Factors Related to Quality of Life in the Older Adults: Urinary Incontinence, Comorbidity and Polypharmacy

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Abstract

Aim: Urinary incontinence (UI) is a health problem that has a significant impact on the quality of life of older adults, especially in the presence of comorbidity and polypharmacy, which tend to increase with age. This study aims to investigate the influence of UI, comorbidity and polypharmacy on quality of life in older adults.

Method: This descriptive and correlational study was conducted with 328 older adults between November 2020-June 2021. The data collection tools consisted of a "Personal Information Form" and Quality of Life Scale in older adults. Descriptive statistics, two-way analysis of variance and binary logistic analysis were used to evaluate the data. The significance level was accepted as $p<0.05$.

Results: The prevalence of urinary incontinence in older adults was 46.6%. Female gender (OR: 0.54) and accepting urinary incontinence as a health problem (OR: 3.11) were found to be risk factors for urinary incontinence in older adults ($p<0.05$). For quality of life, the main effect of the urinary incontinence variable ($p<0.001$) and the main effect of the polypharmacy variable ($p<0.05$) were found to be statistically significant. The comorbidity*polypharmacy variable also has an effect on quality of life ($p<0.05$).

Conclusions: According to the findings of this study, approximately one in two older adults experiences urinary incontinence. This condition is more prevalent among older women and among individuals who perceive urinary incontinence as a significant health issue. Both urinary incontinence and polypharmacy have a negative impact on quality of life, with urinary incontinence exerting a greater detrimental effect. Furthermore, the coexistence of comorbidities and polypharmacy is also associated with a decline in quality of life.

Keywords: Urinary incontinence, older adults, comorbidity, polypharmacy, quality of life.

Yaşlılarda Yaşam Kalitesi ile İlişkili Faktörler: Üriner İnkontinans, Komorbidite, Polifarmasi

Öz

Amaç: Üriner inkontinans (UI), özellikle yaşla birlikte artma eğiliminde olan komorbidite ve polifarmasi varlığında yaşlı yetişkinlerin yaşam kalitesi üzerinde önemli bir etkiye sahip olan bir sağlık sorunudur. Bu çalışmada, üriner inkontinans, komorbidite ve polifarmasinin yaşlılarda yaşam kalitesi üzerindeki etkisini araştırmayı amaçlamaktadır.

Yöntem: Bu çalışma tanımlayıcı ve ilişki arayıcı araştırma türünde 328 yaşlı ile yapılmıştır. Veri toplama formu olarak, "Kişisel Soru Formu" ve "Yaşlı Yaşam Kalitesi Ölçeği" kullanılmıştır. Verilerin değerlendirilmesinde tanımlayıcı istatistikler, iki yönlü varyans analizi ve binary logistic regresyon analizi kullanılmıştır. Anlamlılık düzeyi p<0,05 olarak kabul edilmiştir.

Bulgular: Yaşlılarda üriner inkontinans sıklığı %46,6'dır. Yaşlılarda üriner inkontinans risk faktörü olarak kadın cinsiyeti (OR:0,54) ve üriner inkontinansı sağlık sorunu olarak kabul etme (OR:3,11)

Özgün Araştırma Makalesi (Original Research Article)
Geliş / Received: 10.09.2024 & **Kabul / Accepted:** 28.07.2025
DOI: https://doi.org/10.38079/igusabder.1546274
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ETHICAL STATEMENT: To conduct the research, ethics committee approval was obtained from Ondokuz Mayıs University Social and Humanities Ethics Committee (no: 2020-793, date of acceptance: 27.11.2020).

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bulunmuştur(p<0,05). Yaşam kalitesi üzerine, üriner inkontinans değişkenine ilişkin ana etki (p<0,001) ve polifarmasi değişkenine ait ana etki (p<0,05) istatistiksel olarak anlamlı bulunmuştur. Komorbidite* polifarmasi değişkeni de yaşam kalitesi üzerinde etki oluşturmaktadır (p<0,05).

