel Hospital. In addition to conducting and transcribing the interviews, she translated the interview guide and consent form from English to Nepali.

2.4 Recruitment process

The participants were recruited from a strategical convenience sample based on participants from the feasibility study at Dhulikhel Hospital. The women were contacted by the research assistant and invited to participate in the study. Participants were recruited in the time period of September – December 2018. Due to the approaching Dashain festival, it was challenging to make plans with them in advance and to get women to spent time on an interview. Dashain is the biggest festival of the year for the Nepalese people and is usually held from late September to early October. They celebrate for 15 days straight and many travel back home to see families and hardly any labourers can be found working during the festival [46]. Many of the women called were busy with preparations for the festival and were unable to participate. To address this complication, the research assistant called the participants to make plans for a maximum of a couple of days in advance. In total, 10 women were interviewed for the study.

The average age of the women participating in the study was 24 years and the women had 1-2 children each. Approximately half of the women lived in a joint family while the remaining half lived in a nuclear family setting. The recruited participants were both women of education and women who worked daily in the fields.

2.5 Data collection

The data collection took place from September – December 2018 on a bench in a staff dressing room at Dhulikhel Hospital. The research assistant conducted the interviews in Nepali and audio recorded the interviews. The audio recordings were handwritten in Nepali and then translated to English. An ID-number was attached to link the consent form to the interview belonging to each participant. Participants` names were only registered with the consent form. The research assistant sent the transcribed interviews to the researcher continuously as she conducted them. Basic information on the women were also gathered to get an understanding of who the recruited women were. When an interview had been completed, the participants were compensated for their travel expenses and provided a small juice box. The majority of the interviews were conducted with only the research assistant and interviewee present with the exception of the first and second interviews, as displayed in "Figure 1". During the first interview, the physiotherapists were present during one interview to help the research assistant ask good follow-up questions on the PFMT-program as they knew it well and were already involved in it. The professor from Dhulikhel Hospital was included in the second interview because she had experience in qualitative research and guided the research assistant in how to conduct the interviews properly according to proper qualitative method.

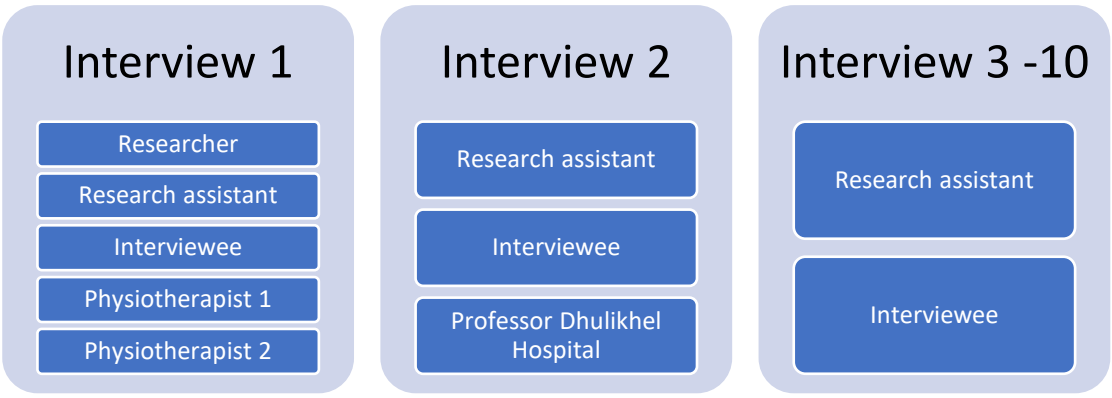

Figure 1: People present during the interviews

2.6 Analysis

The interpretive phenomenological method of analysis by Brinkman & Kvale [45] was used by the researcher to analyse the transcribed interviews. The analysis method consisted of 5 steps. When following this particular method [45], the transcripts were read several times until an understanding of the essence of what had been said in the interviews was clear. Secondly, the text was reread completely in order to determine the meaning units in the text. Meaning units are parts of the text expressed in the participants own words that give meaning to the phenomenon or theme that is being researched [45]. Thirdly, the meaning units were sorted into themes, and then as part of the fourth step, the identified themes were tied back to the purpose of the study. Finally, in the fifth step [45], all the themes were incorporated into one descriptive statement [45].

After the researcher performed the analysis, the research assistant deleted the audio recordings and other notes related to the interviews. One of the supervisors from Norway collected the original documents at the Dhulikhel Hospital and brought them back to Norway for safe keeping. The original documents of approval from Nepal were given to the researcher before her departure from Dhulikhel.

Table 1 Stepwise illustration of the analysis process

Interview number	Natural meaning unit	Central meaning theme	Category
5.	The woman tells that she performed the exercises twice or thrice a day when she had time.	Performed according to her own time.	Performed daily during pregnancy
10.	Tells she performed the exercises twice to thrice a day. Did them when she remembered and was free.	Performed when she remembered and was free.	
3.	The woman tells she performed the exercises daily when she was pregnant, but sometimes forgot to perform them	Performed daily but sometimes forgot	

2.7 Ethical considerations

Ethical approval was obtained from the Norwegian centre of Research Data (NSD, 798629), approval from the Nepal Health Research Council (104/18) had already been approved for the feasibility study, and approval from Kathmandu University`s Internal Ethics Review Committee was obtained for the present study before starting the data collection.

Verbal and written consent from the participants was established to ensure that they knew what the research project was about and what participation in the study entailed. All

information, both written and spoken, was provided in Nepali, to make sure the information was provided for them in an understandable way. Voluntary participation was emphasised, and the participants were informed about the possibility to withdraw their participation at any given time. If they chose to withdraw from the study, any data collected on them would be deleted in not already used in the analysis or been published. Addressing a sensitive and persistently taboo subject in the Nepalese society requires the researcher to be considerate and mindful during the interviews. The women may be hesitant to reveal close and personal information due to fear of other people knowing about their problems [11]. Ethical considerations to maintain the participants integrity were also made by planning to conduct the interviews in a private environment without distractions. However, even in a private environment, the power-imbalance between a group of professionals communicating with one woman in the first interview was not ideal. The researcher had to balance the value of ideal interviewing practice with the values of privacy and equity and ultimately chose to accept a skewed power balance in the first interview to be able to give constructive feedback to the research assistant, so she was well prepared for the following interviews.

The research assistant deleted the audio recordings and other notes she had stored from the project when the analysis had been completed.

2.8 Methodological strenghts and limitations

This study has, as with all research studies, has methodological strengths and limitations that must be addressed.

One of the strengths of this study is that the interviews were conducted in Nepali, making it easier for the participants by allowing them to communicate in their own language. The transcriptions and translations were done by a local research assistant, who was able to approach the women more culturally appropriately than a foreign research assistant would have done. Furthermore, the research assistant was an educated nurse and had knowledge and an understanding of the PFDs and how the conditions effect women.

In terms of limitation, the interview setting was not optimal and may have influenced the participant`s inclination to respond briefly. The interview room was not as private as hoped. The door to the room slid open every time someone passed by, and right on the other side was a line of women waiting to see the doctor. As a result of not being able to have a closed door during the entire interview, the women may have felt too uncomfortable to share on a more private level as people in the outside area could potentially hear what they were saying. Additionally, it was not possible to have the participants choose the interview location, as the researcher was required to use the available rooms at Dhulikhel Hospital. The decision to include more people in the interviews was not merely an ethical issue. There were professional reasons as well. The people included knew the PFMT-program at Dhulikhel well, in addition to the professors 'experience in qualitative research. The researcher considered their presence helpful for training the research assistant to ask good questions about the PFMT-program, as well as ensure the qualitative questioning method would remain intact.

