



# Sexual Activity and Sexual Satisfaction Among Older Adults in Four European Countries

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## Abstract

The aim of this article was to describe partnered and non-partnered sexual activity and sexual satisfaction in older men and women from Norway, Denmark, Belgium, and Portugal, and to explore sociodemographic correlates of sexual activity and satisfaction. Data were collected in 2016 using postal, anonymous questionnaires in probability samples of the population aged 60–75 years recruited by phone registers in Norway (676 men, 594 women), Denmark (530 men, 515 women), Belgium (318 men, 672 women), and Portugal (236 men, 273 women). In men, the percentage of sexually active participants in the past year ranged from 83% in Portugal to 91% in Norway. In women, the percentage of sexually active participants during the last year ranged from 61% in Belgium to 78% in Denmark. Regarding frequency of sexual intercourse activity during the past month, men in Norway, Denmark, and Belgium (23–24%) most often reported 2–3 times per month, whereas most men in Portugal (29%) reported 1–3 times per week. Masturbation was most commonly reported among Norwegian men (65%) and women (40%), and least commonly in Portugal. Concerning sexual satisfaction, across all countries, 40–60% of participants reported that they were sexually satisfied. Portuguese men and Danish women reported being most sexually satisfied. Having a partner was the most important positive predictor of sexual activity and sexual satisfaction in all subgroups except Portuguese men. In conclusion, partnered sexual activity was more frequent in the south of Europe, and solitary sexual activity more frequent in Northern Europe.

**Keywords** Older adults · Sexual satisfaction · Sexual activity · Europe

## Introduction

### Background and Purpose

The sexual health and well-being of older adults remain somewhat neglected topics in research, the media, and policy development, despite the fact that new generations of older adults place a higher value on sexual health and activity than preceding generations (Schmidt & Matthiesen, 2003). For a growing number of older adults, the time between age 60 and 75 is a relatively healthy period of life, and sexuality remains an important part of life for many older women and men (Skoog, 2008).

Although the body of research in older individuals' sexuality is slowly growing (DeLamater, 2012; Træen et al., 2016b), there is a lack in comparative, cross-cultural data (Træen et al., 2016a). Using probability-based national samples of older men and women from Norway, Denmark, Belgium, and Portugal, the aim of the present study was to describe partnered and non-partnered sexual activity and sexual satisfaction in

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60–75-year-olds. Our primary research question was: Which sociodemographic factors predict sexual activity and satisfaction in these four European countries?

### Cross-Cultural Aspects

Although sexual behavior in Europe has undergone many changes in recent decades, particularly among women, inter-cultural and intra-cultural differences exist (Hubert, Bajos, & Sandfort, 1998). Among emerging adults, research has pointed to a North–South European difference in sexual behaviors (Træen, Stulhofer, & Landripet, 2011). Possible explanations for this include changing gender roles, differences in gender equality, and restrictions on sexuality, particularly women’s sexuality. For example, the Nordic countries have long-held ideological traditions favoring equality between individuals and social groups irrespective of gender. The sexual cultures of the Nordic countries are characterized by a tendency toward gender- and age-related equality which seem to differ from those of Southern Europe (Haavio-Mannila & Kontula, 2003; Lewin, Fugl-Meyer, Helmius, Lalos, & Månsson, 2000). Due to different cultural traditions and religion-based norms, both women’s and adolescents’ sexuality are socioculturally more accepted in Nordic countries than in most other Western countries. Accordingly, views on sexuality in the Nordic cultures are often regarded as representing a “liberal” perspective.

The situation in Southern Europe seems to be somewhat different from that of the North. Two decades ago, Bozon and Kontula (1998) argued that men in Southern Europe generally begin their sexual life at an earlier age than women. In many Mediterranean countries, including Croatia and Portugal, men’s behavior remains influenced by strong patriarchal traditions (Baćak & Štulhofer, 2011; Ongaro, 2004; Rizzi, 2004; Štulhofer, Šoh, Jelaska, Baćak, & Landripet, 2011). In such a cultural context, male and female sexual roles tend to adhere to gender constructions that position masculinity in opposition to femininity. The traditional sexual dimension of masculinity involves initiation, dominance, assertiveness, and independence. In contrast, femininity is often associated with sexual passivity, submissiveness, and dependency.

Sexual cultures and gender roles also affect the sexuality of older adults. The dominant sexual culture and its related system of gender roles may influence the extent to which older adults feel free to express themselves sexually and able to negotiate or influence social policies toward treatments or resources that improve sexual health and enhance sexual well-being (e.g., the availability and costs of sex therapy and medications to improve sexual functioning). This is particularly important when contextualizing patterns of sexual behavior as these as well as associated satisfaction may be affected and shaped by cultural socialization and gender roles (Lewin, 1991). Although both sexual activity and sexual satisfaction have previously been explored, cross-cultural comparisons of aging individuals in Europe using comparable data collection strategies and designs and including

identical measures, age ranges, and sociodemographic predictor variables are absent in the literature. The present study seeks to help fill this gap.