Sonuç: Bu çalışma sonuçlarına göre yaklaşık her iki yaşlıdan biri üriner inkontinans yaşamaktadır. Kadın yaşlılarda ve üriner inkontinansı sağlık sorunu olarak kabul eden yaşlılarda üriner inkoninans daha fazladır. Üriner inkontinans ve polifarmasi yaşam kalitesini olumsuz etkilemektedir. Üriner inkontinansın yaşam kalitesini olumsuz etkileme durumu polifarmsiden daha fazladır. Ayrıca komorbidite ve polifarmasinin bir arada olması da yaşam kalitesini olumsuz etkilemektedir.

Anahtar Sözcükler: Üriner inkontinans, yaşlı, komorbidite, polifarmasi, yaşam kalitesi.

Introduction

The incidence of UI, defined as involuntary urine leakage, increases with age[1-3]. Prevalence varies by definition and setting, but ranges from an average of 37.1% to 46.8% (56.3% women and 35% men) in rural areas, and may affect up to 80% of frail older adults[4-6].

Many risk factors cause UI, such as age, gender, obesity, menopause, smoking, chronic cough, type of birth, etc.[2,7]. With aging, the weakening of bladder capacity, the ability to delay urination, and bladder contractions cause UI[6,8]. In addition, one of the risk factors that increases the frequency of UI in old age is comorbidity, which is the coexistence of many chronic diseases[9,10]. It is stated that comorbidities affecting the neurological and cardiovascular systems are closely related to UI[10].

Comorbidities can lead to polypharmacy[11]. Comorbidities increase the frequency of UI both with the physiological and neurological effects they cause and with polypharmacy[9]. Polypharmacy, defined as taking more than five medicines a day, is a significant risk factor for UI[12-14]. Various drug classes that affect the central nervous system (benzodiazepines, antidepressants, antipsychotics, and opioids) have important effects on the development of UI[15-18].

UI is a social, emotional, hygienic, and medical problem. UI restricts the physical and social life of older adults and decreases their quality of life (QoL) significantly[19-21]. Comorbidity and polypharmacy increase the frequency of UI, but also reduce QoL. Separate studies of comorbidity[22] and polypharmacy[12,23,24] have found that UI has a negative impact on QoL. It is known that the frequency of chronic diseases, polypharmacy, and UI increases with increasing age. It is also stated that all these variables decrease the QoL. While the older adult population is rising rapidly in the world, studies examining the effects of comorbidity, polypharmacy, and UI on QoL in old age should be conducted in order to plan studies to improve the QoL of these individuals. No study has been found in the literature examining the frequency of UI, comorbidity, and the effects of polypharmacy on QoL[23,24]. Therefore, this study aims to examine the effects of UI, comorbidity, and polypharmacy on the QoL in older adults.

Material and Methods

This paper follows the reporting guidelines outlined in “STROBE - Cross-Sectional Studies”.

Study design: This research is cross-sectional.

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Research Question: HOW do UI, comorbidity, and polypharmacy affect the QoL in older adults?

Setting

This study was conducted with 328 older adults in the central district of a province in the north of Turkey between November 2020 and June 2021. Due to the Covid-19 pandemic, data was collected online using the snowball sampling method. The inclusion criteria for the study include living in these regions, being over 65 years of age, using a smartphone, using the WhatsApp application, knowing how to read and write, and agreeing to participate in the research. In the power analysis made using the G*Power 3.1 program and the average score of the quality-of-life scale in the older adults (15.96±7.73), the sample size of the study was determined as 268 using the data such as 95% power, Type 1 error 0.05, and 0.20 effect level[25].

The dependent variable is the QoL, and the independent variables are the socio-demographic characteristics of the older adults with UI, polypharmacy, and comorbidity.

Data Collection

Data were collected using a questionnaire form developed by the researchers based on the literature and the QoL Scale for older adults.

Questionnaire form: The questionnaire includes questions examining age, gender, education, marital status, family income, UI characteristics, disease status, and their use of medication.

