




Attitudes towards the sexuality of older adults: a comparison between health and social care professionals and people aged 65 years and over

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Abstract

Background Sexuality in older adults usually remains within the sphere of personal intimacy and rarely receives specific attention. Health and social care sectors play a key role in creating safe environments that facilitate its expression. Professionals' attitudes influence the quality of care, while older people's attitudes condition their experience of sexuality. This study aimed to compare attitudes towards sexuality in later life between health and social care professionals and people aged 65 years and over, as well as to analyse factors associated with attitudes among professionals.

Methods A cross-sectional study (May 2022–December 2023) was conducted in Aragón (Spain), including 370 participants in the retired group and 333 in the socio-sanitary worker group. The Attitudes towards Sexuality in Old Age Questionnaire (CASV-14) and a sociodemographic questionnaire were administered. Descriptive analyses of CASV-14 scores were performed in both groups. In the socio-sanitary worker group, internal consistency, floor and ceiling effects, minimal detectable change, and regression models were analysed to explore predictors of attitudes.

Results The retired group showed higher total CASV-14 scores than the socio-sanitary worker group (31.35 ± 7.30 vs. 27.19 ± 5.78 ; $p < 0.001$), suggesting a greater presence of myths and limiting perceptions regarding sexuality in later life. Items related to chronic illness, medical treatments, and physiological changes were perceived as more limiting in both groups. The CASV-14 showed high internal consistency for the total score among socio-sanitary workers (Cronbach's $\alpha = 0.888$), with lower reliability in the rights and limitations dimension ($\alpha = 0.624$). Multivariable analyses indicated that being a socio-sanitary professional and having a university education were associated with lower CASV-14 scores, whereas religious beliefs were associated with higher scores. However, the proportion of variance explained by the models was low.

Conclusions Both the retired group and the socio-sanitary worker group showed generally favourable attitudes towards sexuality in later life, although the retired group reported more limiting perceptions. These findings highlight the importance of addressing sexuality as a key component of well-being in later life and support the need for educational initiatives aimed at reducing myths and strengthening professionals' capacity to address sexual health in ageing populations.

Keywords Attitudes · Sexuality in later life · Health and social care professionals · Older adults · Ageism

Introduction

Ageing is a transverse, multifactorial process that affects all aspects of life and whose presence in the population is constantly increasing thanks to biomedical advances (Lindau and Gavrilova 2010). Despite this reality, society maintains a restrictive view of ageing, attributing to this stage a series of negative or disabling characteristics (González Domínguez

et al. 2005; Ibeas 2005; Orozco Mares and Rodríguez Márquez 2006). Among these beliefs is the widespread idea that older people are asexual or that their sexuality loses meaning or value with age.

The sexuality of older adults has historically been rendered invisible, being addressed infrequently and, when it is, often from incorrect or negative perspectives (Lindau and Gavrilova 2010; Llanes Betancourt 2013). The persistence of myths, misconceptions and prejudices contributes to this dimension not receiving adequate attention from health and social care professionals (Orozco Mares and

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Rodríguez Márquez 2006; Quevedo León 2013). In this regard, ageism continues to be one of the main barriers to the recognition and respect of sexual life in old age, affecting both social perceptions and care practices.

In addition, numerous gender- and age-related stereotypes have been documented that promote distorted representations of sexuality in later life (González Domínguez et al. 2005; Esguerra Velandia 2007; Henninger et al. 2025; Herrera 2003; González-Salas et al. 2022; Montoro 1998; García Villanueva et al. 2020; Cerquera et al. 2012). This social construction influences how professionals and older people understand and experience sexuality. However, more recent literature indicates that sexual desire and activity can be maintained in a satisfactory and healthy way throughout ageing (Wong Corrales et al. 2010; Officer and de la Fuente-Núñez 2018; Torres Mencía and Rodríguez Martín 2019; Vasconcelos et al. 2022; Faus Bertomeu and Grau i Muñoz 2022). Sexuality is now recognised as a fundamental dimension of well-being, with emotional, relational and quality-of-life impact.

The health and social care setting provides a privileged space to recognise sexuality as an integral part of well-being. Professionals' attitudes may influence the quality of the support they provide and the confidence of older adults to express their needs in this area. In turn, older people's attitudes determine their willingness to live their sexuality with naturalness, autonomy and safety.

In this context, understanding attitudes towards sexuality in old age among both health and social care professionals and older adults themselves makes it possible to identify barriers, myths and prejudices that persist, as well as opportunities to improve intervention and support. The aim of this study is to compare attitudes towards sexuality in later life between health and social care professionals and people aged 65 years and over, specifically analysing the presence of prejudices, rights and limitations, and myths in both groups.

The main objective of this study was to analyse the influence of professional background (retired group vs. socio-sanitary worker group) on attitudes towards sexuality in old age. To achieve this, the following specific objectives were established: (a) to compare the scores of the Attitudes towards Sexuality in Old Age Questionnaire (CASV-14; total and dimensions) between the retired group ($n = 370$) and the socio-sanitary worker group ($n = 333$); (b) to determine the independent effect of occupational status on attitudes towards sexuality, using directed acyclic graphs (DAG) for variable selection; and (c) to evaluate the reliability and sensitivity of the CASV-14 scale in the study population by estimating internal consistency (standardised Cronbach's α), floor/ceiling effects and the minimal detectable change (MDC).

Methods

Study design

An observational cross-sectional study was conducted with the aim of comparing attitudes towards the sexuality of older adults between health and social care professionals and people aged 65 years and over. Reporting followed the methodological recommendations of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement for observational studies (von Elm et al. 2007).