Furthermore, it was challenging to depend on someone else to do the data collection. The researcher was unable to control how the interviews were conducted, neither how the transcription process nor translation had been done. Also, as a result of the inability to validate the interview guide it was impossible to be sure that the questions were asked as planned. It was the same with the transcribed material, there was no way of knowing if what the participants said correlated with what was written in the transcripts. Meaning could have been lost in translation due to lack of similar wording in English and Nepali.

The research assistant deleted all data attached to the interviews after the analysis had been finished so that no data belonging to the present study would be left in Dhulikhel. Due to lack of documentation, there is no way of knowing if the research assistant has deleted the data material or not. Additionally, after having received the final transcribed interviews it became apparent that the interviews had been audio recorded on a mobile phone and not on the audio recorder from NTNU as intended. Practical feasibility in relation to confidentiality requirements in Norway was challenging to obtain as there was a difference in the understanding of privacy.

Conducting research in a language which is not one`s native language can be challenging, and when there is a third language involved it can be even more complicated. When handling data including multiple languages the best way to transcribe the collected material is to first transcribe the interviews in the language of the participant and then translate to the language of choice [47]. Even though the interviews in the study were transcribed this way, translated sentences may have different meaning to different people depending on understanding and knowledge of the language in question [47]. Additionally, neither the researcher nor the research assistant was experienced in qualitative research.

3 Results

The main findings from the study indicate that pregnant women in Nepal are interested in self-care, but due to the challenging living conditions and the cultural framework, it is difficult for them to make decisions and choices where the sole intention is to promote their own health. When considering the expectations and demands put on women in the Nepalese society today, this is understandable. The women who participated in the study had previously heard about UP and UI, but the majority lacked knowledge about the pelvic floor muscles. They expressed a desire to exercise together with friends and reported a preference for pictures and illustrations of PFMT to written instructions. Some of the participants stated they did not mind performing biofeedback, while others did not understand the intention behind the biofeedback and the information it provided. Positive comments from health professionals were appreciated and helped increase the women`s motivation.

3.1 Experienced-based knowledge preceeded theoretical knowledge

Almost all the participants spontaneously said they knew little or nothing at all before participating in the PFMT-program about the pelvic floor muscles. However, despite the women claiming they knew little, it became apparent as the interviews progressed that most of the women had a wider understanding of UP and UI than first expressed. Their knowledge was based upon oral transfer of information mostly from older women in their family or in some cases from other experienced women, but not from health professionals. Consequently, their narratives consisted of the social consequences and practical issues more than psychological and physiological issues. In the following section, we will take a closer look into the women`s expression more in detail so as to uncover differences and similarities in their understandings and reveal whose stories they trust.

UP and UI was something the women had heard of. In some cases, participants had heard of both, but most commonly they had an idea of UP only before attending the PFMT-program at

the hospital. Hearing about the conditions from grandmothers or through eavesdropping on old people talking about it in the village were two of the ways the participating women had heard about UP, as expressed by one woman who said that she did not fully understand what it was until she came to the hospital:

"Yes, I have heard from our grandmothers and old people say about uterine prolapse. I used to wonder what was uterine prolapse? But after I visited hospital I knew about it and also about pelvic muscles and about the importance of pelvic floor exercise."

Woman 4.

The women learned about potential risk factors for developing UP from female family members, and how to take care during pregnancy to avoid developing the condition. Some had also been explained about UI and what dealing with that meant:

"I knew that heavy lifting during pregnancy causes uterine prolapse."

Woman 7.

"Yes, I had [heard about urine incontinence]… I had heard that we can`t control our urination even when we are talking and sitting too… Heavy lifting might cause it [uterine prolapse] as my mother-in-law told me about it."

Woman 10.

As some women spoke about having learned about UP and UI from old females-chats in the village and from mothers-in-law, another woman talked about hearing about UP from her sister-in-law who had been struggling with UP daily after having given birth:

"Yes, she told me certain things. I realised from her that one should take much care during pregnancy."

Woman 1.

When asked more detailed questions about the physiological aspects on the pelvic floor, it was only two women who spoke about having heard about the pelvic floor muscles before attending the PFMT-program. One of them was a woman who said she learned about the pelvic floor muscles through personal experience when she during her first pregnancy felt that her muscles were a little weak:

"I had a fear my uterus would move from normal position due to weakness but in second childbirth, after exercise, I don`t have any fear regarding this problem."

Woman 4.

The other one was a woman who said her mother taught her about the pelvic floor muscles and their function. She continued explaining that her mother was a health practitioner who used to teach women in her village how to perform the PFMT, but that she did not want her mother to teach her as she was not interested in performing the PFMT before marriage:

"Yes, I got to know about it [pelvic floor muscles] while my mother was advising other women in our community to perform it [PFM exercises] by tightening our pelvic muscles during micturition."

Woman 7.

The women who had no prior knowledge about the pelvic floor muscles said they got to know about them at the hospital when attending the PFMT-program. Reasons for lack of knowledge were related to living alone with a husband and no other females in the household with which to talk and lack of knowledge as a result of not going to the hospital for check-ups during pregnancy.

Mixed answers were given when asked about what they had learned from the PFMT-program. A few of the women said they had been taught that a woman`s pelvic floor muscles gets looser after childbirth and that the looseness combined with other factors such as straining during defecation could increase the risk of developing UP after delivery. Two women told that they learned that the exercises can prevent problems like UP and UI from evolving. Additionally, one woman spoke about having been taught that the exercises can be done anytime and anywhere, while one woman added that she also had been taught how to correctly contract and relax her pelvic floor muscles.

3.2 Performed daily during pregnancy

Almost all the participants said they performed the PFMT daily during pregnancy. Some even performed the PFMT several times a day despite leading a busy life. Choosing a time to perform that was convenient and best suited for them, made it easier to perform the program regularly.

Performing the PFMT when free and when remembering about the program concerned all the women. Being a woman in Nepal includes a lot of obligations and chores related to the household which must be completed every day. Finding the time for exercise in midst of all the responsibilities made the women forget about the exercises due to busyness.

The women expressed different preferences when asked which time they preferred to perform the PFMT. Preferable time was dependent on the women`s engagement in activities outside the home or on which other chores they had to do during the day. Performing the exercises regularly had been advised at the PFMT-program and several women mentioned aiming to exercise several times a day. Some women found themselves too busy to be able to perform them so often. One woman expressed difficulties as she was busy preparing meals for her husband and brother, and therefore was unable to perform the PFMT multiple times a day.

Wanting to do the exercises at home was a desire many of the women shared and some expressed facing difficulties when trying to perform the exercises in other situations, such as during work. One woman said that having a job where a lot of talking is required was an obstacle which made it challenging for her to combine work and exercise. Meanwhile, another woman said that performing the exercises at work simply made her uncomfortable even though people would not know she was doing them. She also felt that doing the PFMT distracted her from her work:

"Yes, they won`t know but while we are chatting with each other, I get involved in the conversation only, so cannot concentrate."

Woman 1.

Another element important for the women when it came to exercise performance was choosing a good position to perform in. Choosing to perform the exercises in a position that was comfortable and easy was mentioned by a lot of the women as important. The position of choice varied depending on personal preference and which positions they found to be the most comfortable and which ones helped ease them the most. Some were sitting and others were standing while contracting their pelvic floor muscles. Additionally, the reason why they chose the bodily positions varied from physiological reasons to practical reasons and opportunities during their everyday lives.