Quality of Life Scale in Older People (CASP-19): The CASP-19 scale was developed by Hyde et al. in 2003 to measure the QoL of older adults and was adapted into Turkish by Türkoğlu and Adıbelli in 2014[26]. Each item of the scale is scored as 0 "never", 1 "not often", 2 "sometimes", and 3 "often". Items 1, 2, and 4 are reverse-coded. An increase in the total score indicates that the quality of life increases. In this study, the mean score of the scale is 21.01±7.79 (0-39), and Cronbach's alpha is 0.88.

Ethical Statement

To conduct the research, ethics committee approval was obtained from Ondokuz Mayıs University Social and Humanities Ethics Committee (no: 2020-793, date of acceptance: 27.11.2020). Participants agreed to participate in the study before starting the study. The study adhered to the Declaration of Helsinki (2013) in all its phases.

Data Analysis

The data were analyzed in the IBM SPSS v23 package program (Chicago, USA). Number of units (n), percentage (%), mean±standard deviation (mean (SD) values were used as summary statistics. The normal distribution of the data was evaluated by the Kolmogorov-Smirnov test. In the evaluation of the data, the effect of UI, polypharmacy, and comorbidity variables on QoL was examined by two-way analysis of variance along with descriptive statistics. Multiple comparisons were evaluated with Bonferroni correction. Associations between independent variables and prevalence were analyzed using univariate/multivariate generalized estimating equation (GEE) binary logistic analysis; the odds ratio (OR) and its 95% confidence interval (CI) were also reported. The significance level was accepted as $p<0.05$.

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Research Limitations

This research was conducted online with older adults living in the research area and using smartphones and WhatsApp due to the limitations experienced during the Covid-19 pandemic. Therefore, the research results are limited to the participants who participated in the study.

Results

The average age of participants is 70.14±4.33. 62.5% are female, 30.5% have completed primary school education, and 13.1% have completed higher education. 76.2% of participants are married, and 68% have a middle-level economic status. The frequency of UI in participants is 46.6%. When looking at the type of UI, it was determined that 41.8% were stress urinary incontinence and 41.8% were urge urinary incontinence. 19.6% of participants applied to a health institution due to UI and 86.9% accept UI as a health problem. 73.2% of participants have chronic diseases, 29.6% have comorbidities, and 30.8% have polypharmacy. 66.2% of them use medications constantly, 89.4% know how to use their medications, and 18.9% use medications other than those recommended by the doctor (Table 1).

Table 1. Factors associated with participants' UI and health problems

	X±SS(min-max)	
Age	70.14±4.33(65-79)	
Gender	**n**	**%**
Female	205	62.5
Male	123	37.5
Education status		
Illiterate	122	37.2
Primary school	100	30.5
Middle school	29	8.8
High school	34	10.4
Higher education and above	43	13.1
Marital status		
Married	250	76.2
Single	78	23.8
Economic level		
Good	56	17.1
Medium	223	68
Bad	49	14.9
Urinary incontinence		
Yes	153	46.6
No	175	53.4
Urinary incontinence type (n=153)		
Stress	64	41.8

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Urge	64	41.8
Mix	25	16.4
Applying to a health institution (n=153)		
Yes	30	19.6
No	123	80.4
Accepting urinary incontinence as a health problem		
Yes	285	86.9
No	43	13.1
Having a chronic disease		
Yes	240	73.2
No	88	26.8
Having a comorbidity		
Yes	97	29.6
No	231	70.4
Polypharmacy		
Yes	101	30.8
No	227	69.2
Continuous medication use		
Yes	217	66.2
No	111	33.8
Knowing how to use medications (n=217)		
Yes	194	89.4
No	23	10.6
Using medication other than the one recommended by the doctor		
Yes	62	18.9
No	266	81.1

Gender and acceptance of UI as a health problem were independent risk factors for UI. In multivariate analysis, UI was 0.54 times more common in female older adults than male older adults (p = 0.016). Likewise, the incidence of UI was found to be 3.11 times higher in older adults who considered UI as a health problem (p=0.004). Other variables were not found to be significant (p<0.01) (Table 2).