### Correlates of Sexual Activity and Satisfaction

The availability of a partner is one of the most important predictors of sexual activity and sexual satisfaction (DeLamater & Sill, 2005; Field et al., 2013; Gott, 2005; Træen et al., 2016b). For those who have a partner, in addition to recreational aspects of sexuality, sex contributes to relationship strength and fosters emotional intimacy (Laumann et al., 2006; Træen & Schaller, 2010). According to Graugaard, Pedersen, and Frisch (2012), the frequency of sexual intercourse decreases with age, but at the same time the enjoyment and happiness associated with intimacy, emotional closeness, and tenderness in sexual relations increase with age among both men and women. This implies that the nature of the sexual relationship may undergo changes with age as a function of biological, psychological, and social factors (DeLamater & Karraker, 2009).

As is true for other age-groups, not all sexual activity in older men and women relates to partnered sex but few studies have explored the prevalence of masturbation in older adults. In the most recent wave of the British National Survey of Sexual Attitudes and Lifestyles (NATSAL-3; Mercer et al., 2013), one-third of men and one in ten women aged 65–74 had masturbated in the previous 4 weeks. However, there are most likely cross-cultural and ethnic differences in the reporting of masturbation (Das, 2007).

Sexual satisfaction can be defined as “an affective response arising from one’s subjective evaluation of the positive and negative dimensions associated with one’s sexual relationship” (Lawrance & Byers, 1995, p. 268). In NATSAL-3, 54% of male and 49% of female participants aged 65–74 years reported satisfaction with their sex lives (Field et al., 2013). Furthermore, in a recent community-based survey of women and men in California with a mean age of 75 years, 41% of men and 36% of women reported being “very satisfied” with their sex lives (Wang et al., 2014).

Several studies have found that the frequency of sexual activity is important for sexual satisfaction (Heiman et al., 2011; Kim & Jeon, 2013; Woloski-Wruble, Oliel, Leefsma, & Hochner-Celnikier, 2010), but an age-related decrease in the frequency of sexual activity has been observed in some population-based studies (DeLamater, Hyde, & Fong, 2008; Lindau et al., 2007; Thompson et al., 2011). Nevertheless, a substantial proportion of older individuals (men more than women) continue to be sexually active into their 70 s and 80 s (Beckman, Waern, Gustafson, & Skoog, 2008; Field et al., 2013; Palacios-Ceña et al., 2012; Schick et al., 2010; Wang et al., 2014). Several studies have also found that sexual satisfaction decreases with age (Chao et al., 2011; del Mar Sánchez-Fuentes & Sierra, 2014; Dijkstra & Barelds, 2011; Field et al., 2013; Graf & Patrick,

2014; McCall-Hosenfeld et al., 2008; McFarland, Uecker, & Regnerus, 2011; Schick et al., 2010; Træen & Schaller, 2010). However, other studies have failed to replicate these findings, which underscore the need for more research on sexual satisfaction and its correlates (Neto & Pinto, 2012; Thompson et al., 2011).

It is well established that gender is a significant predictor of sexual satisfaction (del Mar Sánchez-Fuentes & Sierra, 2014; McFarland et al., 2011; Syme, Klonoff, Macera, & Brodine, 2013). In this regard, a consistent finding is that aging men report higher levels of sexual satisfaction than aging women (Kim & Jeon, 2013; Laumann et al., 2006; McFarland et al., 2011; Træen & Schaller, 2010; Thompson et al., 2011). However, the question of why older adult women are less satisfied than older men—beyond their lower likelihood of being partnered—remains largely unexplored (DeLamater & Sill, 2005). Similarly, little is known about how women and men across different countries rate their sexual satisfaction.

Surprisingly little is known about the relevance of other sociodemographic factors (e.g., religiosity, social class, and education) to the sexual satisfaction of older adults. Few studies have explored the relationship of religiosity with sexual satisfaction (McFarland et al., 2011). Christian teachings often place a strong emphasis on the procreative purpose of sex and regard the sexual dyad as a sacred bond between husband and wife. Accordingly, among married Christians, sexual activity, and particularly vaginal intercourse, with one's spouse is likely to be perceived most positively. Single or widowed Christians, on the other hand, deprived of the possibility of vaginal sex with a spouse, may find it hard or even sinful to continue a sexual life with new or casual partners. For instance, Laumann et al. (1994) found that religious older adults were less likely to think about sex, masturbate, have oral or anal sex, or have multiple partners.

Within a society or culture, sexuality is also known to vary between different social classes of the population (Kutchinsky, 1988; Schmidt, 1989). The role of sexuality among the working class has been more related to reproduction than to the middle-class idea of sexuality as a mutual exchange of security, intimacy, and pleasure. Level of education may be of importance in deciding the position of sexuality in people's life; highly educated people are more likely than less educated people to place a high value on sexuality (Schmidt, 1989). Accordingly, both social class and level of education, however interrelated, may affect sexual activity and sexual satisfaction, the sexual outcomes studied here.