Setting and study period

Data collection took place between May 2022 and December 2023 in different centres in the autonomous community of Aragón (Spain). For the retired group, the questionnaire was administered in community centres for older adults and at the University of Experience, where participants attended social and educational activities.

For the socio-sanitary worker group, recruitment was conducted through workplace contacts, institutional collaboration networks and professional associations. In this group, a snowball sampling strategy was also used, whereby participants were invited to share the questionnaire with colleagues working in health and social care services.

Participation was voluntary and anonymous. Because recruitment took place through open distribution in community and professional settings, the exact number of individuals who declined participation was not recorded.

Participants

Older adults

We included 370 people aged 65 years or over attending community centres and centres for older people. Inclusion criteria were as follows: age 65 years or older, attending one of the participating centres and agreeing to take part in the study. Not meeting these criteria, not wishing to participate or returning incomplete questionnaires constituted exclusion criteria.

Health and social care professionals

We included 333 practising professionals from different disciplines: medicine, nursing, psychology, occupational therapy, physiotherapy, social work, social education, social integration, teaching, nursing assistants and social care assistants. Inclusion criteria were as follows: age 18 years or older, having a qualification enabling professional practice,

currently being in post and agreeing to participate. Not meeting these criteria or returning incomplete questionnaires constituted exclusion criteria.

Sampling procedure and data collection

Older adults

The questionnaire was administered face-to-face. Research teams visited the collaborating centres and facilitated participation by reading questions if needed, clarifying doubts and providing support throughout completion.

Health and social care professionals

In this group, snowball sampling was used. The questionnaire was disseminated through professional associations, foundations and care units. Participation was voluntary and self-administered.

Study variables

The main variable was attitude towards sexuality in old age, measured using the Attitudes towards Sexuality in Old Age Questionnaire (CASV-14).

Sociodemographic variables were also collected: age, gender, marital status, living arrangements, educational level, profession, work-related contact with older adults and nationality.

Instrument

The CASV is a validated instrument consisting of 14 items distributed in three dimensions. The CASV-14 questionnaire has demonstrated adequate psychometric properties in previous validation studies assessing attitudes towards sexuality in older adults (Melguizo-Herrera et al. 2015; Ramos et al. 2018), including the following:

- Prejudices: items 1, 2, 3, 4, 8, 12 and 14
- Rights and limitations: items 5, 9, 10 and 11
- Social myths: items 6, 7 and 13

Responses are recorded on a five-point Likert scale. The total score ranges from 14 to 70, with higher scores indicating less favourable attitudes towards sexuality in old age.

The full CASV-14 questionnaire used in this study is provided as Supplementary Material.

Statistical analysis

Statistical analysis was performed with the R version 4.1.3 program (R Foundation for Statistical Computing, Institute

for Statistics and Mathematics, Vienna, Austria). The level of significance was established at $p < 0.05$. The distribution of the quantitative variables was assessed using the Kolmogorov–Smirnov test with Lilliefors correction, which showed the absence of normality. Quantitative variables were described using mean \pm standard deviation and qualitative variables with absolute and relative values (%).

The reliability of the CASV-14 scale, in total and in each of its dimensions, was evaluated using the standardised Cronbach's α , calculated from the polychoric correlation matrix (Gadermann et al. 2023). The floor and ceiling effects were calculated by taking, from the final score of the scale and each of its dimensions, the minimum and maximum value, defining its magnitude as excellent (none), adequate (< 20%) or poor (> 20%). The minimal detectable change (MDC) of the final scores was calculated from the standard error of measurement (SEM).

The presence of significant differences in the CASV-14 scale scores depending on employment status was verified using the Mann–Whitney U test and Fisher's exact test in the case of the categorised total score. In quantitative variables, the effect size was calculated using Rosenthal's r , defined as small (< 0.4), medium (0.4–0.6) and large (> 0.6), while in the categorised total score it was calculated using Cramér's V , defined as small (< 1.15), medium (1.15–1.25) and large (> 1.25).

Multiple regression models were applied between the baseline predictor variables (except age, whose ranges are not shared between both groups) and the dependent variables total score, myths, rights and limitations, and social myths. A direct acyclic graph (DAG) was used based on the literature review (Tennant et al. 2021) to determine the minimum set of variables to adjust to estimate the direct effect of employment status on the CASV-14 scale scores.

Variables with a variance inflation factor (VIF) greater than 5 were eliminated. Compliance with the assumptions was checked using the Kolmogorov–Smirnov test with Lilliefors correction (normality of the residuals), Breusch–Pagan test (heteroscedasticity) and Durbin–Watson test (autocorrelation of residuals).

The linear regression analysis used the ordinary least squares (OLS) method, calculating the percentage of variance explained by the adjusted regression coefficient (R^2). In the case of models with the variables total score, myths and social myths, the assumption of normality of the residuals was not met. As these variables are dummy categorical variables and their transformation did not restore normality, and because the assumption of homoscedasticity was not met for the dependent variable myths, quantile regression was used, with standard errors calculated by bootstrap, which allows the absence of normality (Pek et al. 2018) and heteroscedasticity (Koenker and Bassett 1982) to be assumed. The model with the quantile that presented the lowest Akaike

information criterion (AIC) was selected, and the homogeneity of the slopes at different quantiles was tested using the Wald test. For each model, the percentage of variance explained was calculated using the pseudo- R^2 proposed by Koenker and Machado (1999).

