


Prevalence and factors associated with urinary incontinence in women farmers

Prevalência e fatores sociados à incontinência urinária em agricultoras

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Abstract

Introduction: Urinary incontinence (UI) is any involuntary loss of urine, exhibiting a relationship with pelvic floor muscle weakness and overload. The physical exertion required of the woman farmer may predispose her to higher frequency of UI. **Objective:** To evaluate the prevalence of UI and associated factors in women farmers. **Methods:** Cross-sectional study, with application of an evaluation form and the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) in women aged between 25 and 50 years old. Women with urinary loss responded to the King's Health Questionnaire (KHQ). Data were collected by individual interview. The data were analyzed by absolute and relative frequency, using the Mann-Whitney test for intergroups and Spearman's Correlation Coefficient to relate the variables, considering $p < 0.05$. **Results:** Two hundred farmers were interviewed, where 52 (26%) reported involuntary urine loss. The incontinent group had a higher number of annual urinary infection (3.23 ± 1.40). Most incontinent women reported escape 1x/week or less (73.08%), in small amounts (82.69%), during stress (57.69%). Quality of life was classified as very good by 59.62%. The intensity of the work was considered strong by 25% of the incontinent women. Only 30.5% of the volunteers were able to define UI and 97.7% considered it not normal. **Conclusion:** The prevalence of UI was equivalent to the average of the female population in general, with urinary infection as an associated factor. The loss occurs mainly to stress, and lack of knowledge can reflect in the identification treatment.

Keywords: Agriculture. Farmers. Urinary incontinence. Women.

Resumo

Introdução: Incontinência urinária (IU) é qualquer perda involuntária de urina, apresentando relação com sobrecarga e fraqueza da musculatura do assoalho pélvico. O esforço físico exigido da mulher agricultora pode predispor à maior frequência de IU.

Objetivo: Avaliar a prevalência e fatores associados à IU em mulheres agricultoras. **Métodos:** Estudo de corte transversal, com aplicação de ficha de avaliação e do International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) em mulheres com idade entre 25 e 50 anos. As mulheres com perda urinária responderam ao King's Health Questionnaire (KHQ). A coleta de dados foi por entrevista individual. Os dados foram analisados por frequência absoluta e relativa, sendo empregado o teste de Mann-Whitney para intergrupos e o coeficiente de correlação de Spearman para relacionar as variáveis, considerando $p < 0,05$.

Resultados: Duzentas mulheres agricultoras foram entrevistadas, das quais 52 (26%) referiram perda involuntária de urina. O grupo incontinente apresentou maior número de infecção urinária anual ($3,23 \pm 1,40$). A maior parte das mulheres incontinentes referiram escape 1x/semana ou menos (73,08%), em pequena quantidade (82,69%) e durante o esforço (57,69%). A qualidade de vida foi classificada como muito boa por 59,62%. A intensidade do trabalho foi considerada forte por 25% das mulheres incontinentes. Apenas 30,5% das voluntárias souberam definir IU e 97,7% consideram não ser normal. **Conclusão:** A prevalência de IU foi equivalente à média da população feminina em geral, tendo a infecção urinária como fator associado. A perda ocorre principalmente por conta de esforços e a falta de conhecimento pode dificultar a identificação e procura por tratamento.

Palavras-chave: Agricultura. Agricultoras. Incontinência urinária. Mulheres.

Introduction

Urinary incontinence (UI) is defined by the International Continence Society (ICS) as any involuntary loss of urine,¹ and may cause psychosocial and economic interference, in addition to affecting quality of life (QoL).² The prevalence of UI in women worldwide varies from 5 to 69%¹ and, in Brazil, between 5.8 and 72%.³ These data consider all types of UI and are likely influenced by methodological, cultural and perceived dysfunction differences.