One woman experienced the bodily changes that come with pregnancy as an influencing factor when choosing a position for exercise performance:

"My body was big, I had gained lots of weight, I felt it more comfortable in sitting, rather than standing [position]."

Woman 4.

Two women expressed choosing to perform in sitting position because their abdomen was so big making it more comfortable to sit rather than to stand while contracting. Usually performing when sitting on a chair was also said to be a comfortable and favoured position. Meanwhile one of the women said that she found the standing position tiresome and therefore did not perform PFMT while standing.

However, most of the women included in the study said they had to combine their exercises with their work and practical tasks during everyday life activities. Even though some of the women mentioned having difficulties combining work and exercise, one woman stated that she preferred performing the exercises when sitting down cooking. She said further that she chose to perform them then because it was then she had time available for exercise, otherwise she was busy during the day. She also felt more comfortable when sitting.

Supine position was also viewed as comfortable and easy, and some chose this position frequently when performing the exercises. Meanwhile one woman said that she preferred both the sitting and supine positions equally, so for her there was no difference between the two.

When asked about preferred positions for PFMT performance postpartum, a few of the women stated they then turned to a different position when performing after delivery compared to performing during pregnancy.

"Yes, I prefer other positions like sleeping position, I find it easy and comfortable."

Woman 4.

3.3 Exercising after childbirth if they had free time

Even though the PFMT-program mainly focused on encouraging and promoting PFMT during pregnancy, a lot of the participants also spoke about performing the PFMT postpartum. The women knew it was beneficial them not only during pregnancy, but also in the long run,

so several of the women said they continued with the exercises, but that they found it even more challenging after the baby had been born.

Choosing to continue with the PFMT postpartum seemed to be dependent on a few factors. Firstly, the women who said they had been told at the hospital that it would be beneficial for them to continue with the program after having given birth to their baby, reported more frequently to be performing the PFMT postpartum than the women who had not been told or did not remember having been told so. However, the most important factors that influenced the women`s continuance of PFMT performance was first and foremost related to busyness with childcare and household work. Exercise performance became less prioritized after the baby arrived, and a lot of the women said that they ended up forgetting about the exercises in the midst of having a new baby while also meeting the needs of the rest of her family. One of the women expressed it like this:

"[I] remember about it but I don`t have time. Have to take care of the baby also."

Woman 2.

The women found time for PFMT postpartum when they had fulfilled all their other duties. Not being occupied with daily chores increased the likelihood of the women remembering about the PFMT postpartum. Discontinuing exercise performance was mainly related to not experiencing any difficulties postpartum and therefore not having the incentive to prioritize exercise performance over other responsibilities, as expressed by one of the women who stopped performing after delivery:

"Actually, I don`t have any problem related to this. That`s why I don`t do it!"

Woman 6.

3.4 Family involvement and motivation

Including family members and husbands in the PFMT experience resulted in receiving support and encouragement to continue with the program for the women who chose to share. The women reported motivation for exercise performance being linked to personal gain and wanting to actively engage in preventative measures.

Several women brought their husband, sister or another family member to the hospital for the first check-ups. Those women who brought someone to the hospital appointments or in general included their families in the process of participating in the PFMT-program experienced support from their families and were inspired to continue doing as the hospital had said.

The husband was particularly important for the women who involved him as he partly took responsibility for their exercise performance by reminding them to perform the PFMT and by maintaining a positive attitude towards the program. While some found it easy to share with their husband, others again found it challenging, especially for one woman who found it difficult because her husband often had to stay away from home due to work and the distance between them made sharing troublesome. Instead, she had confided in her mother-in-law who expressed support towards her attendance:

"… she [mother-in-law] suggested to me to do if I was advised from the hospital."

Woman 5.

When disregarding motivation based on support from family and friends, the women`s motivation was rooted in their own understanding of the benefits the PFMT could have on their bodies and the good feeling they got after having performed the exercises. Knowledge

of the preventative effect of the PFMT had a big influence on performance as many said they carried out the exercises because they knew it would be fruitful for them. One woman expressed that she exercised because it was good for her regardless of finding the exercises difficult to perform:

"I used to perform early in the morning … It`s not boring but it was quite difficult due to my large abdomen. I felt uncomfortable and uneasy. I was advised that it will be fruitful for me till I grow old."

Woman 6.

Another woman said that she first realized how important exercise was after having been informed by health professionals at the hospital. Even though her mother used to teach other women about the exercises, it was not until she had interacted with people at the hospital that she understood that the PFMT was also relevant for her.

Motivation for PFMT was also enhanced by having a close friend or family member suffering from problems related to the pelvic floor. Seeing with one`s own eyes the implications the conditions could have on a person`s life made the importance of exercise performance clearer to the women. One of the women had a mother suffering from problems after pregnancy and said that she felt as though she owed her mother to take advantage of the facilities that was provided for her, seeing as her mother was not fortunate enough to have them:

"Yes, I think this exercise is for me and I did it. Our mother gave us birth. During that time she didn`t get proper facilities like now and now she has many problems and thinking about this, I regularly perform in order to prevent these problems and also I enjoyed performing it."

Woman 4.

As a result of having understood the beneficial qualities of the PFMT several of the women talked about wanting to teach friends and relatives how to perform the exercises as well. Not only sharing with other pregnant women, but also teaching older women how to perform as a preventative measure.

3.5 Desired exercising together

Exercising together and being taught together were two prominent desires expressed by the women not only as something they liked about the program but also as a suggestion for improvement.

Being taught in groups and performing the PFMT together was favoured by many of the women. Exercise performance in groups opened up for the opportunity to ask questions and to also perform PFMT together with friends. Face to face conversation was mentioned a preferred way of exchanging information, and one of the women thought that the PFMT-program would be even more beneficial for pregnant women if they were taught by just one health professional.

One woman expressed, as an extension of the desire she had to perform the exercises in groups, that she though the program would be more easily understood by educated women compared to women from village areas, who according to her, would have a harder time grasping the full value of exercise performance. As a solution, she suggested arranging camps in the remote areas to teach them the PFMT as well. Another woman backed this up by emphasising that the program should be made available to all women, and especially women from rural villages seeing as they are the most exposed to strenuous physical labour during pregnancy.

3.6 Visualization and positive feedback from health professionals

When discussing the different tools used in the study, it became apparent that the participants perceived the tools differently from one another. Some appreciated the use of pictures related to exercise performance, while some did not find it particularly useful as they had already understood how to perform the exercises. Positive comments and affirming words from health professionals was appreciated and resulted in an increased motivation and several mentioned feeling better about themselves after having spoken to someone in the health sector.

Tools containing images or other illustrations of PFMT were useful and provided visual instructions to those women who were unsure how to perform the PFMT correctly. Some turned to the leaflet for input on exercise performance while others did not have the need for it, as expressed by the following women:

"I could do that by looking at the leaflet."

Woman 5.

"Yes, I was given but I remembered myself; so I didn`t need on daily basis … I had already understood, so I didn`t use it [the leaflet] much."

Woman 4

The overall impression of the video was good, and the women found it easier to understand the different exercise positions after having seen the video. The video also contributed to emphasizing the importance of PFMT. One woman talked about watching the video with her sister and then afterwards having the sister recommend her performing the exercises.