Another sociodemographic factor which may influence sexual activity and sexual satisfaction is place of residence. The social control of human behavior is likely to be stronger in rural settings (Træen, Stigum, & Sørensen, 2002), and urban environments offer more social arenas that enable individuals to meet possible new partners than more rural environments. Further, it may be expected that an urban environment has more accepting

attitudes toward sexual diversity and also toward sexual activity in older ages (Træen et al., 2002).

## Method

### Participants

From October 2016 to January 2017, the Department of Psychology at the University of Oslo, in cooperation with the marketing research company IPSOS, conducted the multinational survey in representative samples of the population aged 60–75 years in Norway, Denmark, Belgium, and Portugal. Initially, IPSOS conducted a recruitment interview in each country by telephone to obtain a nationally representative sample of the population 60–75 years. During this recruitment interview, it was emphasized that the responses from those sexually inactive were as important as from those sexually active. As part of the study, a subsample of couples was recruited in each country. When recruiting individuals, an effort was made to enlist both parties in a relationship if they were in the age range of 60–75 years.

Table 1 presents information about the samples and response rates. The sample size in Norway was  $N = 1270$  (676 men and 594 women), in Denmark  $N = 1045$  (530 men and 515 women), in Belgium  $N = 990$  (318 men and 672 women), and in Portugal  $N = 509$  (236 men and 273 women). Response rates were 68% in Norway, 52% in Denmark, 57% in Belgium and 26% in Portugal.

### Procedure

The questionnaire was developed in English and subsequently translated into local languages translated by the principal investigators and persons employed by IPSOS in each country. After the translation into native languages was finalized, randomized telephone recruitment of participants started. With the exception of Portugal, national phone registries (landline and mobile) were used so the sampling procedure would likely produce representative samples of the target population. In Portugal, a complete and updated telephone register does not exist. For this reason, IPSOS used a frequently used procedure for telephone surveys in Portugal when recruiting: (1) telephone numbers were first randomly selected from fixed phone directories and IPSOS's own database of phone numbers; (2) to obtain a distribution representative of the population, participants were selected by age and gender; and (3) due to illiteracy problems, participants who had not completed primary school (ISCED1) were excluded from the sample. For all countries, telephone recruitment was carried out from October to December 2016.

Those who agreed to participate received a postal, anonymous, self-administered questionnaire, including a Freepost envelope to return the completed questionnaire. Two reminders were sent successively, starting one week after the questionnaire was received by the participant. After a discussion with IPSOS

**Table 1** Sampling information

Population	Procedure	Contacted individuals	Participants	Response rate
Random, national probability samples of non-institutionalized 60-75-year-olds in Norway, Denmark, Belgium, and Portugal	Step 1: Telephone contact with the selected sample by trained interviewers to ask for participation. Among those who volunteer to participate, sociodemographic characteristics are registered Step 2: Self-administered postal questionnaires with prepaid return envelopes. Sociodemographic questions are repeated to validate the questionnaire Step 3: One postal reminder is sent to non-respondents. In Portugal the reminder was done by phone	Norway <i>n</i> = 1865 Denmark <i>n</i> = 2000 Belgium <i>n</i> = 1742 Portugal <i>n</i> = 2000	Norway <i>n</i> = 1271 Denmark <i>n</i> = 1045 Belgium <i>n</i> = 991 Portugal <i>n</i> = 509	Norway = 68.2% Denmark = 52.3% Belgium = 56.9% Portugal = 25.5%
Subsample of couples randomly chosen from the larger sample			Norway <i>n</i> = 218 Denmark <i>n</i> = 207 Belgium <i>n</i> = 135 Portugal <i>n</i> = 117	

in Portugal, it was decided to deliver the reminders by phone. Unfortunately, 502 potential Portuguese participants could not be reached. Of the 1498 Portuguese individuals contacted by phone, 561 declined participation after having received the questionnaire.

## Measures

The majority of indicators in this study were used and validated in large-scale national studies of sexual behavior.<sup>1</sup> The question focusing on sexual satisfaction was adapted from the NATSAL-3 (Mitchell et al., 2013), and the questions on sexual intercourse and masturbation activity from the SRA-Q-ELSA study (Lee, Nazroo, O'Connor, Blake, & Pendleton, 2016).

<sup>1</sup> The sociodemographic variables were taken from the Swedish Sexual Behavior Study 1996 (Lewin et al., 2000), the British NATSAL-3 (Mitchell et al., 2013), and the Sexual Behavior and Risks of HIV Infection in Europe survey (Hubert et al., 1998). The psychological and somatic health indicators included the SF12 scale (Ware, Kosinski, & Keller, 1995), questions adapted from NATSAL-3 (Mitchell et al., 2013), the Copenhagen Aging and Midlife Biobank (CAMB) Study (Avlund et al., 2014), Anxiety and Depression Scale (Søgaard & Bech, 2009), Loneliness Scale (Cacioppo et al., 2015), Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), Body Evaluation Scale and Body Salience Scale (Moss & Rosser, 2012), and Emotional Intimacy Scale (Sinclair & Dowdy, 2006). Sexual attitudes were measured by 13 items from the SRA-Q-ELSA study (Lee et al., 2016). Indicators of sexual activity on the Internet were taken from the Norwegian Sex Survey 2008 (Træen & Daneback, 2012), help seeking items from Hinchliff and Gott's (2011) study, indicators of sexual activity, experiences, and sexual functioning from Lee et al. (2016) and NATSAL-3 (Mitchell et al., 2013), and cuddling items from Heiman et al. (2011). With a few exceptions, in which slight revisions in wording were made to better fit the target population, we used the original items and question wording.