Its greater prevalence in women is due to their pelvic anatomy, frailty index of the pelvic floor muscles (PFMs),

age-related bladder capacity, and changes associated with parity and pelvic trauma.⁴ Additional risk factors include neurological diseases, diabetes, hypertension, smoking, caffeine consumption, pelvic and abdominal surgery, use of antihypertensive drugs, obesity and constipation.⁵

UI can affect the social, family and work life of women and may be accompanied by comorbidities such as urinary infections, perineal dermatitis, irritation, itching, and loss of libido, among others. This causes embarrassment, sadness, anxiety, depression and marital problems, which has a negative effect on QoL.⁶

Lack of information on UI means that many women do not recognize it as a health problem, but something normal and inherent to aging.⁷ The greater social vulnerability of the rural population and the difficult access of professionals limit the dissemination of health information,⁸ and could increase the frequency of unidentified dysfunctions. Low schooling level may also be a complicating factor in the search for and interpretation of health information. According to the 2017 agricultural sector, approximately 15% of Brazilian farmers have never attended school.⁹

Although UI has a negative influence on the life of women, few seek professional help at the first signs of dysfunction. This is due primarily to embarrassment and lack of knowledge about dysfunction, associated with cultural and family influences.¹⁰

In Brazil, the number of farms where the producer is a woman has risen from 12.7 to 18.6% in recent years.⁹ This indirectly indicates their growing participation in rural activities. Agriculture is one of the most economically important activities in the country and, due to the demand for labor, women carry out both domestic and child care activities and agricultural services on the farm,¹¹ where the excess workload may predispose them to dysfunctions.

Thus, it is important to assess the prevalence of UI and associated factors in women farmers, assuming that the peculiarities of rural work overload PFMs and the lack of information on this dysfunction hinders their seeking treatment.

Methods

This is a cross-sectional study using quantitative analysis conducted in a rural area of the municipality of São José do Cedro, in western Santa Catarina state. The

project was approved by the ethics committee (protocol no. 4.250.511) and the procedures complied with the human research guidelines of National Health Council Resolution no. 466/2012.

The sample consisted of 200 women farmers aged between 25 and 50 years, working on a rural property for at least 8 hours a day, who perceived no changes in their menstrual cycle and were not pregnant. For sample selection, information was obtained from community health agents. Data were collected at the home of the selected women in order to prevent the need to travel from being a hindering factor. Individual interviews were held without the presence of any other family member, as follows:

a) Assessment chart: consisting of personal data, height, weight, general health information, urogynecological history, work routine on the farm and knowledge of UI.

b) International Consultation on Incontinence Questionnaire - short form (ICIQ-SF): Portuguese version consisting of three questions on the frequency and volume of urinary loss and their interference in QoL. The final score is the sum of the points of each question, classifying UI as mild (1 - 3 points), moderate (4 - 6 points), severe (7 - 9 points) and very severe (≥ 10 points).¹²

c) Health questionnaire (Portuguese version of King's Health Questionnaire - KHQ): applied only to women reporting urinary escape. This questionnaire measures the impact of UI on health status and QoL, and contains 30 questions and 9 domains (health perception, impact of UI, limited task performance, physical limitations, social limitations, personal relationships, emotions, sleep/energy and measures of severity). A numerical value is assigned to each response and the sum varies from 0 to 100, considering that the higher the number obtained, the worse the QoL. A Likert-type scale was used to classify QoL as very good (0 - 20 points), good (21 - 40 points), fair (41 - 60 points), poor (61 - 80 points) or very poor (81 - 100 points).¹³

Statistical analysis

The data were analyzed by absolute and relative frequency, dividing the sample into two groups: continent (CG) and incontinent (IG). The Mann-Whitney test was used for intergroup comparison and Spearman's correlation coefficient to relate the factors with the presence of UI. All the tests were processed in Bioestat 5.0 software, considering $p < 0.05$.

Results

Involuntary urine loss was reported by 52 women farmers (26%). Table 1 presents the sample characteristics. No intergroup differences were observed in age and anthropometric variables.