Table 2. Risk factors for UI in older adults

	Univariate		**Multivariate**	
	OR(%95 CI)	**p**	**OR(%95 CI)**	**p**
Gender				
Female	0.52(0.33-0.82)	**0.005****	0.54(0.33-0.90)	**0.016****
Male	Reference		Reference	
Educational Status				
Illiterate	0.57(0.28-1.17)	0.573	1.05(0.46-2.42)	0.912

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Primary school	0.70(0.33-1.45)	0.696	0.96(0.43-2.13)	0.920
Middle school	0.73(0.28-1.90)	0.729	0.84(0.30-2.36)	0.734
High school	0.67(0.27-1.66)	0.667	0.79(0.30-2.10)	0.635
Higher education and above	Reference		Reference	
Marital status				
Married	1.67(1.00-2.80)	0.049	1.39(0.79-2.44)	0.256
Single	Reference		Reference	
Income status				
Good	2.22(1.02-4.86)	0.046	1.54(0.63-3.81)	0.346
Moderate	1.53(0.82-2.85)	0.185	1.16(0.55-2.43)	0.697
Bad	Reference		Reference	
Family Type				
Nuclear	1.75(1.11-2.76)	**0.017****	1.49(0.87-2.53)	0.143
Extended	Reference		Reference	
Accepting urinary incontinence as a health problem				
Yes	**3.94(1.91-8.13)**	**0<0.001****	**3.11(1.45-6.66)**	**0.004****
No	Reference		Reference	
Having a chronic disease				
Yes	0.61(0.37-1.00)	0.049	0.97(0.54-1.76)	0.918
No	Reference		Reference	
Having a comorbidity				
Yes	0.44(0.27-0.72)	0.001	0.63(0.34-1.16)	0.139
No	Reference		Reference	
Polypharmacy				
Yes	0.50(0.31-0.81)	0.005	0.77(0.41-1.42)	0.396
No	Reference		Reference	
Constant			0.42	0.200

Cox and Snell R^2=0.108; Nagelkerke R^2=0.144; Hosmer and Lemeshow Chi Square=4.814, p=0.777; DS=62%; CI, confidence interval: Ref., reference; UI, urinary incontinence; OR, odds ratio.

The multivariate regression model included variables with $*p < 0.05$ in univariate regression analyses treated as covariates; significance: $**p < 0.05$.

The main effects of experiencing UI, polypharmacy and comorbidity variables on QoL were examined. The main effect regarding the UI variable was found to be statistically significant (p<0.001). Similarly, the main effect of the polypharmacy variable was found to be statistically significant (p<0.05). The effect of the comorbidity *polypharmacy variable was found to be statistically significant (p<0.05). For the UI variable, partial eta squared is 0.045, for the polypharmacy variable in the figure, partial eta squared is 0.029; and for the comorbidity and polypharmacy variable, partial eta squared is 0.022.

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The effect of UI on QoL was found to be higher than polypharmacy and comorbidity *polypharmacy (p<0.05) (Table 3).

Table 3. Effects of urinary incontinence, comorbidity, and polypharmacy variables on QoL

	F	***p***	Partial Eta Squared	R^2
Urinary incontinence	**14.998**	**0.000***	**0.045**	
Comorbidity	0.531	0.467	0.002	
Polypharmacy	**9.501**	**0.002***	**0.029**	0.185
Urinary incontinence* Comorbidity	0.389	0.533	0.001	
Urinary incontinence* Polypharmacy	1.702	0.193	0.005	
Comorbidity* Polypharmacy	**7.121**	**0.008***	**0.022**	
Urinary incontinence* Polypharmacy* Comorbidity	0.197	0.657	0.001	

*p<0.05

Discussion

In this study, the prevalence of UI among older adults was 46.6%. Approximately half of the older adults have UI. In a study conducted among older adults in China, the prevalence of any type of urinary incontinence (UI) was reported as 46.8%[27]. Similarly, a study involving elderly individuals with chronic illnesses living in a nursing home in Spain found a UI prevalence of 76.5%[28]. The literature consistently indicates that the prevalence of UI is higher in populations with chronic conditions, as observed in the present study[29]. Additionally, it has been noted that age-related physiological changes further contribute to the increased incidence of UI in older adults[6,8]. The prevalence of both stress- and urge-type UI in older adults is 41.8%. In the study of Alshammari et al. it was determined that UI and SUI were the two most common types of UI in older adults. The prevalence of MUI was 41.03% in female older adults and 13.04% in male older adults, while the prevalence of SUI was 25.64% in female older adults and 23.91% in male older adults[20].