The women were also introduced to a tool called a "biofeedback". The biofeedback was introduced to help the women to visualize and give feedback on correct pelvic floor muscle contraction. A probe was inserted in their vagina which displayed a graph on a monitor when

the women contracted their pelvic floor muscles. Participants reaction to the biofeedback tool were mixed. Not all the women understood why the device was necessary to use as they did not understand what it displayed. Some expressed feeling shy when trying out the tool, while others again did not experience any hesitations or discomfort.

Receiving compliments and other optimistic comments on their exercise performance was positive for the women. Being told that they had performed well or done something correctly seemed to increase the women`s motivation for PFMT and to positively influence how the women felt about themselves. One participant mentioned a check-up she had had postpartum at the hospital because she got a perineal tear during childbirth and it needed to be checked out. The doctor in the postnatal ward had been so impressed by her wound healing that he wanted to show her off to all the patients in the ward because he wanted to encourage them to keep a strong a pelvic floor as she had. The doctor`s words made the woman feel better about herself and she expressed no longer feeling sick because of it.

4 Discussion

This chapter presents the findings from the study in consideration of previous research. It discusses the women`s level of knowledge regarding PFDs in comparison to other groups of women, then continues debating the significance of solidarity and network for exercise performance. Furthermore, this chapter will comment on the use of biofeedback in a PFMT-program.

The intention of the study was to explore how Nepalese women experience participating in a PFMT-program during pregnancy. The PFMT-program was well received by the women as all of them performed the exercises daily during pregnancy, though performance was dependent on the participants` schedules and busyness. Women in Nepal are interested in self-care and understand the benefits of performing PFMT during pregnancy. The women had heard about UP and UI before attending the PFMT-program but did not know anything about the pelvic floor muscles. The women`s knowledge of female gynaecological conditions was scarce, but what they did know was mainly rooted in experience than in a theoretical basis, causing the women to know little about the physiological elements of the pelvis and its surrounding structures. Exercising in groups was preferred, and the participants were most responsive to visualized information out of all the channels of information utilized in the PFMT-program. The biofeedback tool received the most mixed responses.

4.1 Experience-based knowledge of female conditions

The awareness level in Nepal of UP is rising as several projects have been working on bringing people`s attention to prevention and treatment of UP and UI through street dramas, wall paintings and other similar strategies to improve people`s level of knowledge [17]. The results from this study indicate that pregnant women in Nepal do know something about UP and UI but getting a complete comprehension of what this knowledge specifically entails is difficult based on the present study`s findings. However, it is still apparent that the women understood potential risk factors, symptoms and knew that the conditions were not normal and to be expected after having given birth. A study exploring the level of knowledge on UP

among married women of reproductive age in Nepal [19] found that a little under 50 % of the women questioned had ever heard of UP, and of those women, only 37,5 % knew enough to be categorized as having a satisfactory level of knowledge about the condition [19]. Furthermore, the study [19] also found a connection between UP awareness and the women`s education level, ethnic caste, age and rural versus urban background. Regarding satisfactory level of knowledge of UP, geographical place of residence was a significant factor associated with knowledgeability[19], which could indicate that women from certain parts of Nepal have a higher chance of having sufficient knowledge compared to women from other parts of the country. The central and eastern parts of Nepal were mentioned as the regions with the highest percentage of women with a satisfactory level of knowledge of UP [19]. Dhulikhel is located in the central region of Nepal [19] and based on the previously mentioned study [19] it would be expected that the women in the present study would have more knowledge of UP as a result of living within the central region of Nepal. The findings would show a lower level of knowledge of UP if it had been conducted with participants from a different region. Given that the findings from the present study are correct, the findings support the need to provide women with information on prevention strategies for UP and UI. The literacy rate for women aged 15 years and above in Nepal is 54,2 % [48], meaning that the remaining 45,8 % of women are illiterate. Literacy is a prerequisite for learning, which implies that the form the information is given in needs to be re-evaluated and adapted to the target women.

Even though the women from our study expressed knowing about UP and UI, they had not heard much about the pelvic floor muscles. Of the ten women interviewed, only two women were able to recognize the term “pelvic floor muscles” because they had been told by someone close to them and through personal experience of difficulties related to the pelvic floor muscles during pregnancy. Through the study conducted by Caagbay, Black, Dangal and Raynes-Greenow [20] on the assessment of parous women`s knowledge of pelvic floor muscles and PFMT, we see that the findings showed that the women there too were unable to recognize the term “pelvic floor muscle”. It is difficult to draw a conclusion based on two study findings, but the results could indicate that women in Nepal in general are not accustomed to the use of the term “pelvic floor muscles”. But how significant is knowledge of pelvic floor muscles for performance of PFMT?

A study conducted by Chiarelli, Murphy and Cockburn [41] found that even though Australian women had good knowledge of the pelvic floor muscles it was only 50% of the 720 women who took part in the study who actually performed the PFMT during pregnancy. The findings from the study [41] could suggest that having sufficient knowledge on pelvic floor muscles is not synonymous with exercise performance. Another similar study by Berzuk and Shay [21] also identified that women in Canada were also lacking sufficient knowledge of pelvic floor muscles, thereby implying that women in HICs would also benefit greatly from an increased awareness of pelvic floor health and pelvic floor muscle function [21]. With the previous studies in mind, it is interesting to see the comparison between Nepalese and western women. Where one might anticipate that there would be greater differences in terms of knowledge and understanding, research shows that the gap may not be as big as expected. Where one of the studies identified that even though western women had the desired level of knowledge about the pelvic floor muscles, it was only half that performed, which could mean that having the knowledge is not enough if it is not used correctly or at all. The women from our study had heard about UP and UI and used what they learned through others as a deciding factor when choosing to perform PFMT or not. Making the decision to perform the exercises was not dependent on knowledge of pelvic floor muscles, but rather related to experience of the repercussions the occurrence of PFDs could have on a person`s life.

Correct and sufficient information about PFDs and treatment options is crucial for prevention strategies to reduce conditions like UP and UI from progressing to an even more severe state. Caagby et.al [20] expressed concerns that women`s lack of knowledge would lead to a decrease in healthcare seeking behavior. They discovered that women suffering from symptoms related to POP struggled for an average of 16 years before deciding to seek help [20]. Another study conducted in rural Nepal by the UNFPA [23] found that the mean duration of suffering from POP was 7,8 years. It is particularly challenging for Nepalese women to seek health care due to fear of stigma and they admit to often avoiding the problem because they are too embarrassed to share [22]. A recently published study from the UK [4] found that British women also struggle with recognizing the symptoms of UP and had difficulties knowing if what they experienced was normal or if it should be treated. They too did not seek help until the problem had become so bad that the only viable solution was

surgery [4]. Feeling ashamed and choosing a behavior of avoidance is common for women from many parts of the world, but the consequences are often far more severe for women in LICs in contrast to women from HICs, and will not only have an impact on their personal lives, but also influence the lives of their families. PFMT is important for all women to perform but could arguably be even more important for the women in Nepal as they do not have the same access to health care and treatment options as women from western countries.