Table 1 - Sample characterization

	CG	IG	p
Age (years)			
25 - 30	26.81 \pm 2.00	27.72 \pm 1.80	0.08
31 - 39	35.06 \pm 2.50	35.0 \pm 2.42	0.49
40 - 50	45.16 \pm 3.31	46.07 \pm 3.40	0.11
Weight (kg)	70.25 \pm 12.60 (42 - 119)	73.23 \pm 16.20 (48 - 123)	0.13
Height (meters)	1.62 \pm 0.10 (1.49 - 1.82)	1.61 \pm 0.10 (1.49 - 1.72)	0.50
BMI (kg/m²)	26.64 \pm 4.60 (18.13 - 43.71)	28.07 \pm 6.10 (18.37 - 50.54)	0.09
Marital status			
Single	12 (8.11%)	4 (7.69%)	0.48
Married	133 (89.86%)	47 (90.38%)	
Divorced	2 (1.35%)	1 (1.92%)	
Widow	1 (0.68%)	0 (0%)	
Schooling			
IES	53 (35.81%)	22 (42.31%)	0.21
CES	17 (11.49%)	7 (13.46%)	
ISS	11 (7.43%)	3 (5.77%)	
CSS	54 (36.49%)	19 (36.54%)	
IUD	3 (2.03%)	0 (0%)	
CUD	5 (3.38%)	1 (1.92%)	
GD	4 (2.70%)	0 (0%)	
NS	1 (0.68%)	0 (0%)	
Number of pregnancies	2.18 \pm 1.02 (1 - 6)	2.67 \pm 1.55 (1 - 10)	0.07
Nulliparous	19 (12.84%)	6 (11.54%)	0.47
Hypertension	12 (8.11%)	7 (13.46%)	0.31
Depression	7 (4.73%)	5 (9.62%)	0.28
Anxiety	5 (3.38%)	4 (7.69%)	0.31
Physical exercise	29 (19.59%)	5 (9.62%)	0.16
Healthy eating habits	66 (44.59%)	22 (42.31%)	0.47

Note: CG = continent group (n = 148); IG = incontinent group (n = 52). BMI = body mass index; IES/CES = incomplete/complete elementary school; ISS/ICSS = incomplete/complete secondary school; IUD/CUD = incomplete/complete university degree; GD = graduate degree; NS = no schooling.

With respect to schooling level, 42.31% of the IG and 35.81% of the CG have incomplete elementary school, with most only completing grade four.

The number of pregnancies did not differ between the groups. The IG exhibited more comorbidities with continuous treatment (40.38%), the most common being hypertension (13.46%), depression (9.62%) and anxiety (7.69%). The CG engaged in regular physical exercises

(19.59%) and healthy eating habits (44.59%) with greater frequency than the IG.

Table 2 shows that both groups work an average of 10 hours a day on agricultural activities, with 55.77% of the IG classifying work intensity as moderate and 25% as high. In the CG, 67.57% consider it moderate and 13.51% high. More than 60% of women farmers, irrespective of group, report carrying loads of 15 kg or more for approximately one hour.

Table 2 - Characterization of the work and urogynecological history of women farmers