## Outcome Variables

*Sexual activity* was assessed by three questions: "Have you had any sexual activity (sexual intercourse, masturbation, petting or fondling) in the past year?" (response options were 1 = Yes and 2 = No); "How many times have you had or attempted sexual intercourse (vaginal, anal or oral sex) during the past month?"; "How often did you masturbate in the past month?" Response options for the latter two questions ranged from 1 = None to 7 = More than once a day.

*Sexual satisfaction* was measured by asking: "Thinking about your sex life in the last year: All things considered, how satisfied are you with your sexual life?" The response options ranged from 1 = Completely dissatisfied to 5 = Completely satisfied. This variable was dichotomized into 0 = Not satisfied (options 1 to 3) and 1 = Satisfied (options 4 and 5).

## Sociodemographic Correlates

*Sex* was coded 1 = Male, 2 = Female. *Age-groups* were categorized as 1 = 60–64, 2 = 65–69, and 3 = 70–75 years. *Level of education* was assessed as the highest level of formal education. In 3 countries, the response categories ranged from 1 = Primary school (6–8 years at school) to 5 = Higher university level (Master degree, Ph.D. level or similar). In Belgium, additional response alternatives were added to mirror the educational system in the country. To allow for cross-cultural comparisons, the variable was recoded into 1 = Primary (1), 2 = Secondary (2+3), and 3 = Tertiary education (4+5).

*Place of residence*: "How would you describe the town or community where you live?" The response categories were 1 = Rural (up to 5000 inhabitants), 2 = Small town (5001–50,000 inhabitants), 3 = Medium-sized city (from 50,001–200,000



inhabitants), 4 = Suburb of a large-sized city (more than 200,000 people), 5 = Downtown or in the central district of a large-sized city (more than 200,000 inhabitants), and 6 = Other. The variable was recoded 1 = Rural, 2 = Small town, 3 = Medium-sized city, 4 = Large city (previous categories 4 and 5), and 5 = Other.

**Relationship status:** “Do you currently have a steady/committed relationship with anybody? A steady/committed relationship also includes married/cohabiting persons.” The response categories were 1 = Yes, 2 = No, and 3 = Unsure. The 21 participants who were unsure about their relationship status were included in the “No” category.

**Retirement status:** Participants were asked “Are you currently... ?” “In paid work/employed,” “Retired from paid work,” “Looking after home or family,” “Doing unpaid or voluntary work,” or “Doing something else.” The option “Retired from paid work” (1 = Yes, 0 = Not ticked) was used in the present analyses.

**Church attendance:** “Apart from special occasions such as weddings, funerals, and baptisms, how often do you attend religious services or meetings?” Response options ranged from 1 = Once a week or more to 7 = Never. Based on its distribution, the variable was recoded into 1 = Never, 2 = Less than once a year, 3 = Once or twice a year, and 4 = Once a month or more.

**Sexual orientation:** “Which of the options below best describes how you currently think of yourself?” Response options were 1 = Heterosexual, 2 = Gay/Lesbian, 3 = Bisexual, and 4 = Other.

## Statistical Analysis

Data used in bivariate and multivariate logistic regression analyses were weighted using information from census (DuMouchel & Duncan, 1983). Weighting was applied to match our sample with the respective national population according to age, gender, and region. All data analyses were performed separately for men and women. Multivariate Logistic regression analysis was used to calculate age-adjusted odds ratios (aAORs) by country to investigate how reporting of the outcome variables varied by the selected sociodemographic characteristics. All analyses were carried out using IBM SPSS 24.0 statistical software package (Pallant, 2010).

## Results

### Characteristics of the Samples

Table 2 presents an overview of the four national samples using weighted data, which means that the samples were re-weighted for gender, age, and region to match the general population aged 60 to 75 years in the respective countries.

## Sexual Activity

In men, the percentage of sexually active participants (reported sexual intercourse, masturbation, petting or fondling in the past year) ranged from 83% in Portugal to 91% in Norway (Table 3). Regarding sexual intercourse activity during the past month, men in Norway, Denmark, and Belgium showed a fairly similar pattern, with sexual activity 2–3 times per month being most common. Men in Portugal reported more frequent intercourse than men in the other countries (1–3 times per week). Regarding masturbation, the majority of Portuguese men (58%) and women (73%) said they had not masturbated in the past month. Reporting masturbation activity was most common among Norwegian men (65%) and women (40%). In women, the percentage sexually active during the last year ranged from 61% in Belgium to 78% in Denmark.