4.2 Female self-care and solidarity

Self-care is important for women, especially Nepalese women as their lifestyle makes them more vulnerable to conditions such as UP and UI as a result of strenuous work and little time to rest during and after pregnancy [6]. For the performance of the PFMT to be effective, adherence is important. Adherence again is driven by motivation. The women in the present study performed the exercises because they knew it would benefit them. They had understood the information provided at the PFMT-program through the different motivational tools and conversations with health professionals at Dhulikhel Hospital, which helped them see the importance of exercise performance. To understand why women choose to adhere or not, it is important to try to understand the motivational factors influencing their decision to perform the PFMT. According to a study from the UK [42] motivational factors for PFMT performance among British women were mainly related to personal experience of adverse symptoms, fear of developing symptoms and experienced level of self-efficacy. Even though the study was conducted with British women, the reasons mentioned for exercise performance correlates with the responses from the women in the present study who talked about performing the exercises as a result of experiencing symptoms themselves. Furthermore, other participants did not perform the exercises as they did not have any difficulties related to the pelvic floor, and therefore did not see the need for exercise performance, which also is seen among western women.

Exchange of information and discussions on topics related to health occurred for the most part between women only and was viewed as a woman`s domain. The women from the present study talked to their sister, mother or other family member, or with their husbands about

personal health. The significance of including the husband is becoming more and more important when talking about the progression of Nepalese women`s access and usage of health services. A study by Radl, Rajwar and Aro [17] pointed out that inclusion of husband and promotion of open communication within families would increase the likelihood for a prevention program for UP to be utilized to its fullest.

In the present study, a few of the women involved their husband in their attendance at the FPMT-program and had a positive experienced of support from their husbands, as they had a positive attitude towards the program and reminded them to perform the PFMT. According to research [17], increasing awareness about conditions related to the pelvic floor should not only be limited to the female population. If the husband is to be more involved, he also must learn. Nepalese men`s knowledge and familiarity with UP is very low, and seeing as the husband is the one making the decisions in Nepalese families, his level of awareness needs to be increased [17]. The PFMT-program at Dhulikhel Hospital addressed the problem of the husband`s lack of knowledge on female conditions by creating an information video which was displayed on a screen outside in the waiting area so that the husband could watch it when accompanying his wife to the hospital. This approach is dependent on the women bringing their husband`s to the hospital for check-ups and will not make a difference for the men who do not come with their wives. Several of the women in our study did not bring their husbands. There is a need for strategies on how to get the husbands more involved and how to influence them to attend the check-ups during pregnancy with their wives. This present study can`t answer how the husband can be more included, but bearing in mind the poverty in Nepal, the husband choosing to come to the hospital could additionally be a financial issue. By choosing to accompany their wife to the hospital, they have to refrain from work meaning that a part of their daily income would be lost. Providing the husband with a small “allowance” as compensation could perhaps be an incentive for the husbands to choose prioritizing coming to the hospital with their wives.

Another important person that would be beneficial to include is the mother-in-law. Research from Nepal show [17] that is the mother-in-law recognizes the suffering the wives go through she might be more supportive towards her daughter-in-law. Increasing awareness on female disorders is particularly challenging in Nepal [19]. People in the Nepalese culture are not used

to talking about such topics as shown in a study from 2014 [19] where Nepalese women said they were hesitant to share problems related to reproductive health with family members or others for fear of being embarrassed or tormented by relatives [19].

As much of the world, the Nepalese society is a changing society. A study from Nepal conducted in 2013 [16] pointed out that Nepalese women believe that the husband`s role in the family and the wife-husband relation will change as the Nepalese society modernizes. Many of the men expressed an interest in improving their skills and increase their knowledge as they wanted to be more involved and aware of their wives` health care options [16]. Expressing support and being protective of one`s wife was not viewed as acceptable for a husband in the Nepali culture, and husbands were afraid of being stigmatized and shamed for defying the cultural norms which degrade the husbands if they act supportively towards their wives [16]. The women from the 2013 study [16] expressed wanting their husbands to be more involved during pregnancy and wished they would accompany them to the hospital appointments, not only for emotional support but because it would be beneficial for the husbands to also hear what was said during the check-ups [16]. Even though the women in the present study were not asked specifically about the husband`s involvement, participants expressed an appreciation for family support, which might mean that they too would respond positively to being accompanied by their husbands and being able to share and talk more freely than has previously been common in Nepalese marriages.

In addition to support from the husband and other family members, receiving positive feedback from someone at the hospital had a motivational effect for the women and they reported feeling better after having talked to a health professional. A study from 2019 [4] found that British women experienced a boost of confidence when the physiotherapy program they attended not only focused on correct exercise performance, but also offered advice related to the women`s needs. This way, they were eased into the care and they did not end up feeling shy or embarrassed [4]. Even women in Britain were embarrassed when disclosing personal information and needed to be eased into the program to be comfortable enough to

participate and share personal experiences. This may suggest that for a PFMT-program to be successful in Nepal, the focus must embrace a wider view of women`s lives and not merely focusing on teaching the women to properly contract their pelvic floor muscles, but also to make them comfortable and confident. Nepalese women, are as previously mentioned, not used to opening up about problems related to own health [19], so for them the barrier to share might be even higher than for the British women who live in a very different society from that of Nepal.

4.3 Ambivalent to the use of biofeedback in PFMT

The PFMT-program at Dhulikhel Hospital consisted of different motivational tools to help the women adhere and perform the PFMT. The findings from our study indicate that the women had different ideas about using assisting tools when performing and learning about the PFMT. The women filled in the exercise diary, but it was only one woman who said that the diary helped her to remember about performing the PFMT. The leaflet with information about PFMT was used by some but not by others, depending on whether they had already understood how to do the exercises. It was particularly the use of biofeedback that received the most conflicting responses. The women experienced difficulties when trying out the biofeedback and reported not understanding the information it provided. By having the women test out the biofeedback, the hope was that the device would help them contract their pelvic floor muscles correctly by looking at the monitor and see for themselves the graph when they contracted their muscles. When considering that the biofeedback was received differently, the question of the tools significance for exercise performance comes to mind. Is the use of a biofeedback tool essential for PFMT performance?

There has been a discussion going on regarding whether or not the biofeedback has an additional effect on the benefits of PFMT performance, with contradictory findings resulting. A review [39] of studies conducted between 1980-1998 said that there is no increased effect of PFMTs with the use of biofeedback compared to performance without [39]. Another analysis conducted by Weatherall [40] on the same subject, claimed to the contrary, that the biofeedback had a positive effect on strengthening the muscles of the pelvic floor. Regardless of the two findings, it is difficult to compare the two studies and declare that one of them as

more reliable than the other, both in terms of the angel and intervention method used as well as different research populations.

Mørkved, Bø and Fjørtoft also did a study [38] in 2002 to understand the connection between biofeedback and PFMT and they, as Berghman [39] did, found that the tool had no significant effect on performance, but still concluded that the biofeedback tool should be implemented in future PFMT-programs for motivational purposes, as opposed to using it with the intention of enhancing performance benefits [38]. A more recent review [37] from 2011 addressing the link between biofeedback and PFMT performance concluded that there may be an additional effect to PFMT performance among women suffering from UI, especially for women not aware of their pelvic floor muscles and who do not know how to do a voluntary contraction [37].

Instead of discussing if the biofeedback is needed or not in the PFMT-program, perhaps it is not the device itself that presents a "problem" for Nepalese women, but that the surrounding circumstances could very well have influenced the women`s view of the tool. Nepal is, as previously mentioned , a society where a lot of intimate and sensitive subjects are still viewed as taboo [17]. The women are not used to openly discussing private matters, and many women feel too embarrassed to even discuss problems related to their reproductive health [22]. Bearing this in mind, the surroundings may have also played a part in the women`s ability to focus and truly understand what was said to them prior to inserting the biofeedback probe. Feeling ashamed and embarrassed could have been the main focus for the Nepalese women, who tried their best to mask their feelings from the health professionals. As mentioned earlier in the discussion, women in Britain had to be eased into the physiotherapy program [4] to feel comfortable, this finding could indicate that surroundings are something health professionals need to bear in mind when showing the biofeedback tool to the Nepalese women, and to be sure that the information given is properly understood so that the women are aware of the exact intention behind the device.