Results

A total of 703 individuals participated: 370 participants in the retired group and 333 in the socio-sanitary worker group. Among older adults, 62.4% were women, 48.9% were between 60 and 75 years old, 53.5% lived with their partner, 65.1% reported having religious beliefs, 33.8% had a university education and 92.4% were of Spanish nationality. In the professional group, 42.0% were between 30 and 44 years old, 87.1% were women, 46.5% were married, 35.4% were nurses, 73.0% reported having contact with older adults at work and 85.6% were of Spanish nationality. Approximately half of the professionals identified as religious believers. Sociodemographic characteristics of the participants are summarised in Table 1.

The mean total score of the scale was 29.38 ± 6.94 , indicating a distribution shifted towards lower values across the scale and its dimensions. Reliability is greater than 0.8 in

both the total score and the dimensions except in the rights and limitations dimension [Cronbach's $\alpha = 0.67$ (0.634, 0.704)]. On the other hand, the floor and ceiling effects are excellent except in the social myths dimension, with adequate floor effect (19.346), while the MDC is below 1 point, indicating good measurement precision. Most questions also have low scores except the questions "The most frequent diseases in old age limit sexual activity" and "Medical treatments in old age complicate sexual activity where the scores are equal".

Regarding the overall CASV-14 scores, significant differences were observed between the groups ($p < 0.001$). The socio-sanitary worker group had lower total scores (27.19 ± 5.78) compared to the retired group (31.35 ± 7.30), with a lower proportion of neutral or positive response levels, indicating a more positive attitude towards sexuality in old age. This trend remained consistent across all dimensions: myths ($p < 0.001$), rights and limitations ($p = 0.047$) and social myths ($p < 0.001$).

Detailed item-by-item analysis revealed that the retired group held significantly more biological myths. For example, the retired group showed greater agreement with the idea that menopause marks the end of a woman's sexual life and that older men are mostly impotent or older women frigid ($p < 0.001$ for all these items). Interestingly, the only

Table 1 Demographic characteristics of the participants

		Overall	Retired group	Socio-sanitary worker group	<i>p</i> value ^a
<i>n</i>		703	370	333	
Age (years), <i>n</i> (%)	18–29	50 (7.1)	0 (0.0)	50 (15.0)	<0.001
	30–44	140 (19.9)	0 (0.0)	140 (42.0)	
	45–60	121 (17.2)	0 (0.0)	121 (36.3)	
	60–65	22 (3.1)	0 (0.0)	22 (6.6)	
	65–80	331 (47.1)	331 (89.5)	0 (0.0)	
	More than 80	39 (5.5)	39 (10.5)	0 (0.0)	
Gender, <i>n</i> (%)	Female	521 (74.1)	231 (62.4)	290 (87.1)	<0.001
	Male	182 (25.9)	139 (37.6)	43 (12.9)	
Current marital status, <i>n</i> (%)	Live alone	294 (41.8)	169 (45.7)	125 (37.5)	0.077
	Other	23 (3.3)	10 (2.7)	13 (3.9)	
	With couple	386 (54.9)	191 (51.6)	195 (58.6)	
Religious beliefs, <i>n</i> (%)	No	302 (43.0)	129 (34.9)	173 (52.0)	<0.001
	Yes	401 (57.0)	241 (65.1)	160 (48.0)	
Country of origin, <i>n</i> (%)	Hispanic America	69 (9.8)	26 (7.0)	43 (12.9)	0.011
	Other	7 (1.0)	2 (0.5)	5 (1.5)	
	Spain	627 (89.2)	342 (92.4)	285 (85.6)	
Studies, <i>n</i> (%)	Other	114 (16.2)	47 (12.7)	67 (20.1)	<0.001
	Primary	81 (11.5)	81 (21.9)	0 (0.0)	
	Secondary	117 (16.6)	117 (31.6)	0 (0.0)	
	University	391 (55.6)	125 (33.8)	266 (79.9)	

Data expressed as mean \pm standard deviation or with absolute and relative values (%)

^aSignificant if $p < 0.05$

biological myth on which both groups agreed (with no significant difference, $p=0.581$) was that andropause marks the beginning of old age.

Regarding social perception, the socio-sanitary worker group showed greater recognition of sexual rights, exhibiting much lower levels of agreement with these restrictive social stereotypes. It should be noted that no significant differences were found in the perception of older men as *dirty old men* ($p=0.171$) nor in considering old age as a limiting factor in sexual activity ($p=0.059$). This convergence may reflect a shared perception regarding the biological influence of ageing and chronic conditions on sexual activity. Likewise, the shared rejection of the *dirty old man* stigma suggests an evolution in social desirability and a defence of personal dignity, where the ethical training of the socio-sanitary worker group coincides with the resistance of the retired group to pejorative categorisation.

It is worth noting that the socio-sanitary worker group scored significantly higher than the retired group on the impact of medical treatments on sexual activity (3.46 ± 0.84 vs. 3.09 ± 0.97 , $p < 0.001$). This suggests that, while the socio-sanitary worker group shows fewer moral prejudices, they possess greater clinical awareness of how pharmacological interventions can physiologically interfere with sexual function (Table 2).

The bar graph confirms the shift in responses towards the completely false and false categories (Fig. 1).

The DAG shows how the variables to control the effect of the work situation on the CASV-14 scores are gender, current marital status, religious beliefs, country of origin and studies (Fig. 2).