A multivariate logistic regression analysis with country as control was carried out by gender to explore country-specific effects in the case of older individuals' sexual activity. In the analysis, the country with the largest sample size (Norway) was chosen as the reference category. Compared to Norwegian men, the odds of being sexually active in the past year were 20% lower in Danish men ( $OR\ 0.84$ ;  $CI\ 0.57$ – $1.24$ ;  $p > .05$ ), 40% lower in Belgian men ( $OR\ 0.55$ ;  $CI\ 0.38$ – $0.80$ ;  $p < .01$ ), and 50% lower in Portuguese men ( $OR\ 0.51$ ;  $CI\ 0.32$ – $0.79$ ;  $p < .01$ ). Compared to Norwegian women, sexual activity was 1.3 times higher in Danish women ( $OR\ 1.25$ ;  $CI\ 0.94$ – $1.67$ ;  $p > .05$ ), 50% lower in Belgian women ( $OR\ 0.54$ ;  $CI\ 0.42$ – $0.70$ ;  $p < .001$ ), and 10% lower in Portuguese women ( $OR\ 0.92$ ;  $CI\ 0.65$ – $1.30$ ;  $p > .05$ ).

The results of multivariate logistic regression analyses by gender and country with any kind of sexual activity in the past 12 months as outcome variable are presented in Tables 4 and 5. Only the statistically significant relationships will be presented in the text.

The analysis for men showed that the odds of sexual activity were 3.6 times higher in Denmark, 4.2 times higher in Belgium, and 8.4 times higher in Norway for those who had a partner compared to those who did not have a partner. Looking at age subgroups, the odds of sexual activity in 70–75-year-olds was 70% lower in Norwegian men, and 80% lower in Belgian men, compared to 60–64-year-olds. The same direction of relationship was found among men in Denmark and Portugal, but it did not reach statistical significance. Compared to Danish men who never attended church meetings, the odds of being sexually active was 60% lower in men who attended church once or twice a year. Compared to men with primary education, the odds of being sexually active was 2.8 times higher in Belgian, 2.9 times higher in Norwegian, and 3.9 times higher in Portuguese men with tertiary education.

Compared to non-partnered women, sexual activity in women with a partner was 5.3 times higher in Belgium, 5.5 times higher in Denmark, 7.4 times higher in Portugal, and 15.6

**Table 2** Sociodemographic characteristics of the samples by country (weighted data)

	Norway %	Denmark %	Belgium %	Portugal %	$\chi^2$	Sign.
<i>Gender</i>						
Men	49.9	50.1	49.0	45.6	3.321	0.345
Women	50.1	49.9	51.0	54.4		
<i>N</i>	1270	1045	990	509		
<i>Age-groups</i>						
60–64	35.6	27.7	33.5	35.4	40.471	0.000
65–69	34.4	31.8	35.6	35.6		
70–75	30.0	40.6	30.9	29.1		
<i>N</i>	1272	1045	989	509		
<i>Level of education</i>						
Primary	9.9	27.5	12.2	38.8	386.764	0.000
Secondary	37.0	37.6	51.2	44.2		
Tertiary	53.1	34.9	36.6	17.0		
<i>N</i>	1269	1038	983	505		
<i>Place of residence</i>						
Rural	34.2	35.5	24.2	22.3	299.085	0.000
Small town	37.4	35.2	44.9	22.1		
Medium-sized city	12.1	13.6	12.2	20.7		
Large city	15.7	15.1	16.5	34.0		
Other	0.6	0.7	2.2	1.0		
<i>N</i>	1261	1027	975	503		
<i>Relationship status</i>						
Partnered	75.8	83.9	62.7	82.1	139.783	0.000
No partner	23.4	15.9	36.5	17.5		
Not sure	0.9	0.2	0.8	0.4		
<i>N</i>	1267	1045	989	509		
<i>Religious affiliation</i>						
None	29.8	14.0	35.0	12.5	1808.060	0.000
Christian, no denomination	30.1	49.0	21.1	27.3		
Roman Catholic	0.9	0.9	42.1	55.6		
Protestant	37.4	34.9	1.1	1.8		
Other	1.9	1.2	0.7	2.6		
<i>N</i>	1263	1043	987	501		
<i>Church attendance</i>						
Never	33.8	30.6	44.2	20.7	307.637	0.000
Less than once a year	23.4	24.0	12.2	13.8		
Once or twice a year	28.5	31.8	24.2	22.6		
Once a month or more often	14.3	13.6	19.4	42.9		
<i>N</i>	1258	1036	981	492		

Chi square test of differences among countries ( $\chi^2$ )

times higher in Norway. Comparing women aged 60–64 years with those 70–75 years, sexual activity was 70% lower in Portugal. In Denmark, the odds of having had sexual activity was about 60% lower in both 65–69-year-olds and 70–75-year-olds compared to 60–64-year-olds. Compared to women with primary education only, women with tertiary education had 3.6 times higher odds of having been sexually active the past year in Belgium (2.6 in Norway and 5.9 in Portugal). Compared to

Belgian women who never attended church meetings, the odds of being sexually active was 1.8 times higher in women who attended church once or twice a year.

