

The Influence of Urine Incontinencia in Elderly with Based Kegels Smartphone

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Abstract Urinary incontinence is a weakness or decrease in pelvic floor muscles that is urinating many times more than eight times per day. One of the non-pharmacological therapies is Kegel exercises. In the era of increasing use of information and communication technology, smartphones have many applications networking that support communication; one of them is whatsapp, which has the advantage to communicate and share information in the form of images, videos, and others. This study aims to determine the effect of-based Kegel exercises smartphone on the frequency of urinary elderly in Pusbila Mekarjadi Village, Ciamis Regency. This study used a Quasi-Experiment One-Group pretest-posttest design approach on 86 samples taken by purposive sampling technique. The analysis used Wilcoxon test with the provisions of α 0.05. The results obtained: a decrease in the frequency of urinating elderly after being given a-based Kegel exercises smartphone. In the frequent category, from 39.5% of respondents decreased to 11.6%, in the moderate category from 60.5% of respondents decreased to 73.3% and in the mild category 15.1% after being given a-based Kegel exercises smartphone ($p=0,000$). The conclusion obtained: there is a statistical influence on-based Kegel exercises smartphone on the frequency of urinary elderly ($p=0,000$).

1. Introduction

The elderly experience the aging process naturally, which can not be avoided [1]. At the time a person will tend to experience a variety of health problems due to decreased organ function [2]. Besides, the elderly will experience physical-biological, mental, and psychosocial changes [3]. Elderly individuals are more susceptible to disease, injured, and undergo surgery and more vulnerable to urinary tract infections. Besides, decreased efficiency of body systems and organs, which often accompanies aging, can make the elderly vulnerable to incontinence [4].

Urinary incontinence is the release of urine outside the will, causing social and health problems that affect women of all ages with a significant impact on the quality of life [5],[6]. Urinary incontinence is the frequency of urinary discharge by the elderly within 24 hours where the frequency of urination of a person is said to be frequent if the frequency of urination is more than >7 times/24 hours, it is said to be moderate if the frequency of urination is between 5-7 times/24 hours and is said to be mild if the frequency of urination is less from <5 times/24 hours, improvement can be seen within 4-6 weeks after doing kegel exercises [7].



Urinary incontinence is of three types: pressure, pressure, and urinary incontinence. Urinary discharge that is associated with increased abdominal pressure that occurs when sneezing, coughing, or other physical pressure is called urinary incontinence. Urinary incontinence that is characterized by a urinary discharge that is preceded by urinary urge was defined as urinary incontinence. Urinary discharge due to urinary overflow associated with intravesical obstruction or bladder detrusor muscle weakness is called overflow urine incontinence, is the most common type in elderly patients [8].

The prevalence is found to increase with an estimated age of about 50% [9]. It was estimated that less than 25% seek treatment for urinary incontinence [10]. Potential reasons for avoiding treatment because of belief in urinary incontinence are normal situations, discussing embarrassing incontinence, symptoms not being taken seriously by health workers, or available unsatisfactory treatment options often not reported by patients or their families [9],[11].

Urinary incontinence, if not treated, immediately can cause various complications such as urinary tract infections, pubic skin infections, sleep disorders, pressure sores, and rash symptoms. Also, psychosocial problems such as being shunned by others because of the smell of urine, insecurity, insecurity, irritability often occur, and this results in depression and social isolation [12],[13].

Initial treatment for patients with urinary incontinence is kegel exercises, but there is no clear rule or supervision whether the implementation of kegel exercises should be monitored [14],[15]. kegel exercises should be done routinely to strengthen the pelvic floor muscles to reduce the occurrence of urinary incontinence [4]. Obedience to kegel exercises is a key factor in its effectiveness, but there are many obstacles to doing kegel exercises, including forgetting, not prioritizing, and not understanding the benefits of training [16],[17].

The results showed there was an influence of kegel exercises on the frequency of urinary incontinence in the elderly, which was carried out routinely and regularly three times a week [13]. In modern times most people are already using smartphones, with the main advantage being internet access through social interaction through social networking features or media networking, such as Facebook, Twitter, Skype, WhatsApp and others [18],[15]. Management of kegel exercises in patients with urinary incontinence can be done by utilizing technological and information developments in the presence of smartphones [19],[20].