None of the predictor variables have a VIF greater than 5 [employment status (VIF = 1.298), gender (VIF = 1.059), current marital status (VIF = 1.01), religious beliefs (VIF = 1.035), country of origin (VIF = 1.016), studies (VIF = 1.085)], so they are all kept in the models. It is verified that the final linear models do not present problems of autocorrelation of the residuals ($p > 0.05$); however, in the models with the variables myths and social myths, the distribution of the residuals is non-normal ($p = 0.003$ and $p < 0.001$, respectively), and in the models with the dependent variables total score and myths, heteroscedasticity is present ($p = 0.626$ and $p < 0.001$, respectively). The quantile models show in all cases that the 50th quantile is the best model, although the slopes are not homogeneous in all quantiles in the models, which indicates high variability in the data (Supplementary Material Table 1).

The quantile regression model revealed that the socio-sanitary worker group had significantly lower total scores than the reference group [$\beta = -1.5$ (SE = 0.634), $p = 0.018$], indicating a lower acceptance of myths. Similarly, having a university degree was associated with a reduction in the score [$\beta = -1.75$ (SE = 0.704), $p = 0.013$]. Conversely,

holding religious beliefs was linked to an increase of 2.5 (SE = 0.584) points in the median total score ($p < 0.001$), suggesting more conservative or stereotypical attitudes in this profile.

Regarding the myths dimension, being part of the socio-sanitary worker group was again associated with a lower score [$\beta = -1$ (SE = 0.473), $p = 0.035$]. Educational level showed a clear effect; participants with only primary education showed greater adherence to myths [$\beta = 2$ (SE = 0.852), $p = 0.019$]. Religious beliefs again acted as a predictor of higher scores [$\beta = 1$ (SE = 0.39), $p = 0.011$].

Unlike the other dimensions, in rights and limitations, the linear model (OLS) did not find significant differences based on employment status. However, it was observed that scores on this dimension increased (more restrictive attitude) in participants with religious beliefs [$\beta = 0.619$ (SE = 0.187), $p = 0.001$], of Spanish nationality [$\beta = 0.782$ (SE = 0.308), $p = 0.011$] and with primary education [$\beta = 1.142$ (SE = 0.376), $p = 0.002$].

Finally, in the social myths subscale, the profiles with the most positive attitudes (lowest score) were those of the socio-sanitary worker group [$\beta = -1$ (SE = 0.018), $p < 0.001$] and people with university studies [$\beta = -1$ (SE = 0.079), $p < 0.001$]. In contrast, religious beliefs were robustly associated with a higher score in this dimension [$\beta = 1$ (SE = 0.038), $p < 0.001$].

The percentage of variance explained by the models is low in all cases ($R^2 = 0.085$ in the case of total score, 0.076 in the myths dimension, 0.058 in the rights and limitations dimension), suggesting that there are other factors not included in the model that influence these attitudes. In contrast, the model for the social myths dimension showed a substantially greater explanatory capacity ($R^2 = 0.57$), indicating that the sociodemographic variables introduced capture more than half of the variability in this specific subscale (Table 3).

The effects graphs show a greater probability of having low scores in the socio-sanitary worker group with a university education, while religious beliefs, having primary school education or being of Spanish origin increases the probability of having high scores (Fig. 3).

Discussion

The findings of this study indicate that both the retired group and the socio-sanitary worker group exhibit generally favourable attitudes towards sexuality in later life, reflected by relatively low CASV-14 scores. Nevertheless, significant differences between groups were observed. Older adults obtained higher total scores than professionals, indicating a greater presence of myths, prejudices and limiting perceptions regarding sexuality in old age. This pattern is