### Sexual Satisfaction

As shown in Table 3, across all countries, between 40% and 60% of the participants reported that they were satisfied with their sex

**Table 3** Sexual satisfaction and sexual activity in men and women from Norway, Denmark, Belgium and Portugal (percent, weighted data)

	Men					Women					$\chi^2$	Sign
	Norway	Denmark	Belgium	Portugal	$\chi^2$	Sign	Norway	Denmark	Belgium	Portugal		
<i>Sexually satisfaction</i>												
Completely dissatisfied	8.1	4.1	12.2	6.7	54.169	0.000	5.4	4.4	9.9	4.9	38.595	0.000
Dissatisfied	15.0	15.4	16.3	14.9			13.8	10.0	12.8	8.4		
Neither dissatisfied nor satisfied	27.5	25.7	26.5	17.8			30.0	30.8	36.7	40.9		
Satisfied	38.6	45.8	42.0	49.5			40.1	41.0	30.8	37.9		
Completely satisfied	10.8	9.0	3.0	11.1			10.7	13.8	9.9	7.9		
	(n = 621)	(n = 487)	(n = 460)	(n = 208)			(n = 596)	(n = 458)	(n = 406)	(n = 203)		
<i>Sexual activity in the past year</i>												
Yes	90.6	89.0	84.2	82.9	15.115	0.002	74.2	78.4	60.9	72.7	37.986	0.000
No	9.4	11.0	15.8	17.1			25.8	21.76	39.1	27.3		
	(n = 615)	(n = 491)	(n = 462)	(n = 210)			(n = 609)	(n = 458)	(n = 453)	(n = 220)		
<i>Sexual intercourse frequency in the past month</i>												
Not once	35.7	35.7	35.1	19.7	79.126	0.000	46.4	43.9	59.6	36.8	66.809	0.000
Once	13.6	16.4	19.1	13.3			12.6	13.0	9.1	19.1		
2 or 3 times	22.9	24.4	23.6	17.2			20.3	17.9	15.8	16.7		
Once a week	16.7	15.2	16.3	28.6			12.6	17.7	9.4	15.7		
2 or 3 times a week	9.7	8.0	5.0	19.2			7.2	7.3	5.7	10.3		
Once a day	1.1	0.4	0.9	2.0			0.8	0.2	0.5	0.5		
More than once a day	0.3	0.0	0.0	0.0			0.0	0.0	0.0	1.0		
	(n = 611)	(n = 488)	(n = 461)	(n = 203)			(n = 601)	(n = 453)	(n = 438)	(n = 204)		
<i>Masturbation frequency in the past month</i>												
Not once	34.7	46.6	42.7	57.9	54.015	0.000	59.9	69.3	63.6	73.3	29.764	0.040
Once	16.0	12.8	16.3	10.2			18.6	13.8	15.3	13.4		
2 or 3 times	20.2	16.5	17.8	13.2			15.6	12.7	14.6	8.4		
Once a week	11.9	11.8	13.0	9.6			4.3	3.3	3.7	2.0		
2 or 3 times a week	15.6	10.7	8.0	7.6			1.5	0.7	2.3	2.5		
Once a day	1.3	1.2	2.2	1.5			0.0	0.2	0.2	0.3		
More than once a day	0.4	0.4	0.0	0.0			0.0	0.0	0.2	0.0		
	(n = 611)	(n = 489)	(n = 461)	(n = 197)			(n = 601)	(n = 450)	(n = 437)	(n = 202)		

Chi square test of differences among countries ( $\chi^2$ )