4.4 Strenghts and limitations of the study

As with the majority of studies, the design of the current study is subject to a line of strengths and limitations which should be borne in mind when interpreting the results.

4.4.1 Strenghts

To our knowledge, this is the first study of its kind to be conducted on this topic in Nepal. The findings from this study gives us an idea of how a PFMT-program is experienced through the eyes of a Nepalese woman but they must be seen in context of the Nepalese culture. The results from the study could be used to improve and make changes to the intervention program at Dhulikhel and other similar interventions, in addition to being considered in establishment of future programs. Women`s health stills get little attention in LIC, and all documentation of their situation is important. Training of the pelvic floor muscles is a way of educating and empowering Nepalese women because the initiative can be carried out by themselves and is free of charge.

4.4.2 Limitations

Firstly, the interviews and analysis were not conducted by the same person. The interviews were conducted in Nepal by a local research assistant, whereas the analysis was done in Norway by the researcher based on the transcribed and translated interviews. By not being able to personally conduct the interviews, as they had to be in Nepali or to be present for all interviews, the researcher may have missed out on important aspects for example body language which would only be visible in the interview setting. Secondly, when reading through the interview transcripts it became apparent that some themes were described differently to the participants than intended. An example was the biofeedback tool, which may have affected the participants ‘answers depending on if the women understood what was asked, and on how the follow -up questions on the theme were asked. Also, some of the findings do not correlate with the information given in the PFMT-program, such as regarding recommended positions for exercise performance. Furthermore, there were aspects of the PFMT-program that the women did not mention or talk sufficiently about to focus on them in the discussion. An example of this was the use of the exercise diary and the leaflet, which the women mainly only mentioned using or not using. Thirdly, it was difficult getting elaborate or long answers from the women participating, which could have been due to the topic addressed

making the women hesitant to share or to the interview setting. The interview setting was not optimal and could have influenced the women`s inclination to respond as it was challenging obtain a suitably private environment for interviews.

5 Conclusion

The study showed that Nepalese women have heard of UP and UI but are lacking theoretical knowledge on causes and do not know much of the physiological aspect of the pelvic floor. The majority of the women were unfamiliar with the pelvic floor muscles before participating in the PFMT-program at Dhulikhel Hospital, which according to research, also is a problem in western countries. Despite the participants not having much knowledge about UP and UI, they still learned enough at the PFMT-program to understand the importance of performing the exercises.

The findings suggest that having knowledge about the pelvic floor muscles is not crucial for PFMT performance, but understanding UP and UI was viewed as more important. Regardless of the women`s mixed answers on the biofeedback, the tool could be a good addition in a PFMT-program if health professionals ensure the participants understanding of the device and so do in appropriate environments. Support from family and friends was important for the women in the study, especially support from husbands and mothers-in-laws.

The PFMT-program at Dhulikhel Hospital was well received by the women as they did their best to follow the advices given at the program. However, there is a need to further develop strategies to reach husbands and to motivate them into becoming more involved in their wife`s health care. Increased focus on giving positive feedback to women participating in the PFMT-program could have a motivational and positive effect on the women and should be done as often as possible. Future studies exploring husbands and mothers-in-laws attitudes towards the women`s participation in a PFMT-program is needed to understand the underlying factors influencing their attitude towards women`s health. Additionally, by conducting similar studies as this present study in different parts of Nepal one would have to opportunity to learn more about how a PFMT-program can be implemented in other parts of the country, as the goal is to have all Nepalese women perform PFMT during pregnancy as a preventative measure for conditions like POP.

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Appendix

Appendix 1: Consent form

NTNU
Norwegian University of
Science and Technology

REQUEST FOR PARTICIPATION IN RESEARCH PROJECT

PREGNANT WOMEN`S EXPERIENCE WITH PELVIC FLOOR EXERCISES IN NEPAL

We want to ask you to participate in a research project to explore how pregnant women in Nepal perceived an exercise intervention program on the pelvic floor, what they have learned from it, and how the exercise routine fits into their daily lives. You have been chosen to participate in this research project seeing that you attended the exercise intervention during your pregnancy. The research project is a collaboration with NTNU (Norwegian University of science and technology), Oslo University hospital and the Dhulikhel University Hospital.

WHAT DOES THE PROJECT CONTAIN?

The intention of the project is to understand how you experienced the exercise program and to use the information from the interviews to be able to develop a well-adapted exercise program for pregnant women here in Nepal. The results will be presented in a master thesis at NTNU in the spring of 2019. The goal is that the result from the study will contribute to ensure the quality of the established intervention program.

The project will consist of in depth interviews. The interview will mainly be focused around questions regarding what you thought prior to the intervention compared to after, your experience in doing or not doing the pelvic floor muscle exercises, what you think worked well or what could have been done differently. A local research assistant will conduct the interview in Nepali along with a researcher from NTNU. The interview will be audio recorded and stored safely. All personal information about you will be anonymized. The interview will last approximately one hour, and we will reimburse your travel expenses and provide you with a free lunch as a thank you for participating.

VOLUNTARY PARTICIPATION AND POSIBILLITY TO WITHDRAW AT ANY TIME:

Participation is voluntary. If you want to participate, please sign the declaration of consent on the next page. You can at any time, without reason, withdraw your consent during the interview. If you wish to withdraw from the project, the information collected from you will be deleted if the information has not already been used in analysis or scientific publications. If you have any questions regarding the project or what to withdraw from the project at a later point in time, please contact: Satyaa Shrestha, satyaasth@gmail.com

WHAT HAPPENS TO THE INFORMATION ABOUT YOU?

The information registered is only going to be used in this study. You have the right to know what kind of information that has been registered about you and can correct potential mistakes made.

All information will be processed without name and personal number or any other directly recognizable information. The information that you give will after that the completed data collection not be possible to link to you.

The project leader is responsible for the progress of the research project and to ensure that all information about you is handled securely. All information will be anonymized and stored for five years on a safe server.

APPROVAL:

The project 2018/956/REK midt has been evaluated (date: 25.06.18) by REK as not applicable under the mandate of the committee as of §2 in the regulation for health research as the primary outcome does not evaluate effect of intervention.

The project has been approved by the Nepal Health and Research Council (IRC).

According to the European Union General Data Protection Regulations special regulations apply to sharing of data with states outside the Union. As the Union cannot guarantee the same standards for protection of data in Nepal, the participant is hereby made aware that data protection in Nepal is according to local infrastructure and regulations. Sharing of data between Norway and Nepal follows the waiver as specified in Norwegian law on personal information, Chapter V, Article 49b.

CONSENT TO PARTICIPATION IN RESEARCH PROJECT:

I AM WILLING TO PARTICIPATE:

In the interview: yes ☐ no ☐

In the questionnaire: yes ☐ no ☐

ID number for participant (1,2 etc.). _____

Time and date	Participant`s signature If the participant cannot give a written signature, the consent is given orally and audio recorded.

