Introduction - The 2019 Global Report of the International Health, Racquet & Sportsclub Association (IHRSA) states there are 90 million female fitness club members worldwide. Nygaard’s 2016 systematic review (#8 ref in article) states UI with exercise can range from 14.9% to 80%. Based on 2018 Systematic Review by Dumoulin et al. (#12 in article), PFMT is better than no treatment, placebo drug, or inactive control treatments for women with SUI. Are fitness clubs or group exercise programs doing what they can to help support women with UI?

Aim: to collect and report longitudinal data on the prevalence of UI in beginner recreational exercisers in a fitness club setting and to also investigate whether gym members were taught about their pelvic floor muscles.

Study Design – Longitudinal prospective study with the use of an electronic questionnaire based on previously validated surveys

Methods This is a secondary study/analysis of data collected from a project titled ‘Physical activity at fitness clubs. - A venue for public health’.

1. Participants were recruited Oct 2015- November 2017 from 25 different fitness clubs in Oslo.
   a. Eligibility criteria: ≥ 18 years old, healthy (no severe disease or pathology), not pregnant, and literate in Scandinavian language.
   b. Only new members with less than 4 weeks membership at gym & untrained.
      i. Untrained was defined as exercising < 60 min 1 time per week at moderate or vigorous intensity.
   c. 125 were followed for 1 year at 4 different intervals (onset, 3, 6, & 12 months)

2. Electronic questionnaire with 52 questions were asked at onset and then 65 questions were asked at 3, 6 & 12 months. A total of 90 women answered all of the questions. Questionnaire included:
   a. Background/health information & exercise habits - Participants reported the # of days they performed PFMT per week in the last 4 weeks. High frequency exercisers were defined by visiting club ≥ 2X/week in last month. Low frequency exercisers visited club ≤ 1X week in last month.
   b. PFMT questions and Adherence- Awareness of PFMT was based on a single question: “Do you know how to train your pelvic floor muscles?” They were also asked if PFMT was a part of their exercise routine in the last 4 week with the question: “Do you train your pelvic floor muscles”.
      i. Adherence was defined as a minimum of 2 sessions per week throughout all F/U’s.
   c. BIG question: “Have you received any coaching/supervision on PFMT by Fitness Club Staff”
   d. Determination of UI: modified version of the SHC Inventory (Subjective Health Complaints Inventory). “Have you experienced leakage and how bothered by it are you”? Followed by a symptom scale: slight, moderate & severe. A question about when UI occurred was added from ICIQ-UI SF with multiple responses so it was possible to differentiate between SUI & UUI.

Statistical Analysis

1. Background & health variables of women with and without UI were compared. Chi-squared test was used to analyze proportions (%). T-tests for means (SD)

2. Cochrans Q test, which is commonly used to analyze longitudinal study designs, was used to look for changes in proportions of participants with UI and severity of UI for each testing interval

3. They point out that the original data showed no significant differences in exercise adherence at any time between women with and without UI, so it was not necessary to adjust or use another statistical approach
Results

1. Mean age 34.3 (±10 yrs), 38% parous, mean BMI 25.1 (±4.9), 38% had BMI over 25

Table 1 - Shows general characteristics and women with and without UI.
   a. Women with UI were older and higher proportions were parous (p<0.01)

Table 2 – Prevalence severity & type of UI across 4 points
1. The majority perceived UI to be slight
2. The majority reported SUI vs. UUI
3. There was no change in the severity or proportions of UI for the year they were exercising!