**Table 4** Sexual activity during the past 12 months in men, by sociodemographic factors separately for each country

	Norway <i>n</i> = 642		Denmark <i>n</i> = 489		Belgium <i>n</i> = 289		Portugal <i>n</i> = 208	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
<i>Age-group</i>								
60–64 years	96.4***	1.00	93.5**	1.00	89.1 <sup>ns</sup>	1.00	88.2 <sup>ns</sup>	1.00
65–69 years	88.8	0.44 0.16–1.21	89.9	0.79 0.29–2.15	83.0	0.31 0.13–0.76	84.2	0.81 0.32–2.47
70–75 years	85.5	0.29 0.10–0.84	85.0	0.48 0.18–1.26	81.3	0.22 0.09–0.57	74.1	0.59 0.22–1.59
<i>Level of education</i>								
Primary	79.4**	1.00	85.1*	1.00	80.0 <sup>ns</sup>	1.00	72.1*	1.00
Secondary	89.8	2.19 0.93–5.14	87.3	1.13 0.57–2.24	81.5	1.21 0.45–3.28	86.0	1.94 0.81–4.64
Tertiary	93.1	2.94 1.26–6.83	94.3	2.81 1.21–6.53	87.9	1.95 0.69–5.48	92.7	3.91 1.04–14.78
<i>Place of residence</i>								
Rural	90.2 <sup>ns</sup>	1.00	87.6 <sup>ns</sup>	1.00	82.1 <sup>ns</sup>	1.00	77.3 <sup>ns</sup>	1.00
Medium urban	89.3	0.69 0.35–1.35	89.2	1.17 0.62–2.23	85.2	1.18 0.61–2.28	82.3	1.16 0.43–3.13
Urban	94.9	1.48 0.47–4.60	92.9	1.23 0.42–3.61	85.1	1.26 0.52–3.05	88.4	1.66 0.54–5.08
<i>Relationship status</i>								
No partner	70.4***	1.00	76.3***	1.00	67.8***	1.00	92.9 <sup>ns</sup>	1.00
Partner	95.0	8.39 4.53–15.53	91.3	3.61 1.78–7.35	88.0	4.15 2.29–7.51	82.1	0.44 0.04–5.24
<i>Retired from work</i>								
No	96.1***	1.00	94.0*	1.00	79.7 <sup>ns</sup>	1.00	90.4 <sup>ns</sup>	1.00
Yes	87.2	0.61 0.24–1.57	87.5	0.62 0.22–1.78	84.7	2.28 0.83–6.32	80.4	0.45 0.15–1.40
<i>Church attendance</i>								
Never	91.8 <sup>ns</sup>	1.00	92.0*	1.00	83.5 <sup>ns</sup>	1.00	84.6 <sup>ns</sup>	1.00
Less than once a year	87.9	0.57 0.26–1.22	88.5	0.01 0.31–1.61	88.8	1.56 0.67–3.65	78.1	0.85 0.25–2.88
Once or twice a year	89.2	0.64 0.30–1.38	83.3	0.42 0.20–0.89	81.4	1.01 0.51–2.00	81.8	1.04 0.35–3.07
Once a month or more	95.5	1.45 0.38–5.60	95.0	2.42 0.51–11.55	81.0	1.49 0.68–3.29	83.1	1.20 0.42–3.46

For each country: The first column shows the bivariate analysis, per cent sexually active. The second column shows the multivariate logistic regression analysis (adjusted odds ratios (AOR) with 95% confidence intervals (CI) for having been sexually active, weighted data). \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ;  $ns$  not significant

lives. Portuguese men reported being most satisfied ( $M = 3.44$ ;  $SD = 1.08$ ), followed by Danish men ( $M = 3.40$ ;  $SD = 0.99$ ), and Norwegian men ( $M = 3.29$ ;  $SD = 1.10$ ); the least satisfied were Belgian men ( $M = 3.08$ ;  $SD = 1.09$ ). Danish women reported being most sexually satisfied ( $M = 3.50$ ;  $SD = 0.99$ ), followed by Norwegian women ( $M = 3.37$ ;  $SD = 1.03$ ), Portuguese women ( $M = 3.36$ ;  $SD = 0.93$ ), and Belgian women ( $M = 3.18$ ;  $SD = 1.09$ ).

A multivariate logistic regression analysis performed separately for men and women showed that compared to Norway, the odds of being sexually satisfied was 1.3 times higher in Danish men ( $OR 1.25$ ;  $CI 0.98–1.58$ ;  $p > .05$ ), 20% lower in Belgian men ( $OR 0.84$ ;  $CI 0.66–1.07$ ;  $p > .05$ ), and 1.6 times higher in Portuguese men ( $OR 1.58$ ;  $CI 1.14–2.17$ ;  $p < .01$ ). Compared to Norwegian women, sexual satisfaction was 1.2 times higher in Danish women ( $OR 1.18$ ;  $CI 0.93–1.51$ ;  $p > .05$ ), 30% lower in Belgian women ( $OR 0.66$ ;  $CI 0.51–0.85$ ;  $p < .01$ ), and 20% lower in Portuguese women ( $OR 0.83$ ;  $CI 0.60–1.14$ ;  $p > .05$ ).

Table 6 and 7 present the results from multivariate logistic regression analyses, performed separately for gender and each country, on sexual satisfaction, by age, level of education, place of residence, relationship status, current retirement, and frequency of church attendance. The bivariate contingency tables show that women in all countries, and men in all countries except Portugal, who had a partner were significantly more sexually satisfied than those without a partner. Men in Norway who reported frequent church attendance were more sexually satisfied than less religious participants. In Portugal, younger men were significantly more sexually satisfied than older men, and those not retired from employment were more satisfied than those retired. In Denmark, women living in urban areas reported higher sexual satisfaction compared to those living in more rural areas.

The multivariate logistic regression analysis in men (Table 6) showed that sexual satisfaction in men with a partner was 3.0 times higher in Denmark, 5.7 times higher in Norway, and 7.6 times higher in Belgium compared to men without a partner.