Mobile health applications are a growing field that offers new possibilities for providing health services [21]. Research on the use of cellular applications is more effective and clinically relevant for women who experience stress incontinence. The application can also improve adherence to pelvic floor muscle training [15]. Other studies suggest application smartphone simple significantly increases physical activity for eight weeks in the primary care population [19].

Seeing the growing development of smartphones android now it is possible to be used as a media in resolving problems regarding the management of urinary incontinence in the elderly, where researchers will distribute videos to all respondents who contain kegel exercises, which respondents will be able to follow the steps of kegel exercises according to the instructions from the video accompanied by his family's guidance. Based on the background description above, the researcher is interested in researching the effect of urinary incontinence in the elderly with based kegel exercises smartphone in Pusbila Mekarjadi Village Ciamis Regency.

2. Research methods

This study aims to determine the effect of-based kegel exercises smartphone on the frequency of elderly urination in Pusbila Mekarjadi Village, Ciamis Regency. This research was conducted on 11 June - 13 July 2019. This Type of research is a quasi-experiment one group pre-test - post-test. The population in this study are the elderly who visited Pusbila. Sampling technique using purposive sampling, obtained 86 elderly in accordance with the inclusion criteria, including respondents who visited the Pusbila Sadananya Public Health Care (PUSKESMAS) Work Area Ciamis Regency, elderly men and women, aged 45-74 years, we're willing to become research respondents, the elderly who had urinary incontinence, the elderly or families who had smartphones, the elderly who lived at home with family members, not taking drugs that can trigger urination and the elderly can be actively invited to

communication. This study using statistical test Wilcoxon, the instrument for measuring urination frequency uses urination frequency observation sheets, and kegel exercises.

3. Research result

3.1 Characteristics of respondents

Table 1. Frequency distribution of respondent characteristics by elderly age.

Elderly age	Frequency (people)	Percentage (%)
Age 45-59	64	74.4
Ages 60-74	22	25.6
The number is	86	100

The table above shows that the majority of respondents were elderly aged 45-59, as many as 74.4%.

Table 2. Frequency distribution of respondent characteristics by gender.

Gender	Frequency (people)	Percentage (%)
Women	80	93
Men	6	7
The number is	86	100

The table above shows that most of the elderly in this respondent was 93% women.

3.2 Univariate analysis

Table 3. Distribution of frequency of urinary elderly before based kegel exercises smartphone.

Urination	Frequency (people)	Percentage (%)	Mean
Often	34	39.5	7.16
Moderate	52	60.5	
Lightweight	0	0	
The number is	86	100	

The table above is the frequency of urinating elderly before given kegel exercises through smartphone an-based Android, most of the elderly urinate with a moderate frequency of 60.5%.

Table 4. Distribution frequency micturition elderly after based given kegel exercises smartphone.

Micturition Frequency	Frequency (person)	Percentage (%)	Mean
Often	10	11.6	5.85
Moderate	63	73.3	
Lightweight	13	15.1	
The number is	83	100	

The table above is the frequency of urinating elderly after being given kegel exercises through smartphone an based android, most of the elderly urinate with a moderate frequency of 73.3%, and there are as many as 15.1% with mild frequencies.

Table 5. Frequency distribution of elderly kegel exercises presence after based kegel exercises smartphone.

Granting presence of kegel exercises	Frequency (person)	Percentage (%)
Regularly	46	53.5
Irregular	40	46.5
The number is	86	100

The table above shows the attendance frequency of kegel exercises for the elderly after being given kegel exercises through smartphone an based android by 53.5%, the elderly regularly carry out kegel exercises.

Table 6. Frequency distribution of urinary frequency with kegel exercises presence in the elderly after given kegel exercises based on smartphone.

Frequency of urinary	Presence kegel exercises			
	Regular (3x/week /12x/month)		Irregular (<9x/week/<9x month)	
	f	%	f	%
Often (>7x/24 hours)	0	0	10	25
Medium (5-7x/24 hours)	33	71,7	30	75
Light (<5x/24 hours)	13	28,3	0	0
Total	46	100	40	100

The results of table 6 show the frequency of elderly urination after being given a-based Kegel exercises smartphone with the presence of regular Kegel exercises mostly voiding 5-7 times/24 hours by 71.7%.