Female gender is a risk factor for UI in older adults. Studies have shown that the frequency of UI is higher in women, especially in the post-menopausal period[20,30]. The effect of changes that occur with aging in women may also cause them to experience UI more frequently than men. However, women's gynecological history, fertility history and intervention in their births, and the fact that genital infections, prolapse, etc., are more common in women may increase the risk of incontinence compared to men[2,31]. Studies have reported that UI negatively affects the QoL[20,21]. Therefore, the QoL in older women who experience UI may be more negatively affected than in men.

UI is more common in older adults who consider UI as a health problem. Being aware of a health condition positively affects accepting that health condition as a problem and seeking help for its solution[32]. Therefore, in this study, the fact that older adults accept UI as a health problem indicates that their awareness of this condition is high. This

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situation is thought to be a factor that can positively affect coping with UI. One limitation of this study is that it was conducted with older adults who can use smartphones and can be reached via social media. This group's acceptance of UI as a health problem may have been higher than that of other disadvantaged older adults. There is a need to analyze acceptance and experience of UI as a health problem through further studies.

UI has the most impact on QoL in older adults ($p<0.001$), producing negative effects[19-21,33]. that include physical, social and psychological limitations in the lives of the older adults. This study found polypharmacy to negatively affect QoL. ($p<0.05$). Purchase et al. (2022) determined that polypharmacy negatively affects the QoL[34]. Additionally, the coexistence of comorbidity and polypharmacy reduced the QoL ($p<0.05$). In the study by Van Wilder et al. (2022), it was found that the quality of life among older adults with comorbidity and polypharmacy was significantly lower[14]. Similarly, other studies have shown that polypharmacy negatively impacts the quality of life in the elderly[35,36]. The symptoms associated with chronic diseases can affect older adults both physically and psychologically, leading to various limitations in daily life[37,38]. Furthermore, the increasing number of medications prescribed for managing chronic conditions can make it challenging for older adults to adhere to proper timing and dosage schedules[39]. Difficulty in managing these medications may lead to poorer disease control, further deteriorating quality of life.

Conclusion and Recommendations

This study found that one in every two older adults has UI, and the incidence of UI is higher in older adults who are women and who accept UI as a health problem. UI and polypharmacy negatively impact QoL, though UI negatively affects QoL more than polypharmacy. The coexistence of comorbidity and polypharmacy also negatively impacts QoL. The study was conducted with the older adults during the pandemic and within online access parameters. Conducting similar studies with older adults of different education levels and residential demographics is recommended. Nurses and physicians who provide healthcare services to older adults should not ignore the problem of UI. Geriatric and public health nurses should assess urinary incontinence (UI) status when evaluating older adult patients and consider quality of life (QoL) in relation to polypharmacy and comorbidities. Nurses are encouraged to educate older individuals on the management of UI through strategies such as Kegel exercises, fluid intake regulation, and bladder training. Additionally, they should provide guidance on the importance of chronic disease management, including appropriate medication timing and dosage. It is also recommended that physicians consider existing medication regimens when prescribing additional medications to older adults to avoid complications related to polypharmacy.

Conflict of interest: No conflict of interest was declared by the authors

REFERENCES

1. D'Ancona C, Haylen B, Oelke M, et al. The International Continence Society (ICS) report on the terminology for adult male lower urinary tract and pelvic floor symptoms and dysfunction. *Neurourol Urodyn*. 2019;38:433–77.

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2. Pang H, Lv J, Xu T, et al. Incidence and risk factors of female urinary incontinence: A 4-year longitudinal study among 24 985 adult women in China. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2022;129(4):580-589.