	Continent group (n = 148)	Incontinent group (n = 52)	p
Hours/day worked	10.34 ± 1.62 (8 - 12)	10.31 ± 1.74 (8 - 12)	0.49
Work intensity			
Mild	27 (18.24%)	9 (17.31%)	0.10
Moderate	100 (67.57%)	29 (55.77%)	
High	20 (13.51%)	13 (25.00%)	
Very high	1 (0.68%)	1 (1.92%)	
Most frequent position			
Sitting	4 (2.70%)	1 (1.92%)	0.38
Standing	20 (13.51%)	9 (17.31%)	
Walking	124 (83.78%)	42 (80.77%)	
Time in the same position (hours)	4.78 ± 1.58 (1 - 8)	4.65 ± 1.80 (1 - 8)	0.40
Load carried per day at one time (kg)			
0 - 5	56 (37.84%)	17 (32.69%)	0.35
5 - 10	1 (0.68%)	2 (3.85%)	
10 - 15	2 (1.35%)	1 (1.92%)	
> 15	89 (60.14%)	32 (61.54%)	
Time carrying weight per day (hours)			
1	124 (83.78%)	41 (78.85%)	0.31
1 - 2	21 (14.19%)	9 (17.31%)	
3 - 4	3 (2.03%)	1 (1.92%)	
4 - 5	0 (0%)	1 (1.92%)	
Activities on the property			
Domestic tasks	148 (100%)	52 (100%)	0.31
Milking cows	123 (83.11%)	45 (86.54%)	
Vegetable gardening	85 (57.43%)	40 (76.92%)	
Landscaping	14 (9.46%)	6 (11.54%)	
Cheese production	1 (0.68%)	1 (1.92%)	
Milking parlor infrastructure (n = 168)			
Bucket	72 (58.54%)	32 (71.11%)	0.06
Trench	51 (41.46%)	13 (28.89%)	
Knows what urinary incontinence is	44 (29.73%)	17 (32.69%)	0.37
Thinks urinary incontinence is normal	1 (1.92%)	1 (0.68%)	0.45
Daily urinations	6.28 ± 2.46 (2 - 20)	7.15 ± 3.87 (2 - 20)	0.19
Nighttime urinations	0.51 ± 0.69 (0 - 3)	0.75 ± 0.97 (0 - 4)	0.11
Constipation	25 (16.89%)	8 (15.38%)	0.43
Number of pregnancies	2.05 ± 0.95 (1 - 6)	2.37 ± 1.02 (1 - 6)	0.12
Type of delivery			
Vaginal	42 (32.56%)	17 (36.56%)	0.23
Cesarean	61 (47.29%)	23 (50.00%)	
Vaginal and cesarean	26 (20.16%)	6 (13.04%)	
Vaginal with episiotomy	61 (49.59%)	19 (41.30%)	
Vaginal with forceps	8 (6.50%)	0 (0%)	
Frequent urinary infection	7 (4.73%)	13 (25.00%)	
Number of urinary infections/year	2.14 ± 0.90 (0 - 3)	3.23 ± 1.42 (0 - 6)	0.01
Gynecological surgery	18 (12.16%)	12 (23.08%)	0.09
Tubal ligation	7 (4.72%)	5 (9.62%)	0.25
Uterine surgery	4 (2.70%)	4 (7.70%)	0.37
Ovary removal	7 (4.72%)	3 (5.77%)	0.42
Endometriosis	1 (0.68%)	2 (3.85%)	0.21

Regardless of the group, more than 80% of women walked continuously on average for four hours, and the main activities performed involved milking and vegetable gardens, in addition to domestic tasks. A total of 71.11% of women farmers from the IG who work with milk production use a "bucket system", where the person squats to connect the milking machine, and 28.89% a "trench" system where they remain standing during the procedure. In the CG, 58.54% use the former system and 41.46% the latter. Women also help treat animals and work in the fields building fences, and planting cassava, potato, onion, beans, maize and soybean.

When asked to define UI, 61 (30.5%) of the women answered "loss of urine", "being unable to hold back urine", "when urine escapes", and most (97.7%) considered involuntary urine loss abnormal. Only two (3.84%) of the 52 incontinent women reported dysfunction to their doctor and are waiting for surgery.

The frequency of constipation, as well as the number of urinations and deliveries did not differ between the groups. Cesarean section was the most commonly performed delivery in the IG (50%), followed by vaginal delivery with episiotomy (41.30%); in the CG, the greatest frequency was vaginal delivery with episiotomy (49.59%), followed by cesarean section (47.29%).

The IG women reported higher frequency of urinary infections (25%) and more episodes per year (3.23 \pm 1.42). Although not significant, the frequency of gynecological surgeries was higher in the IG (23.08%) than the CG (12.16%), as well as the presence of endometriosis (3.85%).