3.3 Bivariate Analysis

Table 7. Frequency of urination for elderly people before and after based kegel exercises smartphone.

	N	Mean	Std. Dev.	Min.	Max.
Before based kegel exercises smartphone	86	7.16	1.167	5	10
After based kegel exercises smartphone	86	5.84	1.478	4	10

The table above shows the average frequency of urinating elderly before based kegel exercises smartphone is seven times, then the average frequency of elderly urination after based kegel exercises smartphone is less than five times.

Table 8. Analysis of frequency of urination for elderly people before and after based kegel exercises smartphone.

		N	Mean Rank	Sum of Ranks
<i>Pretest – Posttest</i>	<i>Negative Ranks</i>	74 ^a	37.50	2775.00
	<i>Positive Ranks</i>	0 ^b	.00	.00
	Ties	12 ^c		
	Total	86		

a. *Pretest < Posttest*b. *Posttest > Pretest*c. *Posttest = Pretest*

Table 8 explains that there are 74 elderly with urinary incontinence who have value pretest smaller than the value posttest. There are no elderly with urinary incontinence that has value posttest higher than the value pretest. There are 12 elderly with urinary incontinence who have the pretest and posttest the same.

Table 9. Wilcoxon Test in the Elderly with Urinary Incontinence (Test Statistics).

	Posttest - PreTest
Z	-7.687 ^a
Asymp. Sig. (2-tailed)	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Based on table 9, Asymp values. Sig (2-tailed) of 0,000 < 0.005. It can be concluded that there are differences in the frequency of urination in the elderly with urinary incontinence before and after running a based kegel exercises smartphone.

4. Discussion

4.1 Frequency of urinating elderly in Pusbila Mekarjadi village before being given kegel exercises

Based on frequency distribution, the majority of respondents are elderly in the 45-59 years age range of 74%, and female respondents dominate in this study as much as 90%.

As [22] mentioned, the prevalence of incontinence of urine increases with age, 17% occur in older women aged 40-59 years, 23% occur in older women aged 60-79 years.

This study support the result [23] of respondents with more than normal frequency of incontinence, 63.3% of women, and 36.7% of men.

The same results revealed by [24] in his article mentioned there were 55%. For older women, pelvic floor muscle weakness can also occur due to pregnancy, because the labor process makes pelvic floor muscles damaged due to muscle strain and supporting tissues and tear of the birth canal, obesity (obesity), and menopause can increase the occurrence of urinary incontinence [6].

The frequency of urinating the elderly before getting a-based kegel exercises smartphone lasts about 5-7 times/24 hours, and such conditions are include in the category of moderate frequency urination. There are 60% of the elderly who urinate with moderate frequency. The results of this study are also almost similar to the study of [13] respondents with moderate urination frequency of 53.3%, frequent urination frequency of 36.7%, and mild urination frequency of 10.0%.

Increased frequency of urination in the elderly is a change in anatomy and function of the urinary organs, among others, due to weakening of the pelvic floor muscles, wrong pushing habits or due to a decrease in estrogen at the age of 50 years and over which causes a decrease in pubococcygeal muscle tone and urethral urinary muscles, and geriatric syndrome [25],[26].

Risk factors for urinary incontinence in the elderly include mobility disorders, fall trauma, medication consumption, depression, transient ischemic attacks and strokes, dementia, congestive heart failure, and constipation, and obesity [26]. The muscles become weak, and the capacity decreases to 200ml, changes in the location of the uterus will pull the muscles of the vagina, bladder, and rectum along with the process of decline. Impaired sphincter function causes the bladder to "leak" when coughing or sneezing. It can also be caused by abnormalities around the urinary tract area [27].

The frequency of urination that is more than normal in the elderly caused by changes in the system of the kidneys that experience wasting and nephrons to atrophy. Decreased kidney flow, decreased body function resulting in increased blood urea nitrogen, decreased urine specific gravity, and increased kidney threshold for glucose [28].