Table 2 Questionnaire on attitudes towards sexuality in old age scores

	Overall	Cronbach's α (95% CI)	Floor effect (%)	Ceiling effect (%)	Minimal detectable change	Retired group	Socio-sani- tary worker group	Average difference (95% CI)	Z-score (<i>p</i> value ^b)	<i>r</i> (95% CI)
Total scores										
Total score	29.38 ± 6.94	0.899 (0.888, 0.909)	0.711	0.142	0.73	31.35 ± 7.30	27.19 ± 5.78	-4.168 (3.197 to 5.138)	Z = 7.756, <i>p</i> < 0.001	(0.226 to 0.359)
Total score, <i>n</i> (%)									< 0.001	0.272 (0.201 to 0.339)
Completely false	68 (9.7)					29 (7.8)	39 (11.7)			
False	511 (72.7)					244 (65.9)	267 (80.2)			
Neither true nor false	104 (14.8)					85 (23.0)	19 (5.7)			
True	9 (1.3)					9 (2.4)	0 (0.0)			
Missing data	11 (1.6)					3 (0.8)	8 (2.4)			
Dimension scores										
Myths	13.71 ± 3.87	0.84 (0.823, 0.857)	0.284	0.569	0.4	14.77 ± 4.08	12.53 ± 3.25	-2.241 (1.698 to 2.785)	Z = 7.576, <i>p</i> < 0.001	(0.218 to 0.353)
Rights and limitations	10.01 ± 2.44	0.67 (0.634, 0.704)	1.991	0.142	0.25	10.18 ± 2.63	9.81 ± 2.19	-0.37 (0.013 to 0.728)	Z = 1.975, <i>p</i> = 0.047	(0.004 to 0.148)
Social myths	5.66 ± 1.90	0.816 (0.796, 0.835)	19.346	0.427	0.2	6.40 ± 1.78	4.84 ± 1.68	-1.556 (1.3 to 1.812)	Z = 10.907, <i>p</i> < 0.001	(0.352 to 0.486)
Myths dimension items responses										
Overall	2.43 ± 0.93		Neutral responses (%)	High responses (%)						
Andropause marks the beginning of old age	2.43 ± 0.93	382 (54.376)	233 (33.142)	88 (12.482)		2.43 ± 0.94	2.44 ± 0.92	0.005 (-0.143 to 0.133)	Z = -0.524, <i>p</i> = 0.581	(-0.094 to 0.05)
Menopause marks the end of a woman's sexual life	1.78 ± 0.79	616 (87.624)	63 (8.962)	24 (3.414)		1.98 ± 0.85	1.55 ± 0.63	-0.435 (0.324 to 0.545)	Z = 6.616, <i>p</i> < 0.001	(0.201 to 0.342)
Older men are impotent	2.13 ± 0.85	497 (70.697)	170 (24.182)	36 (5.121)		2.37 ± 0.79	1.85 ± 0.83	-0.523 (0.403 to 0.643)	Z = 8.156, <i>p</i> < 0.001	(0.262 to 0.392)
Older women are frigid	2.02 ± 0.83	524 (74.538)	149 (21.195)	30 (4.267)		2.26 ± 0.83	1.74 ± 0.74	-0.52 (0.404 to 0.637)	Z = 7.798, <i>p</i> < 0.001	(0.243 to 0.381)
Older people no longer have sexual desires and very little sexual activity	2.09 ± 0.92	515 (73.257)	130 (18.492)	58 (8.25)		2.29 ± 0.97	1.86 ± 0.81	-0.424 (0.293 to 0.556)	Z = 5.573, <i>p</i> < 0.001	(0.156 to 0.29)
The changes brought about by ageing prevent sexual activity	2.22 ± 0.94	482 (68.563)	139 (19.772)	82 (11.664)		2.39 ± 0.93	2.04 ± 0.92	-0.35 (0.213 to 0.488)	Z = 4.805, <i>p</i> < 0.001	(0.123 to 0.265)
Rights and limitations dimension items responses										
Overall	1.59 ± 0.69	653 (92.888)	38 (5.405)	12 (1.707)		1.82 ± 0.73	1.33 ± 0.53	-0.492 (0.398 to 0.585)	Z = 8.841, <i>p</i> < 0.001	(0.308 to 0.438)
Older people should repress their sexual activity	1.45 ± 0.63	669 (95.136)	26 (3.72)	8 (1.144)		1.69 ± 0.69	1.17 ± 0.43	-0.517 (0.433 to 0.601)	Z = 9.833, <i>p</i> < 0.001	(0.369 to 0.494)
Older people have the right to love and sexual life										

Table 2 (continued)

	Overall	Cronbach's α (95% CI)	Floor effect (%)	Ceiling effect (%)	Minimal detectable change	Retired group	Socio-seniority worker group	Average difference (95% CI)	Z-score (p value ^a)	r (95% CI)
The most frequent diseases in old age limit sexual activity	3.09 ± 0.97	203 (28.917)	218 (31.054)	281 (40.028)		3.03 ± 0.98	3.15 ± 0.96	0.127 (-0.27 to 0.017)	Z = -1.8, p = 0.059	(-0.148 to 0)
Medical treatments in old age complicate sexual activity	3.26 ± 0.93	144 (20.484)	236 (33.57)	323 (45.946)		3.09 ± 0.97	3.46 ± 0.84	0.37 (-0.504 to -0.236)	Z = -4.707, p < 0.001	(-0.261 to -0.12)
Sexuality is exercised only for procreation	1.52 ± 0.64	659 (93.741)	39 (5.548)	5 (0.711)		1.76 ± 0.68	1.25 ± 0.46	-0.513 (0.427 to 0.598)	Z = 9.595, p < 0.001	(0.343 to 0.479)
The changes brought about by ageing prevent sexual activity	2.22 ± 0.94	482 (68.563)	139 (19.772)	82 (11.664)		2.39 ± 0.93	2.04 ± 0.92	-0.35 (0.213 to 0.488)	Z = 4.805, p < 0.001	(0.123 to 0.265)
Andropause marks the beginning of old age	2.43 ± 0.93	382 (54.376)	233 (33.142)	88 (12.482)		2.43 ± 0.94	2.44 ± 0.92	0.005 (-0.143 to 0.133)	Z = -0.524, p = 0.581	(-0.094 to 0.05)
Social myths dimension items responses										
Older people who show love look ridiculous	1.73 ± 0.81	601 (85.491)	73 (10.384)	29 (4.125)		1.99 ± 0.86	1.44 ± 0.64	-0.553 (0.441 to 0.665)	Z = 8.579, p < 0.001	(0.284 to 0.422)
Beauty and sexuality are exclusive to young people	1.69 ± 0.74	629 (89.474)	56 (7.966)	18 (2.56)		1.92 ± 0.79	1.44 ± 0.60	-0.477 (0.375 to 0.58)	Z = 7.961, p < 0.001	(0.264 to 0.4)
Older men who want to have sexual relations are considered dirty old men	2.42 ± 1.07	429 (61.024)	132 (18.777)	142 (20.199)		2.34 ± 0.91	2.52 ± 1.22	0.179 (-0.34 to -0.018)	Z = -1.306, p = 0.171	(-0.128 to 0.023)

Data expressed as mean ± standard deviation or with absolute and relative values (%); 95% CI, 95% confidence interval; * Cramér's V effect size

^aSignificant if p < 0.05 (shown in red)