With respect to ICIQ-SF data, most of the incontinent women experienced a small amount (82.69%) of urinary loss 1x/week or less (73.08%), and more prevalent in activities such as coughing, sneezing, lifting heavy weight and physical activity, classified as stress incontinence (SI) (57.69%), followed by mixed UI (MUI) (26.92%), which are exertion losses and those in situations of a sudden strong urge to urinate, where leaks occur before reaching the bathroom, typical of urge urinary incontinence (UI), whose prevalence was 15.38%. In relation to the impact of UI on the QoL of incontinent women assessed by the ICIQ-SF, 15.38% reported low interference (score = 2), 38% medium (score = 5) and 13.46% high (score = 8). With respect to severity, 9.59% of the incontinent women were classified as mild, 25% moderate, 34.62% severe and 30.77% very severe (Table 3).

Table 3 - Absolute and relative frequency of the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) responses given by the incontinent women farmers (n = 52)

Questions	n (%)
Frequency of urinary loss	
1 x/week or less	38 (73.08)
2 - 3 x/week	7 (13.46)
1 x/day	2 (3.85)
Several times a day	5 (9.62)
Amount of urinary loss	
Small	43 (82.69)
Moderate	7 (13.46)
Large	2 (3.85)
Impact of urinary incontinence	
0 (little interference)	5 (9.62)
1	1 (1.92)
2	8 (15.38)
3	5 (9.62)
4	6 (11.54)
5	8 (15.38)
6	2 (3.85)
7	4 (7.69)
8	7 (13.46)
9	3 (5.77)
10 (high interference)	3 (5.77)
Urinary incontinence score	
Mild (1 - 3)	5 (9.52)
Moderate (4 - 5)	13 (25.00)
Severe (6 - 9)	18 (34.62)
Very severe (> 10)	16 (30.77)
Classification of urinary incontinence	
Before reaching the bathroom (urge)	8 (15.38)
Coughing/sneezing/physical activity (stress)	30 (57.69)
Mixed (urge and stress)	14 (26.92)

Table 4 presents the KHQ result, where 59.62% of the incontinent women obtained a QoL classification of very good, 25% good and 15.38% fair.

Table 5 shows that UI exhibited a weak positive correlation with urinary infection, indicating urinary infection frequency as a predisposing factor for UI in this population. In addition, there was a strong negative correlation between UI severity and QoL, underscoring the negative impact of UI. The variables related to the women farmers' work showed no correlation with UI.

Table 4 - Absolute and relative classification of the quality of life of incontinent women farmers (n = 52), obtained by King's Health Questionnaire

King's Health Questionnaire	
Very good (80-100 points)	31 (59.62%)
Good (60-80 points)	13 (25.00%)
Fair (40-60 points)	8 (15.38%)
Poor (20-40 points)	0 (0%)
Very poor (0-20 points)	0 (0%)

Table 5 - Correlation between the presence of UI and the other health variables of incontinent women farmers (n = 52) and the ICIQ-SF and KHQ questionnaires

Variables	rs	P
UI x Urinary infection	0.32	0.001
ICIQ-SF x KHQ	-0.84	0.001
UI x Work intensity	0.09	0.164
UI x Hours worked	-0.007	0.923
UI x Weight carried	0.02	0.742
UI x Physical exercise	-0.10	0.142
UI x Milking parlor infrastructure	0.18	0.214

Note: UI = urinary incontinence; ICIQ-SF = International Consultation on Incontinence Questionnaire - Short Form. KHQ = King's Health Questionnaire; rs = Spearman's correlation coefficient.

Discussion

The present study showed 26% prevalence of UI in female farmers aged between 25 and 50 years. Urine loss occurred in situations that characterized SI (57.69%) and MUI (26.9%). These results are similar to those described below from other countries, since no Brazilian studies were found on UI prevalence in the rural population.