3. Ahmadi B, Alimohammadian M, Golestan B, et al. The hidden epidemic of urinary incon-tinence in women: A population-based study with emphasis onpreventive strategies. *Int Urogynecol J*. 2010;21(4):453-459

4. Batmani S, Jalali R, Mohammadi M. et al. Prevalence and factors related to urinary incontinence in older adults women worldwide: A comprehensive systematic review and meta-analysis of observational studies. *BMC Geriatr*. 2021;21:212.

5. Luo Y, Zou P, Wang K, et al. Prevalence and risk factors of urinary incontinence among elderly adults in rural China: A cross-sectional survey. *Journal of Wound, Ostomy and Continence Nursing*. 2022;49(1):78-86.

6. Aly WW, Sweed HS, Mossad NA, et al. Prevalence and risk factors of urinary incontinence in frail elderly females. *Journal of Aging Research*. 2020;(1):2425945.

7. Daneshpajooh A, Naghibzadeh-Tahami A, Najafipour H, et al. Prevalence and risk factors of urinary incontinence among Iranian women. *Neurourology and Urodynamics*. 2021;40(2):642-652.

8. Gibson W, Johnson T, Kirschner-Hermanns R, et al. Incontinence in frail elderly persons: Report of the 6th International Consultation on Incontinence. *Neurourology and Urodynamics*. 2021;40(1):38-54.

9. Talasz H, Lechleitner M. Polypharmacy and incontinence. *Zeitschrift für Gerontologie und Geriatrie*. 2012;45(6):464-467.

10. Scharp D, Harkins SE, Topaz M. Comorbidities of community-dwelling older adults with urinary incontinence: A scoping review. *Geriatric Nursing*. 2023;53:280-294.

11. Menditto E, Gimeno Miguel A, Moreno Juste A, et al. Patterns of multimorbidity and polypharmacy in young and adult population: Systematic associations among chronic diseases and drugs using factor analysis. *PLoS One*. 2019;14(2):e0210701.

12. Küçükdağlı P. Polypharmacy and related factors in geriatric outpatients. *European Journal of Geriatrics and Gerentology*. 2019;1(2):56-60.

13. Gutiérrez-Valencia M, Herce PA, Lacalle-Fabo E, et al. Prevalence of polypharmacy and associated factors in older adults in Spain: Data from the National Health Survey 2017. *Medicina Clínica*. 2019;153(4):141-150.

14. Van Wilder L, Devleesschauwer B, Clays E, et al. Peer reviewed: polypharmacy and health-related quality of life/psychological distress among patients with chronic disease. *Preventing Chronic Disease*. 2022;19:E50.

15. Landi F, Cesari M, Russo A, et al. Benzodiazepines and the risk of urinary incontinence in frail older persons living in the community. *Clinical Pharmacology & Therapeutics*. 2002;72(6):729-734

16. Fritel X, Tsegan YE, Pierre F, et al. Association of postpartum depressive symptoms and urinary incontinence: A cohort study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2016;198:62-67.

17. Felde G, Engeland A, Hunskaar S. Urinary incontinence associated with anxiety and depression: The impact of psychotropic drugs in a cross-sectional study from the Norwegian HUNT study. *BMC Psychiatry*. 2020;20:1-10.

18. Ruby CM, Hanlon JT, Boudreau RM, et al. The effect of medication use on urinary incontinence in community-dwelling elderly women. *Journal of the American Geriatrics Society*. 2010;58(9):1715-1720.

19. Murukesu RR, Singh DK, Shahar S. Urinary incontinence among urban and rural community dwelling older women: Prevalence, risk factors and quality of life. *BMC Public Health*. 2019;19(4):1-11.

20. Alshammari S, Alyahya MA, Allhidan RS, et al. Effect of urinary incontinence on the quality of life of older adults in Riyadh: Medical and sociocultural perspectives. *Cureus*. 2020;12(11):e11599.

21. Zhang D, Wang S, Gao L, et al. Analysis of characteristics and quality of life of elderly women with mild to moderate urinary incontinence in community dwellings. *International Journal of Environmental Research and Public Health*. 2022;19(9):5609.