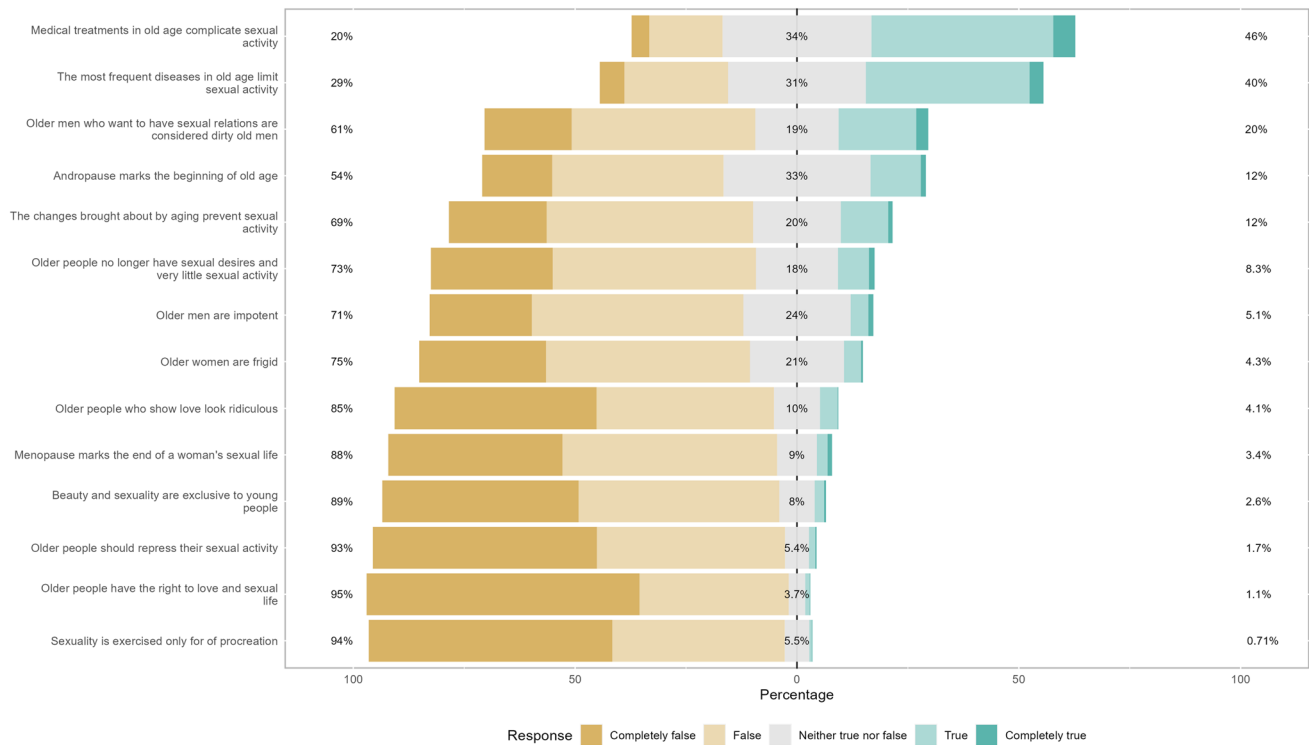
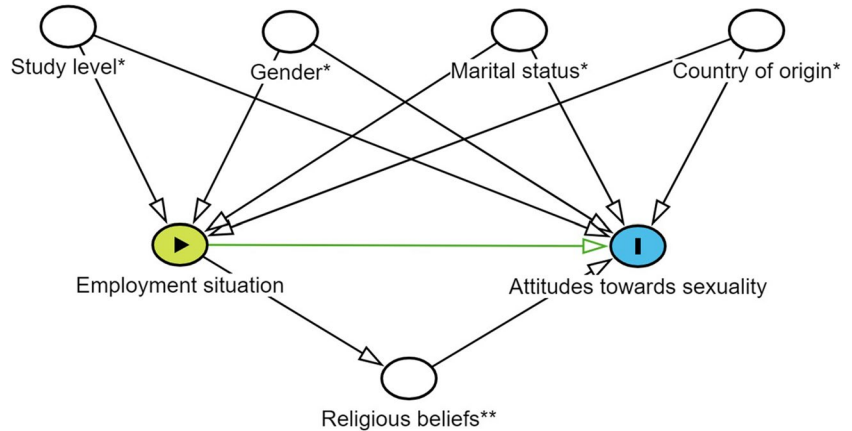


Fig. 1 Item response levels

Fig. 2 Directed acyclic graph for the effects of employment situation on CASV-14 score. Exposure (▶); outcome (|); white nodes indicate adjusted variables (* moderator; ** mediator)



consistent with previous research describing the persistence of negative stereotypes about sexuality in later life and the influence of internalised ageism on older people’s self-perceptions and expectations (Officer and de la Fuente-Núñez 2018; Sinković and Towler 2019; Levy 2009).

Across both groups, responses were clearly concentrated in the most favourable categories (“completely false” and “false”), suggesting a general tendency towards positive attitudes. This distribution is coherent with the floor effects observed for most dimensions of the scale and may partly explain why differences between groups were attenuated for

some outcomes. Similar trends towards increasingly positive attitudes towards sexuality in older age have been reported in recent studies exploring changing social perceptions of ageing and sexuality (Vasconcelos et al. 2022).