According to Biswas et al.,¹⁴ the prevalence of UI in a study carried out with 177 women aged 50 years and older, treated at a rural health unit in Western Bengala, India, was 27.7%, the most common being SI (51%), followed by MUI (32.7%) and UUI (16.3%). The authors concluded that female farmers exhibit high risk of developing UI, since most did not seek treatment for the dysfunction, which is a reason for concern. The authors reported that awareness of UI may help increase the search for better health conditions and QoL. It is important to note that although the maximum age in the

present study was 50 years, prevalence was similar to that of Biswas et al.,¹⁴ which demonstrates the development of UI in younger women and the importance of early identification of the dysfunction.

Ganapathy⁶ conducted a study with 611 women aged 19 years and older living in rural Bangalore, India, and found 23.08% with UI. Most (54.61%) exhibited SI, followed by MUI (27.66%) and UUI (17.73%), being more common in those older than 40 years (59.57%).

The increase in UI with age is generally related to a decrease in hormone levels, decline in bladder contractility and progressive loss of pelvic floor muscle strength, thus reducing their capacity to maintain intraurethral pressure during bladder filling, leading to involuntary urinary loss, especially during exertion.¹⁵ Age is a known risk factor for UI, but this was not observed in the present study.

The lower prevalence of healthy eating habits and greater frequency of depression and anxiety found in the IG reveals the influence of these factors. Maintaining a healthy eating routine has numerous benefits for health, including the prevention of possible diseases.¹⁶ Regular physical exercise improves mood and well-being, reduces anxiety and stress, enhances physical disposition and improves the functioning of body systems.¹⁷ In a study by Melotti,¹⁸ where 274 women diagnosed with UI, moderate or severe depression or anxiety was present in 59.8% of the women and moderate or severe anxiety in 62.4%. The study showed a significant correlation between UI and mental disorders.

Lamerton et al.¹⁹ assessed the responses of 8457 women aged between 22 and 27 years using an online questionnaire, identifying UI prevalence of 11.7%, relating it to factors such as higher weight, lower physical activity level and greater psychological suffering. The authors emphasize the strong relationship between UI and psychological changes, indicating the possible bidirectional association between dysfunctions that can be explained by the decline in serotonin levels and/or increased activation of the hypothalamus-hypophysis axis or the sympathetic nervous system.

With respect to the BMI of the present study, the average values of the two groups classified them as overweight. A Swedish study found an increased UI risk in obese women, with results more than twice as high when compared to those with normal BMI.²⁰ The authors report that accumulated abdominal fat can increase intra-abdominal pressure transmitted to the

bladder, facilitating urinary loss.^{21,22} Increased weight in the waist/hip region may compromise MAP contraction capacity in situations of higher intra-abdominal pressure, hindering its contribution to an effective urethra closure mechanism and favoring escape.²³ However, despite the high BMI, the female farmers walked continuously during most of their work activities, and given the non-significant intergroup difference in BMI, it is suggested that movement may be a compensating factor.

In light of the increased life expectancy, obesity, depression and anxiety indices²² and the relationship between these conditions and UI, there is an urgent need to discuss these factors in health education, since even a small urinary loss affects daily habits, such as a decline in physical activity, the use of a protector and sleep disturbances caused by rising several times to use the bathroom, aggravating factors in weight gain and psychological suffering.¹⁹

In addition to the aforementioned comorbidities, hypertension was also more frequent in the IG. Recent studies indicate this comorbidity as a significant risk factor for UI.^{14,22,24} On the other hand, neither diabetes mellitus^{14,22} nor chronic cough^{14,23,24} was observed in the study population, comorbidities strongly related to UI in earlier studies. The association between UI and different comorbidities demonstrates the need for more investigations aimed at establishing the cause-and-effect relationships that allow early, more assertive interventions.

Masenga et al.²⁵ investigated the prevalence of UI in 1048 women from the rural zone of Kilimanjaro, Tanzania, aged between 18 and 90 years, and found that 42.1% of the women interviewed exhibited some type of UI: 39% with symptoms of SI, 22 % UUI and 39% MUI. The study also found that women with no formal education were more prone to developing UI. In the present study, most of the women had not completed elementary school.