4.2 Frequency of elderly urinating in pusbila mekarjadi village after given kegel exercises

Table 4 shows a decrease in the frequency of elderly urination after being given-based kegel exercises smartphone (posttest), as many as 15.1% of the elderly urinated <5 times/24 hours and as much as 72.1% of urination was still 5-7 times 24 hours. These results indicate there is a difference between the frequency of urinating the elderly before and after given a based kegel exercises smartphone. This can be seen from the decrease in the average value of urination frequency, at the pretest of 7.16 while at the posttest of 5.58. Test analysis results Wilcoxon listed in table 9 obtained a mean rank of 37.50 and p value of 0,000, then p value <0.005, so there significant effect of based kegel exercises smartphone is statistically the frequency of elderly urination.

The values mean of the pretest and posttest do not show clinically significant figures, because the frequency of 5-7 times/24 hours of urination is a moderate category. Based on limited monitoring and interviews, the thing that causes no clinically significant influence in this study is the possibility of irregularity in the implementation of kegel exercises by respondents and the lack of direct supervision of the proper and proper exercise of kegel exercises.

In this study, regular kegel exercises are measured using presence. From table 5, it known that of the 86 respondents, the presence of kegel exercises in the elderly after being given kegel exercises, there were around 53.5% of respondents who regularly attended kegel exercises, and there were 46.5% of respondents who did not regularly carry out kegel exercises. Kegrel exercises are performed 3-4 times for four weeks regularly, said to be regular if done three times/week or 12x /one month and irregular if done less than three times/week or less than nine times/30 days [6].

In this study, researchers took advantage of technology and information, namely smartphones, because almost all people from children to older people use smartphones. Because smartphones have the main benefits of internet access that is so fast and sophisticated, then support people's activities in social interaction through social networking features such as Facebook, Twitter, Skype, WhatsApp [18]. The use of smartphones in this research is the making of Kegrel exercises for the elderly, which then put into chat applications on smartphones.

A study of the use of technology that is in line with this study has a significant effect on the android-based application "nutritional status of toddlers" on maternal knowledge in monitoring the nutritional status of children aged 12-24 months [29]. Kegrel exercises are one of the non-pharmacological therapies for patients with urinary incontinence who do not have side effects when done routinely by the elderly to strengthen the pelvic floor muscles to reduce the frequency of urinary incontinence [4].

Kegrel exercises are beneficial for strengthening skeletal muscles on the pelvic floor, thereby strengthening the function of the external sphincter in the bladder [7]. Improvement can seen within 4-6 weeks after doing kegel exercises [12]. The benefit of Kegrel is support by the results of research that states there is an influence of Kegrel exercises on the frequency of urinary incontinence in the elderly at the Health Center in Tumpaan Minahasa Selatan [13].

Judging from the results of the bivariate analysis listed in table 6, the frequency of urination in the elderly with the presence of regular kegel exercises is in the highest category as much as 71.7% and the mild category as much as 28.3%. Whereas with irregular attendance, the highest category is in the medium category by 75% and frequent categories by 25%. In this study, respondents who regularly

performed kegel exercises decreased the frequency of urination from before doing kegel exercises were in the frequent category of 39.5% and moderate 60.5%, after regular kegel exercises decreased with the mild category of 28, 3% and there were changes to the medium category as much as 71.7% while respondents who did irregular kegel exercises, before doing kegel exercises were in the frequent category of 39.5% and moderate 60.5%, after being given kegel exercises some respondents had decreased to 25% in the category and 75% in the moderate category.

If doing kegel exercises regularly and correctly, there will be a decrease in the frequency of urination because the regularity of not doing kegel exercises can affect the decrease in the frequency of urination after doing the kegel exercises. This study support the result of “if kegel exercises are performed 3-4 times for 4-6 weeks regularly, after doing kegel exercises regularly, there will be a decrease in the frequency of urination”, kegel exercises will provide good control of the bladder even though it takes time and patience [6].

Another research also mentioned the results on the use of cellular applications more effectively and clinically relevant for women who experience stress incontinence The application can also improve adherence to pelvic floor muscle training [15]. Other studies suggest application smartphone simple significantly increases physical activity for eight weeks in the primary care population [19]. The result are evidenced by experimental studies conducted in Undaan Lor Village, Kudus Regency. There is an influence of kegel exercise on decreasing urinary incontinence in the elderly [23].

5. Conclusion

There are a statistical influence from based kegel exercises smartphones on the frequency of urinating the elderly.

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