I hereby confirm to have given information about the research project:

Time and date	Signature
	Project role

Appendix 2: Approval NSD

NSD Personvern

12.10.2018 13:56

Det innsendte meldeskjemaet med referansekode 798629 er nå vurdert av NSD. Følgende vurdering er gitt: REK har vurdert at prosjektet ikke er omfattet av helseforskningslovens saklige virkeområde (2018/956/REK midt). Det er vår vurdering at behandlingen vil være i samsvar med personvernlovgivningen, så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 12.10.2018 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

MELD ENDRINGER

Dersom behandlingen av personopplysninger endrer seg, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. På våre nettsider informerer vi om hvilke endringer som må meldes. Vent på svar før endringen gjennomføres.

TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle særlige kategorier av personopplysninger frem til 03.06.2019.

LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 nr. 11 og art. 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse, som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes uttrykkelige samtykke, jf. personvernforordningen art. 6 nr. 1 a), jf. art. 9 nr. 2 bokstav a, jf. personopplysningsloven § 10, jf. § 9 (2).

PERSONVERNPRINSIPPER

NSD finner at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen: - om lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen - formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål - dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet - lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER

De registrerte vil ha følgende rettigheter i prosjektet: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20). Rettighetene etter art. 15-20 gjelder så lenge den registrerte er mulig å identifisere i datamaterialet. NSD vurderer at informasjonen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art.

12.1 og art. 13. Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32). Forskningsassistent ved KUSMUS / DH er databehandler i prosjektet. NSD legger til grunn at behandlingen oppfyller kravene til bruk av databehandler, jf. art 28 og 29. For å forsikre dere om at kravene oppfylles, må prosjektansvarlig følge interne retningslinjer/rådføre dere med behandlingsansvarlig institusjon.

OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet. Lykke til med prosjektet! Kontaktperson hos NSD: Eva J B Payne Tlf. Personverntjenester: 55 58 21 17 (tast 1)

Appendix 3: Payment for approval in Nepal

DNB

Payment overview receipts

Receipt from the bank for executed payments

Available payment details: Create e-mail

Payer		**Beneficiary**	
From account:	76940550595	To account:	00505030006368
Account name:	NTNU utbetalinber utland		
Account owner:	NORGES TEKN.NATURVITENSK.UNIVE	Name:	KATHMANDU UNIVERSITY SCHOOL OF MEDI
Address:	HØGSKOLERINGEN 1 7034 TRONDHEIM	Address:	DHULIKEL, , , BAGMATI, NP, NP, NEPAL
Payment details			
Bank's ref.:	W26745 7731NOO06093740	Ordered amount:	**USD 200.00**
Payment method:	Standard	Debit amount:	NOK 1,649.52
Date of receipt:	19/07/2018	Transferred amount:	USD 200.00
Payment date:	19/07/2018	Exchange rate:	8.24760000
Booked date:	19/07/2018		
Debit val.date:	23/07/2018	Received payment date:	19/07/2018
Charges paid by:	Shared - sender / beneficiary	Credit val.date:	23/07/2018
Own reference:	DNB		
		Payment type:	International
Info to beneficiary:			
Beneficiary's bank			
Name:	NEPAL INVESTMENT BANK	BIC:	NIBLNPKT
Address:	KATHMANDU	Bank code:	
Country:	NEPAL		
Other information			
Status	Executed		

Underlying invoice specifications:

Serial no.	Deb./Cred.	Txt/KID/Cr.Acc/Info to Beneficiary.	Ref. amount	Delete
1	D	ETISK KOMITEE I DHULIKEL	200.00	

Appendix 4: Contract with local research assistant and NTNU

Versjon 2.1: 21.09.2011

NTNU
Det skapende universitet

Contract for activity

1. **Type of project:** Masters project
2. **Project title:** Womer.`s experience of participating in a PFMT program during pregnancy in Nepal – a qualitative study
3. **Project owner:** NTNU
4. **Collaborating institution:** Kathmandu University, School of Medical Sciences (KUSMS) Dhulikhel Hospital, Kathmandu University Hospital (DHKUH)
5. **Contact person, NTNU:** Ann-Katrin Stensdotter
6. **Responsible person at KUSMS/DH:** Kunta Devi Pun
7. **Data collection and preparation:** Satya Shrestha
8. **Project duration:** 01.08.2018-01.06.2016
9. **Timeframe for data collection:** September – November 2018.
10. **Contribution**
    KUSMS / DH will be reimbursed according to budget upon invoice to Ann-Katrin Stensdotter no later than December 1st. Cost for ethical clearance has already been expedited.

SN	Items	Unit	Unit cost (NRs)	Total (US dollar)	Total (Norwegian krone)
1	Ethical clearance	1	NRs 23 532	200	1742
3	Allowance for participants	15	Travel: NRs 500 Refreshment: NRs 30 Dr's appointment: NRs 35 Total: NRs 565	117	627
5	Payment to research assistant (Prearrangements, Data collection)	1	NRs 63 500	539	4700
6	Transcription and Translation	1	NRs 26 795	228	1983
7	Overhead charges	-	20% of total Budget sent to KUSMS/DH account (20% of 98770)	168	1462
	Grand Total (exl. IRC)	-	118524	1007	8774

Due payable to NTNU on invoice: $1007

Side 1

NTNU
Det skapende universitet

9. Reporting: According to collaboration agreement (i.e, deliver trans-scripted and translated interviews to master student

10. Terms of Contract: In addition to this contract, NTNU's General Terms of Contract for Collaborative Research Projects will take effect. Hereunder this contract includes statement of confidentiality (information about and from informants is strictly limited to the research group. The data is not to be used for any other purpose but as stated in this project as specified in agreement of consent).

11. Contract issue and signatures

This contract is signed in two copies where each of the Parties has received one.

Trondheim, 25/10 2018	Dhulikhel, / 20…
For NTNU:	For the assistant:
signature	signature .....
Name: Ann-Katrin Stensdotter title (Professor)	Name: Staya Shrestha title: .....

Versjon 2.1: 21.09.2011

NTNU
Det skapende universitet

9. Reporting: According to collaboration agreement (i.e, deliver trans-scripted and translated interviews to master student

10. Terms of Contract: In addition to this contract, NTNU's General Terms of Contract for Collaborative Research Projects will take effect. Hereunder this contract includes statement of confidentiality (information about and from informants is strictly limited to the research group. The data is not to be used for any other purpose but as stated in this project as specified in agreement of consent).

11. Contract issue and signatures

This contract is signed in two copies where each of the Parties has received one.

Trondheim, 25/10 2018

For NTNU:

signature .....

Name: Ann-Katrin Stensdotter
title (Professor)

Dhulikhel, 26 / 10 20.18

For the assistant:

signature .....

Name: Staya Shrestha
title: Lecturer

Appendix 5: Interview guide

Interview guide

Introduction:

Thank you for taking the time to meet with me. My name is Anette Haaland and I am a master student at NTNU in Trondheim, Norway. I am here in Nepal to collect experiences and reflections from women who have participated in the pelvic floor muscle exercise program during pregnancy here at Dhulikhel hospital. I have been informed that you are one of the women who have participated in the exercise program. The purpose of the interview is to see if the experiences you, and the other women we have interviewed, have can help us to further develop the exercise program to make it better adapted to your day to day life. The interview will be audio taped so that I`m sure I`m able to capture everything you are saying and make to reproduce it correctly later. I will also take some notes during the interview. The interview will last approximately an hour. All data used from the interview will be anonymized, and I will make sure that it will not be possible to identify you as a responder based on the information used in the research project. You can at any given time and without reason withdraw your participation. Any information you have given will then be deleted.

Do you have any questions to what I just said or is there anything you would like to ask?