The studies conducted by Casey et al.²⁶ and Demircan et al.²⁷ confirmed that older women living in rural areas in Asia had a more vulnerable socioeconomic situation and poorer living conditions, little accessibility to health services and lack of knowledge regarding UI. For these reasons, the authors believe that this lack of knowledge and poor accessibility are the primary factors responsible for the higher prevalence of UI in this population. In the present study, only 30.5% of the women claimed to have some knowledge of the issue, confirming the lack of knowledge about the signs and symptoms of this

dysfunction, as well as little understanding of pelvic floor muscles, revealing the limitation of the population in terms of health education and awareness of the disease.

The work of women farmers involves significant physical exertion.¹⁰ In this study, UI showed no statistical correlation with the rural work variables analyzed, such as intensity, position maintained, weight carried, time carrying weight and activities performed. Masenga et al.²⁵ also found a relationship between UI and hours carrying weight in women from a rural zone of Tanzania. It is important to note, however, that perceived work intensity was higher in the IG than CG, perhaps because they identified urinary loss during exertion.

Most of the IG women responsible for milking cows used a bucket in the squat position during the procedure. According to Carvalho,²⁸ this position provides strong pelvic stabilization, trains balance, prevents lumbar pain and strengthens lower limbs. On the other hand, the squat position, especially if the hips are rotated internally, helps open the pelvic outlet,²⁹ which increases traction on the PFM. Thus, even if the position adopted benefits the pelvic region, when executed with biomechanical compensation and/or one PFM unprepared to maintain the position, it may overload this muscle and cause urinary symptoms.

The number of pregnancies and deliveries, as well as the characteristics of the latter did not differ between the groups, highlighting the non-obligatory relationship between these variables and prevalence of UI.³⁰ Albeit not significant, the relative frequency of gynecological surgeries was greater in the IG. These procedures may affect the integrity of bladder innervation and the PFMs, as well as the integrity of the urethral sphincter, compromising voluntary urinary control.³¹ In addition, the report of frequent urinary infections was higher in the IG (25%), exhibiting a direct relationship between the number of annual infections and UI severity. In a study of rural women with UI, Ganapathy⁶ found that 37.59% suffered from frequent urinary tract infections. Women are more vulnerable to urinary infections, since their urethra is narrower and due to the closer proximity between the vagina and anus when compared to men, which facilitates the presence of an infectious agent.³² With repeated urinary infections, the bladder becomes hyperactive because of inflammation on its inner surface. Using an absorbent pad (often adopted to avoid wetting clothes) provides a favorable environment for the proliferation of fungi and bacteria.^{5,33} In addition, poor

urinary habits such as prolonging urination, urinating while semi squatting, hindering PFM relaxation or proper hygiene during bladder emptying may become routine, given the distance between the home and the rural task, creating favorable conditions for urinary tract infection. Risk factors for urinary infection may be behavioral, anatomic or genetic, and the population and individual ability to adapt preventive and prophylactic strategies should be considered.³⁴ This demonstrates the need to investigate cases of frequent urinary infections, since, when the transitory causes are corrected, UI symptoms can be resolved.³⁵

With respect to the perceived impact of UI on QoL, analyzed by the ICIQ-SF, nearly 50% reported little or medium interference. This finding may be due to the small amount of urine lost and low frequency reported. Nevertheless, the ICIQ-SF score demonstrated that 34.62% exhibited severe symptoms. Similar results were found in a study conducted by Treister-Goltzman and Peleg.³³

