

Pelvic Floor Muscle Exercises for Stress Urinary Incontinence (SUI): A Review Article

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Abstract

Introduction: The International Continence Society (ICS) describes Urinary incontinence (UI) as the complaint of involuntary leakage of urine and proposes a classification according to the existence of signs and symptoms and mechanisms of occurrence [1, 2]. **Purpose:** The purpose of this review is to find existing evidence based intervention for Stress Urinary Incontinence (SUI) among women. A preliminary search on Cochrane database, PUBMED, EMBASE, SCOPUS & CINHALL done by the researcher and found relevant studies which provided strong evidence to support role of Pelvic Floor Muscle Exercises (PFME) or Pelvic Floor Muscle Training (PFMT) in reducing symptoms among women diagnosed with SUI. **Conclusion:** The review concluded that PFMT is a feasible and patient friendly exercise program used for treating SUI with high quality evidence and to be followed under supervision of a health professional. It is also found that less number of recent studies hence suggest having long term studies in future.

Keywords: Pelvic floor muscle exercises, PFMT, Stress Urinary Incontinence (SUI).

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INTRODUCTION

SUI is the common health issues among women especially the age group 40-55 years. This time is known as perimenopausal age. Pelvic floor muscle training is often used for urine leakage. The review article is aimed to find common and conventional management and preventive methods for Stress Urinary Incontinence among perimenopausal women. The expansive managements have been followed in the treatment of UI; consist of conservative methods, pharmacological treatment, and surgical interventions. Majority of the Cochrane Reviews appraise evidence on the effects of health or social care management. These reviews anchor primarily on randomized trials as the most powerful research design for evaluating the relative effects of interventions [3].

The investigator did a preliminary search on Cochrane database, PUBMED, EMBASE, SCOPUS & CINHALL for the evidences which was the collection of

top or first level evidences and found a study done by Dumoulin C *et al.*, in Cochrane database in the year 2018 [4].

A Systematic review done by Dumoulin C *et al.*, focused on one of the major conservative management used, exactly PFMT that is an exercise program to strengthen the function of pelvic floor muscle (PFM) [5, 6]. The participants inscribed in this study was women with UI and diagnosed as having Stress Urinary Incontinence (SUI), Urge Urinary Incontinence (UII), or Mixed Urinary Incontinence (MUI) on the support of symptoms, signs, or urodynamic study. The methods included Pelvic Floor Muscle Training (PFMT) while comparing with no or inactive treatments. The chief results of the review included 31 trials out of fourteen nations. The RCTs included women with all types of UI. The subjects were assigned arbitrarily to either accept or not accept PFMT, and the effects were compared. The researchers included studies published upto February 2018. The results shown that, cure of symptoms or improvement

of UI compared with no or inactive control treatments, women with SUI who were eight times more certainly to report cure in the PFMT groups (56% vs 6%; (RR) 8.38, 95% (CI) 3.68 to 19.07; Four trials among 165; - high) whereas any type of UI in women, it was five times more probable to report cure (35% vs 6%; RR 5.34, 95% CI 2.78 to 10.26; three trials among 290; moderate-quality). When the symptomatic cure weighed up with nullor inert controls were six times more feasibly to report cure or progress (74% vs 11%; RR 6.33, 95% CI 3.88 to 10.33; three try outs among 242women- moderate) and the SUI group who were involved in the PFMT groups reported about significant improvement in various symptoms of UI and quality of life. The findings of the Cochrane review confidently and strongly suggested that PFMT could be incorporated the in preferred methods for female diagnosed with UI [4].

The above mentioned review [4] was an updated version done in 2020 and an updation was already done in 2015 based on Cochrane Incontinence Group Specialized Register, (searched 15 April 2013) the evidences were nourished the recommendations for PFMT and an extensive range of secondary outcomes were reported which was generally favour of PFMT [11].

The reviewer found a Cochrane review commentary based on the systematic review by Dumoulin C *et al.*, [4] in 2020 mentioned above, done by Paolo Di Benedetto to summarize and discuss the SUI rehabilitation perspective. The reviewer's focus was on one among the widely tried conservative methods, specifically PFMT which is a strategy of exercises to enhance muscle strength [6, 8, 9]. He also suggested in his previous study that the minimal invasive and least threathful procedure for the client must be the prime choice, and behavioural and rehabilitative techniques must be considered as the premiere therapy for Urinary Incontinence (UI). PFME take part a tremendously important part in the conservative management of UI and other urinary symptoms and many reports have denoted their effectiveness too. The author concluded that, PFMT can restore or enhance symptoms of SUI lessening the leakage occurrences, especially on the pad tests, and symptoms on related questionnaires and a uniform pattern was observed in all studies with every types of UI than one particular type of UI [10].

Another study done by Seong *et al.*, was supporting the purpose of the current review article which was aimed to identify the effect of perineal exercises on lowering UI symptoms in female with SUI. They included RCTs conducted on ladies with SUI who had done Kegel exercises and included publications between 1966 and 2012 like periodicals, NDSL, KoreaMed, Ovid Medline, Scopus, and Embase by using key words such as "Kegel or pelvic floor

exercise." Total of eleven studies were included. The trial results indicated that Kegel exercises remarkably decreased the symptoms of stress urinary incontinence in females. Heterogeneity was not considered among opted results except the pad test. This study concluded that, there is strong evidence for female SUI, Kegel exercises may help in managing UI at the same time researchers suggested to do further studies in this field [11].

A systematic review and meta-analysis conducted to analyze the effectiveness of PFMT in female SUI and to identify which method loads the greatest transformation for reducing urine leakage. It was conducted in three databases named PubMed, WOS and Cochrane, for RCTs that estimated the effects of PFMT. The participants were females above 18 years with SUI and managed with PFMT along with pad test. Total 10 articles included who tried PFMT. The results showed that PFMT, independent of the strategy used in the study, ended up in reduced urine leakage in women with from SUI [12].