Table 3 – Proportions reporting regular exercise & PFMT across 4 points
1. At 3 months 59% were exercising 2X week (regular exerciser), at 6 months – 57% and 12 months – went down to 46%
2. There was an increase in women reporting awareness & knowledge of PFMT (p=0.01)
   a. But, there was no increase in the proportion of women performing regular PFMT.
3. 22.2% reported doing PFMT 2X week at 12 months (< 1/3 reported adherence to regular PFMT)
   a. Of those reporting regular PFMT, there was an increase in the number of days/week they reported doing PFMT (p<0.01) over the 12 month period (Onset = .46 (SD 1.6) to 2.4 days per week (SD 3.3) at 12 months).
4. Less than 8% received information about PFMT by fitness club staff

TABLE 4 - Comparison of adherence to exercise and PFMT between participants with and without UI at 12 months membership
1. They found no association between regular ex & PFMT whether they had Incontinence or not
   a. For example...Out of 17 women that reported UI at 12 months; only 3 reported regular (2Xweek) PFMT

TABLE 5 - Types of group exercise classes
1. Divided into high and low impact classes and whether UI was absent or present at 12 months for women exercising 2X week. More women with UI in low impact groups.

DISCUSSION- key points
1. This studies’ prevalence was lower than reported in general population (16.8% had UI at onset and at 12 months 18.7% reported UI). The authors cite Climacteric Journal 2019 reporting a prevalence of 25–45%.
   a. Authors expected to find a higher prevalence of UI, because 1/3 of women were parous
   b. Women ≥ 40yo had highest prevalence of UI
   c. It’s important to remember...UI has been shown to be a barrier to exercise, so it is difficult to conclude whether women leak because of the exercise, or they exercise because they do not leak.
2. No association between UI and exercise
   a. NO CHANGES in proportion or severity of UI over the year (small sample size)
3. Most women (71.4%) perceived their UI to be slight. This may imply that it is the more moderate to severe UI that keeps women from exercising.
   a. The perception of slight UI symptoms may also explain the large gap between women with awareness (~75%) and the small percentage (~25%) of women doing regular PFMT. If they are not bothered by it then there is little motivation to do anything about it. Also, if they didn’t connect PFMT to improving UI, then there is also little motivation to do exercises.
   b. This leads us to education...
4. ONLY 7.5% had received any coaching or supervision in PFMT by the club staff!
5. The authors discuss a systematic review from 2013 stating fitness & Pilates classes have not been proven in elevating the bladder neck and might even cause the opposite. They also state that if PFMT was taught correctly, these issues could be avoided
   a. 2016 study that demonstrates this by Torelli et al
      i. With Sedentary nulliparous women they found when adding a voluntary PFM contraction to a Pilates exercise program; it was more effective in Strengthening than with Pilates alone. There
were improvements in terms of peak & average pressures as well as the thickness of muscle increased with contraction (perineal US).

6. UI has been shown to be a barrier to exercise, although it is difficult to conclude whether women leak because of the exercise, or they exercise because they do not leak.

Strengths
1. Diverse participants in terms of age (18-62), BMI, & parity (parous & nulliparous)
2. They recruited from 25 different fitness clubs
3. The response rate was high, with 72% answering the questionnaire at all four time points
4. Longitudinal study-prospective observational design which allows studying causality (of exercise & UI)
5. They followed beginners in a group exercise program, considered untrained. They determined their being untrained through measuring and finding a low level of VO2max at onset of training

Limitations
1. 22 were lost to F/U and they don’t know if it was due to UI or not
2. They stated a potential limitation was that they had to analyze parous and nulliparous data together because too few women reported UI to then subdivide and further analyze.
3. The sample size was too small to analyze changes in severity of UI and types of UI through the year
4. With self-reported data there is always a response bias and an absence of an objective performance measurement
5. Limitation they noted is that they did not ask about pessaries or medication or incontinence products

DISCUSSION QUESTIONS
1. Those of you participate in group exercise or at fitness studios...do instructors mention the pelvic floor muscles and remind women to both contract and relax their PFM?
2. Do you think it would be helpful to have ex instructors include PFM exercises in group ex programs?
3. Can fitness instructors help or harm? Are you concerned that women might not be correctly contracting their PFM?
4. What is important to teach instructors in order to assist them in including PFMs in their classes?
5. What recommendations do you give women with PFM dysfunction when they choose to join a group exercise program?
6. Are there certain exercise programs you recommend over others?
7. Do you teach fitness instructors about PFMT?

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