Items related to chronic disease, medical treatments and age-related physiological changes obtained comparatively higher scores in both groups. This finding suggests that health-related concerns remain an important factor shaping perceptions of sexuality in later life. Previous studies have highlighted that multimorbidity, functional limitations and medical treatments may influence sexual well-being in older

Table 3 Multiple regression analysis of factors associated with CASV-14 scores (total score and subscales) among retired older adults and socio-sanitary workers ($N=703$)

	Coefficient (SE)	95% CI	p value ^a	Coefficient (SE)	95% CI	p value ^a
Direct effect of employment situation on CASV-14 score						
	Total score			Rights and limitations		
(Intercept)	28.5 (SE=1.019)	25.558, 30.261	$t=27.97, p<0.001$	8.753 (SE=0.409)	7.951, 9.556	$t=21.417, p<0.001$
Employment situation (socio-sanitary worker)	-1.5 (SE=0.634)	-4.19, 0.067	$t=-2.367, p=0.018$	0.282 (SE=0.232)	-0.174, 0.737	$t=1.214, p=0.225$
	Myths			Social myths		
Employment situation (socio-sanitary worker)	-1 (SE=0.473)	-1.931, -1	$t=-2.114, p=0.035$	-1 (SE=0.018)	-1, -0.549	$t=-54.753, p<0.001$
Gender (male)	0 (SE=0.491)	0, 1.187	$t=0, p>0.999$	0 (SE=0.038)	0, 0.756	$t=0, p>0.999$
Model modulator variables						
	Total score			Rights and limitations		
Gender (male)	1.25 (SE=0.653)	-2.063, 2.442	$t=1.914, p=0.056$	-0.132 (SE=0.216)	-0.556, 0.291	$t=-0.613, p=0.54$
Current marital status (other)	0.5 (SE=2.258)	-4.179, 4.697	$t=0.221, p=0.825$	0.604 (SE=0.514)	-0.405, 1.612	$t=1.176, p=0.24$
Current marital status (with couple)	0 (SE=0.59)	-1.805, 2.045	$t=0, p>0.999$	0.265 (SE=0.187)	-0.101, 0.631	$t=1.422, p=0.155$
Country of origin (other)	-0.75 (SE=3.786)	-4.13, 6.63	$t=-0.198, p=0.843$	0.813 (SE=0.944)	-1.041, 2.666	$t=0.861, p=0.39$
Country of origin (Spain)	0.75 (SE=0.933)	-3.09, 6.688	$t=0.804, p=0.422$	0.782 (SE=0.308)	0.177, 1.388	$t=2.538, p=0.011$
Studies (primary)	2 (SE=1.541)	0.026, 5.845	$t=1.298, p=0.195$	1.142 (SE=0.376)	0.405, 1.879	$t=3.041, p=0.002$
Studies (secondary)	0.25 (SE=0.903)	-3.072, 1.916	$t=0.277, p=0.782$	0.309 (SE=0.341)	-0.36, 0.979	$t=0.907, p=0.365$
Studies (university)	-1.75 (SE=0.704)	-4.79, 0.322	$t=-2.484, p=0.013$	-0.457 (SE=0.254)	-0.957, 0.042	$t=-1.798, p=0.073$
	Myths			Social myths		
Current marital status (other)	0 (SE=0.744)	-0.295, 1.577	$t=0, p>0.999$	0 (SE=0.585)	-0.647, 0.838	$t=0, p>0.999$
Current marital status (with couple)	0 (SE=0.358)	-0.729, 1.217	$t=0, p>0.999$	0 (SE=0.038)	-1.03, 0	$t=0, p>0.999$
Country of origin (other)	-1 (SE=2.153)	-2.565, 5.105	$t=-0.464, p=0.643$	1 (SE=0.734)	-1.019, 1.565	$t=1.362, p=0.174$
Country of origin (Spain)	0 (SE=0.65)	-0.729, 3.086	$t=0, p>0.999$	0 (SE=0.203)	-1.043, 0	$t=0, p>0.999$
Studies (primary)	2 (SE=0.852)	-1.19, 2	$t=2.346, p=0.019$	0 (SE=0.46)	0, 2.82	$t=0, p>0.999$
Studies (secondary)	0 (SE=0.649)	-1.961, 0	$t=0, p>0.999$	0 (SE=0.082)	0, 1.223	$t=0, p>0.999$
Studies (university)	-1 (SE=0.51)	-2.36, -1	$t=-1.962, p=0.05$	-1 (SE=0.079)	-1, 3.081	$t=-12.625, p<0.001$
Model mediator variables						
	Total score			Rights and limitations		
Religious beliefs (yes)	2.5 (SE=0.584)	1.822, 5.883	$t=4.279, p<0.001$	0.619 (SE=0.187)	0.252, 0.985	$t=3.316, p=0.001$
	Myths			Social myths		
Religious beliefs (yes)	1 (SE=0.39)	-0.118, 1.748	$t=2.562, p=0.011$	1 (SE=0.038)	-0.005, 1	$t=26.354, p<0.001$

Results are presented as ordinary least squares regression (OLS) for rights and limitations, and quantile (median) regression for total score, myths and social myths

SE, standard error; 95% CI, 95% confidence interval; $t = t$ statistic

^aSignificant if $p < 0.05$ (shown in red)