In contrast, another systematic review has done in 2013 compare the effects of prepending PFMT to any other active treatment for UI in female. Cochrane Incontinence Group Specialised Register, which include studies identified from the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, and manual searching of journals and conference proceedings with a criterion of including quasi and randomised trials in women with clinical or Uro-dynamic evidence of all types of UI. Altogether Eleven RCTs included, which comprise of women with SUI, UII or MUI, and they compared PFMT added to other active treatment with the same active treatment alone. Though most of the trials did not report the principal outcomes mentioned in the review and counted the outcomes in various ways rated the quality of evidence, with GRADE approach, as either low or very low accept one trial which found moderate quality of evidence. In another trial, many women reported cure or improvement when comparing PFMT but it was with vaginal cones to vaginal cones alone: 14/15 (93%) versus 14/19 (75%), however this was not statistically significant and marked as very low quality evidence. The reviewers found deficient evidence to state on the aims and purposes of the review done since majority of the comparisons were evaluated in small, single trials and concluded that no trials were wide enough to furnish reliable evidence [13].

A multi centric single blind RCT study done by Kari Bo *et al.*, to compare one among the most widely used conservative methods with no care for genuine stress incontinence. A previous research study done by the same author to administer an excellent method in all group based on existing theory and suggestions with a protocol found to be finer than exercise carried out just at home [14]. The intervention

includes 8-12 high intensity (close to maximum) contractions thrice a day at home in addition to group training once a week for 45 minutes. The lying, standing, kneeling positions and sitting with legs apart to stress the special training and relaxation of other muscles of pelvic floor. Subjects are asked to hold for 6-8 seconds, and then three or four fast contractions with 6 seconds rest period. In each position 8- 12 contractions were completed with maximum effort was encouraged. The subjects were instructed to assume the preferred position and asked to perform equally intensive contractions at home set up along with body awareness, breathing, relaxation exercises, and strength exercise for the muscles. To add on, the author was stated that remarkably many women in the pelvic floor exercise group expressed that after the intervention the issue was no longer bothersome [15].

The reviewer gone through different studies which was comparing various methods to manage SUI among women [16-19]. PFMT and other techniques have vital role in non-surgical management of UI however; their clinical effectiveness is restricted to slight or moderate severity of UI. This systematic review revealed few likelihoods of applying physiotherapeutic methods in the management of female UI with attention to the methods of PFM activation. The evidence of the effectiveness of well-known interventions like PFMT, biofeedback, electro stimulation and less- known like vibration training methods have shown regarding the treatment of manifestations of urinary incontinence in women. According to the study's findings, physiotherapy is a crucial and highly-evidenced component of treatment for individuals with UI [20]. Another meta-analysis revealed that the treatment effect of PFMT on incontinence episodes may be higher in younger female with only stress urinary incontinence [21].

According to the reviewer's opinion, although there is evidence to reduce or cure the Urinary Incontinence but there is some unsettled problems. All PFMT programs were unique in terms of classification and count of PFM contractions, rest time, duration of holding and, positions assumed, and length of the treatment. So that excellent program has not yet been identified. But while the finer details of programme content are less significant, exercise content increases the evidence's intensity [4].

The Implications of the Review for Developing Evidence Based Nursing Care Protocol

According to the Cochrane review [4], PFMT for women with urinary incontinence should be included in first- line conservative care [4]. Another update in addition of 10 studies did not alter the core findings of the previous review, recommending that PFMT could be considered as the cautious first-line treatment of women with urinary incontinence [22]. The PFMT programme that was addressed in this

evaluation involved repetitive, voluntarily performed PFM contractions, usually under a healthcare professional's supervision. The role of health care professional is inevitable and self-explanatory. In order to emphasise the importance of PFMT among women to manage SUI, it is mandatory to supervise them and do follow ups. The role of nurse as a health care professional need to be highlighted along with it. The regimen of repeated, voluntarily performed PFM contractions described in this evaluation as "PFMT" was usually carried out under a healthcare professional's supervision. Although PFME are recommended as an initial treatment to women with SUI, this management is often failure because of patient noncompliance [23]. There have been no lifestyle management trials for urinary incontinence prevention. However, there are just a few recent management studies including weight loss and water intake that have higher levels of evidence and recommendation grades. Other than pre- and post-natal PFMT studies for the prevention of female UI, there is a paucity of PFMT prevention trials for women with UI. High levels of evidence and recommendations make PFMT the standard treatment for female UI [24, 25]. Based on all the evidences identified regarding pelvic floor muscle exercises, the researcher felt the need of preparing nursing care protocol to reduce symptoms and improve compliance to the cues to action for the prevention and management of SUI based on the high quality evidences existed.

CONCLUSION

PFMT is an exercise program used for treating SUI with high quality evidence. Other outcomes like treatment satisfaction and quality of sexual life was remarkable and also the control groups were more feasibly to undertake further treatments. It was strongly advisable due to very rare adverse events and prompt resolution. Overall, the evidence was degraded to moderate on the basis of methods and materials with the deviation of "participant-perceived cure" with SUI diagnosed female, which was graded as high quality. However, more research needs to be done on the long-term efficacy of PFMT.

DECLARATIONS

This review article is mainly based on a Cochrane Review previously published in the Cochrane Database of Systematic Reviews 2018, Issue 10, Art. No.: CD005654, DOI: 10.1002/14651858.CD005654.pub4 (see <http://www.cochranelibrary.com> for information). The most recent version of a Cochrane Review can be found in the Cochrane Database of Systematic Reviews, which is updated when new evidence becomes available and in response to user feedback.

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