22. Ragins AI, Shan J, Thom DH, et al. Effects of urinary incontinence, comorbidity and race on quality of life outcomes in women. *The Journal of Urology*. 2008;179(2):651-655.

23. Prud'homme G, Alexander L, Orme S. Management of urinary incontinence in frail elderly women. *Obstetrics, Gynaecology & Reproductive Medicine*. 2018;28(2):39-45.

24. Schenker Y, Park SY, Jeong K, et al. Associations between polypharmacy, symptom burden, and quality of life in patients with advanced, life-limiting illness. *Journal of General Internal Medicine*. 2019;34:559-566.

25. Bitek DE, Ulukoca N, Helvacı M. Evde bakım hizmetinden yararlanan engelli yaşlı bireylerin sağlık durumları ve yaşam kalitelerinin değerlendirilmesi. In: *3rd International, 21st National Public Health Congress*; November 26–30, 2019; Antalya, Turkey.

26. Türkoğlu N, Adıbelli D. Yaşlılarda yaşam kalitesi ölçeğinin (CASP-19) Türk toplumuna adaptasyonu. *Akad Geriatri.* 2014;6:98-105.

27. Luo Y, Zou P, Wang K, Li X, Wang J. Prevalence and risk factors of urinary incontinence among elderly adults in rural China: A cross-sectional survey. *Journal of Wound Ostomy & Continence Nursing*. 2022;49(1):78-86.

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28. Jerez-Roig J, Farrés-Godayol P, Yildirim M, et al. Prevalence of urinary incontinence and associated factors in nursing homes: A multicentre cross-sectional study. *BMC Geriatrics*. 2024;24(1):169.

29. Scime NV, Hetherington E, Metcalfe A, et al. Association between chronic conditions and urinary incontinence in females: A cross-sectional study using national survey data. *Canadian Medical Association Open Access Journal*. 2022;10(2):E296-E303.

30. Huang H, Ding G, Li M, et al. Menopause and stress urinary incontinence: The risk factors of stress urinary incontinence in perimenopausal and postmenopausal women. *Journal of Obstetrics and Gynaecology Research*. 2023;49(10):2509-2518.

31. Liu B, Wang L, Huang SS. et al. Prevalence and risk factors of urinary incontinence among Chinese women in Shanghai. *Int J Clin Exp Med*. 2014;7(3):686-96.

32. Siddiqui NY, Ammarell N, Wu JM, et al. Urinary incontinence and health-seeking behavior among white, black, and Latina women. *Female Pelvic Med Reconstr Surg*. 2016;22(5):340-5.

33. Silay K, Akinci S, Ulas A, et al. Occult urinary incontinence in elderly women and its association with geriatric condition. *Eur Rev Med Pharmacol Sci*. 2016;20(3):447-51

34. Purchase T, Trilloe G, Ahmed H, et al. Polypharmacy and smoking as potentially modifiable risk factors associated with symptom severity in men with lower urinary tract symptoms in primary care: Findings from the PriMUS study. *European Urology Focus*. 2022;8(1):8-10.

35. Tegegn HG, Erku DA, Sebsibe G, et al. Medication-related quality of life among Ethiopian elderly patients with polypharmacy: A cross-sectional study in an Ethiopia university hospital. *PloS One*. 2019;14(3):e0214191.

36. Aljeaidi MS, Haaksma ML, Tan EC. Polypharmacy and trajectories of health-related quality of life in older adults: An Australian cohort study. *Quality of Life Research*. 2022;31(9):2663-2671.

37. Chen HM, Chen CM. Factors associated with quality of life among older adults with chronic disease in Taiwan. *International Journal of Gerontology*. 2017;11(1):12-15.

38. Xiao S, Shi L, Dong F, et al. The impact of chronic diseases on psychological distress among the older adults: The mediating and moderating role of activities of daily living and perceived social support. *Aging & Mental Health*. 2022;26(9):1798-1804.

39. İşli F. Yaşlılarda polifarmasi. *Turkey Health Literacy Journal*. 2022;3(3):171-174.

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