The perceived impact of UI on QoL reveals the lack of knowledge about this dysfunction and the problems caused by its evolution, as well as its causes and impacts on the life of women. The limited knowledge about the disease is an important risk factor for the evolution of the clinical picture. The KHQ showed that the perceived QoL of the IG is fair to very good. On the other hand, the more severe the UI determined by the ICIQ-SF, the lower the QoL indicated by the instrument. Although UI is not considered a significant cause of morbidity or mortality, its presence has a negative impact on the QoL of women,³¹ regardless of hormonal status,³⁶ involving physical, social, professional, sexual and emotional aspects.^{37,38} On the other hand, it is intriguing to observe how naturally the female farmers learn to live with UI, reporting that it does not compromise their daily activities or interpersonal and/or sexual relationships. In this respect, it is important to note that when asked, most of the women recognize involuntary loss as something abnormal. However, few women sought professional help (3.84%) when compared to studies conducted in Australia (18.9%),¹⁹ Pakistan (11.3%),²⁴ Israel (10%)³³ and India (30.6%),¹⁴ the last exclusively with women living in rural areas.

Higa et al.²¹ suggest that the low incidence of seeking treatment occurs mainly because women suffering urinary loss prefer to conceal the disorder, because it hinders interpersonal interactions, a stigma that compromises the search for treatment. Corroborating the authors, the

women of the present study demonstrated reluctance and embarrassment when discussing the issue, despite their not deeming UI an inconvenience. Other reasons described in the literature are that urine loss affects all women and is therefore not considered a problem,^{19,24} expectation of spontaneous recovery^{19,24} and believing that urine loss is incurable.^{14,24} These reports demonstrate that seeking assistance is determined by the women's beliefs and lack of knowledge about its progression and treatment possibilities, interfering in the attention given to the problem.

It is believed that the vast majority of women farmers (97.7%) recognizing UI as something abnormal has been influenced by the object of the study, reinforcing the conclusion by Oliveira et al.³⁹ that the population in general does not consider UI a disease, but demonstrating that addressing the topic, even in a research setting, may change the conception of their health condition and trigger the need to remedy it. Lamerton et al.¹⁹ report that health professionals are in a privileged position for early identification of women with greater risk of UI and to discuss prevention and treatment strategies, provided they are properly trained and informed.

Demystifying the pre-established concepts of UI, which includes health-related questions at routine medical checkups, viewing complaints with empathy, informing patients on the progression of signs and symptoms, denaturalizing the dysfunction and indicating treatment possibilities, mainly involving prevention, are urgent measures that should be implemented in health care programs, remembering to consider the particularities of the population treated.

Conclusion

The prevalence of UI in female farmers was similar to that reported in other countries. Urinary loss occurs especially during exertion activities such as coughing, sneezing and carrying weight. Incontinent women experience more annual urinary infections. Other factors are the influence of pelvic surgery, comorbidities and sedentary behavior in the presence of UI.

Agricultural work characteristics showed no correlation with the appearance of urinary symptoms. Constant movement, especially walking, may be a protective factor that counterbalances risk factors such as high BMI and the amount of weight carried daily,

which were observed in both groups. On the other hand, assessing PFM activation in the squat position during bucket milking might clarify the relationship with the greater frequency of this system in the IG.

Lack of knowledge about UI may justify the low or medium interference of this dysfunction in QoL, despite the predominance of the “severe” score. Other factors that may have an influence and deserve more specific investigation are the embarrassment and reluctance of women to talk about the issue, since the greater the UI severity, the worse the QoL.

It is important to underscore the importance of addressing the problem, as well as other specific health issues affecting women farmers, in order to encourage greater care of their own body. Although the vast majority consider urine loss abnormal, few sought medical assistance. This approach will likely facilitate the early identification of dysfunctions and ensure adequate dignified treatment, thereby improving self-esteem, quality of life, work satisfaction and appreciation of rural life.

Authors' contributions

All the authors contributed substantially to the conception of this manuscript. PR, VS and VJBA were responsible for the conception, methodology, data collection, analysis and interpretation, writing of the article and final approval. APMG, FBF and ACM contributed to the methodology, data analysis and interpretation, critical revision of the article and final approval.

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