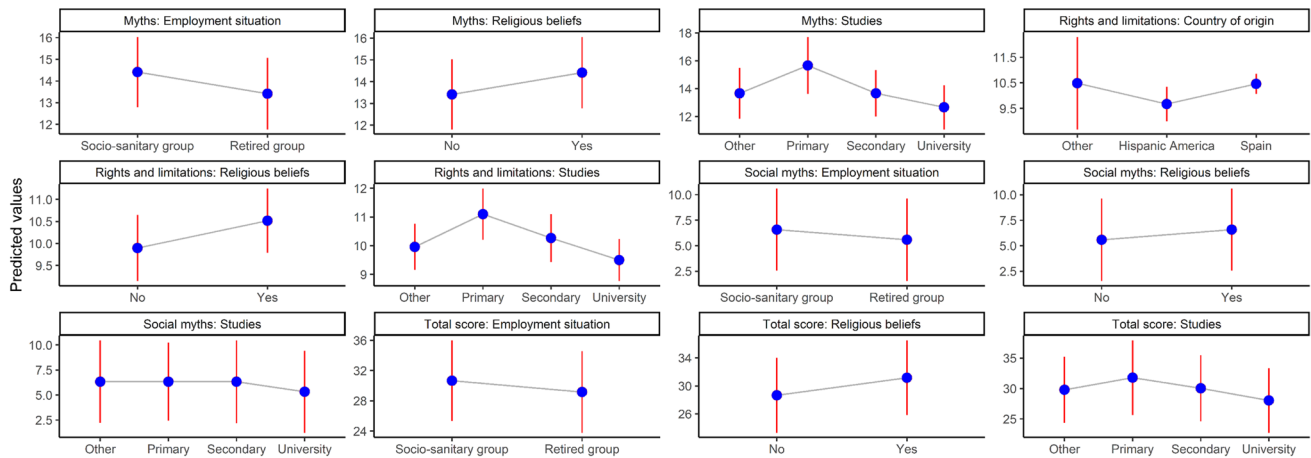


Fig. 3 Significant variables effect plots

adults, although these conditions do not necessarily eliminate the desire for intimacy or emotional relationships (Gott and Hinchliff 2003; Hinchliff and Gott 2004).

Health and social care professionals showed overall more favourable attitudes and lower adherence to traditional myths than older adults. This finding is consistent with studies suggesting that professional exposure to ageing processes and training in care contexts may contribute to more updated and evidence-based perceptions of sexuality in later life (Haesler et al. 2016; Gilmer et al. 2010). At the same time, professionals demonstrated greater awareness of the potential impact of medical treatments on sexual functioning, which may explain the higher scores observed in items related to pharmacological effects.

Multivariable analyses provided additional insight into these patterns. After adjustment using a DAG-informed strategy (Tennant et al. 2021), employment status remained associated with attitudes towards sexuality in later life. Socio-sanitary professionals showed a lower probability of presenting higher (less favourable) scores in the total scale and in the myths and social myths dimensions. In addition, educational level and religious beliefs emerged as relevant factors. Higher educational attainment was associated with more favourable attitudes, whereas religious beliefs were associated with higher scores, suggesting more restrictive perceptions of sexuality in older age. Cultural and belief systems have previously been described as important determinants of attitudes towards sexuality in later life (Boyacıoğlu et al. 2023).

The proportion of variance explained by the models was relatively low for most outcomes, indicating that attitudes towards sexuality in later life are likely influenced by additional factors not captured in the present analyses. These may include sexuality-specific training, communication skills, professional experience, institutional culture and broader social norms regarding ageing and sexuality (Dyer and das Nair 2013).

From a public health perspective, these findings highlight the importance of recognising sexuality as an integral

dimension of well-being in later life. Educational interventions aimed at older adults may help reduce internalised ageism and misconceptions, while training programmes for health and social care professionals may improve confidence and communication when addressing sexual health in older populations. Integrating sexuality into healthy ageing strategies may therefore contribute to promoting autonomy, dignity and quality of life in older adults.

Conclusions

This study shows that both the retired group and the socio-sanitary worker group generally show favourable attitudes towards sexuality in later life. However, older adults presented higher CASV-14 scores, indicating a greater presence of myths and limiting perceptions compared with professionals.

Employment status, educational level and religious beliefs were associated with attitudes towards sexuality in later life, although the proportion of variance explained by these factors was relatively low. These findings suggest that attitudes towards sexuality in older age are shaped by multiple social, cultural and experiential factors.

Promoting sexual health literacy among older adults and strengthening training for health and social care professionals may contribute to reducing stereotypes and facilitating a more comprehensive approach to sexual well-being in later life.

Study limitations

This study has several limitations that should be considered when interpreting the findings. First, its cross-sectional design prevents causal inference and only allows the identification of associations between variables.

Second, the non-probabilistic sampling strategy may limit the representativeness of the sample and reduce the generalisability of the results to other populations or healthcare contexts.

Third, the professional sample was predominantly female, which may reduce the representativeness of the findings across all health and social care professionals.

Self-administration of the questionnaire may also have introduced social desirability bias, particularly given the sensitivity of sexuality-related topics.

In addition, although the CASV-14 is a validated instrument, the dimension “rights and limitations” showed comparatively lower internal consistency in this study, which may indicate greater conceptual heterogeneity within this construct.

Finally, although several predictors were identified in the multivariable models, the proportion of variance explained was relatively low. This suggests that attitudes towards sexuality in later life may be influenced by additional factors not explored in the present study, such as sexuality-specific training, professional experience, institutional culture or personal life-course experiences.

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Data availability The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical statement The study complied with the ethical principles of the Declaration of Helsinki and with current regulations on research involving human participants. It was approved by the Research Ethics Committee of Aragón (CEICA) under codes PI22/315 (minutes 08/2023) and PI23/164 (minutes 16/2023). All participants were previously informed about the objectives, procedures and conditions of the study and provided written informed consent before taking part.

Data were collected and analysed anonymously and confidentially, ensuring the protection of participants' identity. Participation was voluntary, no financial compensation was offered and no sensitive information that could allow personal identification was collected.

Conflict of interest The authors declare that they have no conflict of interest.

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