Knowledge prior to the exercise program:

1. The pelvic floor is essential to us women (place your hands on your own pelvis) in relation to pregnancy and giving birth. What did you know about the pelvic floor prior to the exercise program you participated in here at Dhulikhel?
   a) Where did you learn this/ Who taught you this?
2. What were your thoughts about pelvic floor problems such as uterine prolapse and urine incontinence before participating in the exercise program?

The exercise programme:

3. How would you describe your experience in participating in the exercise program here at Dhulikhel?
4. Were there any parts of the exercise program you thought were
   a) Particularly useful?
   b) Particularly not useful?

c) Particularly difficult?
Follow-up questions if these are not mentioned in the previous answer:

- What do you know about the pelvic floor, urine incontinence and uterine prolapse now after the exercise program compared to what you knew before? Has the exercise program provided you with any new information? What kind of information?
- Do you have any thoughts as to (depending on the woman`s answer)
  Why you stuck to the exercise program?
- Why you did not stick to the exercise program?

5. You were offered to try out the "biofeedback" – a tool that enabled you to see the muscle contraction while doing the pelvic floor muscle exercises.
   a) How did you experience this type of intervention?
   b) In what way would you say that the use of the biofeedback was useful for you when it came to the performance of the pelvic floor muscle exercises?
6. What would you say is the most important thing you learned/gained from the exercise program?

Performance of exercises:

7. Describe some everyday-life situations where the pelvic exercises are possible to carry out regularly without extra effort.
8. What was your motivation for going through with the exercise program?
9. What do you think could have been done differently to make it easier for you to comply to the exercise program?

Knowledge after the exercise program:

10. What are your thoughts on doing pelvic muscle exercises now that you have been through the exercise program?
11. What are your thoughts on continuing with the pelvic muscle exercises even now after having given birth?
12. If you at any later stage in life experience difficulties/problems related to your pelvic floor, would you then consider doing pelvic muscle exercises?
    a) Why?
    b) Why not?

Final question:

13. Do you have anything you would like to add or comment on?

Appendix 6: Approval IRC, Nepal

KATHMANDU UNIVERSITY
SCHOOL OF MEDICAL SCIENCES

Date: September 06, 2018

To,

Dr. Ann-Katrin Stensdotter
Dept. of Neuromedicine and Movement Science
Norwegian University of Science and Technology, NTNU
Trondheim, Norway

Dear Dr. Ann-Katrin Stensdotter

The Institutional Review Committee of Kathmandu University School of Medical Sciences/Dhulikhel Hospital (IRC-KUSMS) has reviewed and approved your application to conduct study entitled **"Women`s experience in participating in a PFMT - program during pregnancy in Nepal - a qualitative study"** on 4th September, 2018. This approval shall remain in effect until 5th September 2019.

The following personnel are approved to perform research activities on this protocol:

1.	Dr. Ann-Katrin Stensdotter	Principal Investigator
2.	Dr. Kunta Devi Pun	Co-Principal Investigator
3.	Dr. Britt Stuge	Co-Investigator
4.	Dr. Borgunn Ytterhus	Co-Investigator
5.	Ms. Satya Shrestha	Co-Investigator

Your protocol approval number is: **104/18**

The IRC-KUSMS expects to be informed about the progress of the study, any changes in the protocol and patient information/informed consent. A copy of the final report should be submitted to IRC-KUSMS.

With best regards,

Dr. Rajeev Shrestha
Member Secretary, IRC-KUSMS

Dhulikhel, Kavre GPO Box 11008 Kathmandu, Nepal Phone: 00977 11 490497 Fax: 00977 11 490707 Email: kusms@ku.edu.np www.dhulikhelhospital.org Collaborative Program of Kathmandu University and Dhulikhel Hospital

Appendix 7: Letter from REK

REK
REGIONALE KOMITEER FOR MEDISINSK OG HELSEFAGLIG FORSKNINGSETIKK

Region:	Saksbehandler:	Telefon:	Vår dato:	Vår referanse:
REK midt	Marit Hovdal Moan	73597504	25.06.2018	2018/956/REK midt
			Deres dato:	Deres referanse:
			07.05.2018	

Vår referanse må oppgis ved alle henvendelser

Ann-Katrin Stensdotter
NTNU

2018/956 Hvordan gravide kvinner i Nepal oppfatter et treningsprogram for bekkenbunn.

Vi viser til søknad om forhåndsgodkjenning av ovennevnte forskningsprosjekt. Søknaden ble behandlet av Regional komité for medisinsk og helsefaglig forskningsetikk (REK midt) i møtet 06.06.2018. Vurderingen er gjort med hjemmel i helseforskningsloven § 10.

Forskningsansvarlig: Norges teknisk-naturvitenskapelige universitet
Prosjektleder: Ann-Katrin Stensdotter

Komiteens prosjektsammendrag
Hensikten med studien er å undersøke hvordan gravide kvinner i Nepal oppfatter et treningsprogram om bekkenbunnen; hva de forstår og husker av informasjonen som gis. Studien vil baseres på dybdeintervju av 10-15 gravide kvinner som har gjennomgått treningsprogrammet. Resultatet fra studien vil bli benyttet til å evaluere om treningsprogrammet formidler informasjonen til mottakerne på en tilstrekkelig og tilfredsstillende måte slik at deltakerne kan dra nytte av det som blir fortalt. Samtykke vil bli innhentet.

Vurdering
Komiteen finner at prosjektet har karakter av å være annen type forskning enn medisinsk og helsefaglig forskning. Formålet med prosjektet er ikke primært å skaffe til veie ny kunnskap om helse og sykdom. Studien skal undersøke kvinnenes forståelse av et treningsprogram, og ikke effekten av treningsprogrammet på styrking av kvinnenes bekkenbunnmuskulatur. Prosjektet er følgelig ikke omfattet av helseforskningslovens saklige virkeområde, jf. helseforskningslovens §§ 2 og 4. Prosjektet kan derfor gjennomføres og publiseres uten godkjenning fra REK. Vi minner imidlertid om at dersom det skal registreres personopplysninger, må prosjektet meldes til Norsk senter for forskningsdata (NSD).

Vurderingen er gjort på grunnlag av de innsendte dokumenter. Dersom det gjøres endringer i prosjektet, kan dette ha betydning for REKs vurdering. Det må da sendes inn ny søknad/fremleggingsvurdering.

Vedtak
Regional komité for medisinsk og helsefaglig forskningsetikk, Midt-Norge har funnet at prosjektet faller utenfor komiteens mandat, jf. helseforskningsloven § 2.

Klageadgang
Du kan klage på komiteens vedtak, jf. helseforskningsloven § 10 og forvaltningsloven § 28 flg. Klagen sendes til REK midt. Klagefristen er tre uker fra du mottar dette brevet. Dersom vedtaket opprettholdes av REK midt, sendes klagen videre til Den nasjonale forskningsetiske komité for medisin og helsefag for endelig vurdering.

Med vennlig hilsen

Besøksadresse:
Fakultet for medisin og helsevitenskap Mauritz Hansens gate 2, Øya helsehus

E-post: rek-midt@ntnu.no
Web: http://helseforskning.etikkom.no/

All post og e-post som inngår i saksbehandlingen, bes adressert til REK midt og ikke til enkelte personer

Kindly address all mail and e-mails to the Regional Ethics Committee, REK midt, not to individual staff

Vibeke Videm
Professor dr.med. / Overlege
Leder, REK Midt

Marit Hovdal Moan
seniorrådgiver

Kopi til: *siri.forsmo@ntnu.no; rek-midt@mh.ntnu.no*