**Table 5** Sexual activity during the past 12 months in women, by sociodemographic factors separately for each country

	Norway <i>n</i> = 556		Denmark <i>n</i> = 443		Belgium <i>n</i> = 582		Portugal <i>n</i> = 212	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
<i>Age group</i>								
60–64 years	80.0***	1.00	87.7**	1.00	68.8**	1.00	81.3***	1.00
65–69 years	78.9	0.69 0.77–2.59	76.6	0.43 0.19–0.96	55.1	0.56 0.32–1.00	85.3	2.88 0.94–8.77
70–75 years	61.8	0.68 0.36–1.32	72.6	0.40 0.18–0.87	57.4	0.74 0.41–1.35	46.2	0.29 0.11–0.75
<i>Level of education</i>								
Primary	59.6**	1.00	73.8*	1.00	47.1**	1.00	62.2*	1.00
Secondary	71.4	1.21 0.55–2.65	75.0	1.04 0.57–1.90	58.4	1.69 0.85–3.36	76.8	2.22 0.94–5.24
Tertiary	78.8	2.60 1.16–5.85	84.8	1.80 0.92–3.52	70.9	3.62 1.71–7.67	82.9	5.90 1.53–22.74
<i>Place of residence</i>								
Rural	75.5 <sup>ns</sup>	1.00	80.0 <sup>ns</sup>	1.00	59.7 <sup>ns</sup>	1.00	61.4 <sup>ns</sup>	1.00
Medium urban	73.3	0.83 0.49–1.41	76.5	0.94 0.55–1.62	62.5	1.08 0.65–1.80	73.9	0.85 0.31–2.29
Urban	75.0	0.91 0.44–1.89	80.6	1.13 0.50–2.54	58.4	1.21 0.64–2.30	77.4	2.22 0.80–6.15
<i>Relationship status</i>								
No partner	37.1***	1.00	49.3***	1.00	42.4***	1.00	45.6***	1.00
Partner	89.6	15.61 9.78–24.90	83.3	5.52 3.04–10.01	79.9	5.25 3.33–8.26	81.6	7.39 3.06–17.88
<i>Retired from work</i>								
No	81.1***	1.00	88.9**	1.00	62.2 <sup>ns</sup>	1.00	77.9 <sup>ns</sup>	1.00
Yes	70.9	0.72 0.40–1.28	75.5	0.72 0.30–1.76	60.5	1.25 0.72–2.19	69.9	0.64 0.26–1.58
<i>Church attendance</i>								
Never	73.3 <sup>ns</sup>	1.00	78.8 <sup>ns</sup>	1.00	56.5 <sup>ns</sup>	1.00	74.4 <sup>ns</sup>	1.00
Less than once a year	77.9	1.00 0.52–1.90	80.2	1.18 0.59–2.36	66.7	1.89 0.89–4.02	69.2	0.70 0.18–2.74
Once or twice a year	71.8	0.92 0.51–1.67	78.8	1.10 0.58–2.11	69.5	1.79 1.03–3.10	87.5	2.00 0.50–8.05
Once a month or more	74.3	0.84 0.42–1.70	73.1	0.86 0.40–1.88	57.1	1.05 0.59–1.90	66.0	0.75 0.27–2.11

For each country: The first column shows the bivariate analysis, per cent sexually active (weighted data). The second column shows the multivariate logistic regression analysis (adjusted odds ratios (AOR) with 95% confidence intervals (CI) for having been sexually active, unweighted data). \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ; *ns* not significant

Men in Portugal who were retired from employment had 70% lower sexual satisfaction than those in employment. Compared to Norwegian men who never attended church, the odds of being sexually satisfied was 2.2 times higher for those who reported monthly church attendance.

Compared to women without a partner (Table 7), sexual satisfaction was 3.0 times higher in Belgium, 3.4 times higher in Portugal, 3.6 times higher in Denmark, and 4.7 times higher in Norway among women who had access to a partner. In Portugal, women who were retired from employment had 60% lower sexual satisfaction than those not retired, and compared to women with primary education, sexual satisfaction was 4.3 times higher in women with tertiary education. Also, compared to Portuguese women who never attended church, those who attended church less than once a year were significantly (70%) less sexually satisfied. Similarly, compared to Portuguese women living in rural areas, those living in urban areas had 60% lower sexual satisfaction.

## Discussion

Our primary research question was to investigate which sociodemographic factors predicted sexual activity and sexual satisfaction in four European countries: Norway, Denmark, Portugal, and Belgium.

## Sexual Activity

In line with previous findings (e.g., Schick et al., 2010), we found that the majority of participants in our study were sexually active. At the same time, the frequency of sexual activity reported by our participants was somewhat higher than what has been previously reported. Accordingly, previous studies have found that between 40 and 65% of men and between 25 and 55% of women in the 65–75 age-group has had any kind of sexual activity in the past 12 months (Beckman et al., 2008;

**Table 6** Sexual satisfaction in men, by sociodemographic factors separately for each country

	Norway <i>n</i> = 648			Denmark <i>n</i> = 486			Belgium <i>n</i> = 295			Portugal <i>n</i> = 207		
	AOR	95% CI		AOR	95% CI		AOR	95% CI		AOR	95% CI	
<i>Age group</i>												
60–64 years	51.3 <sup>ns</sup>	1.00		47.4 <sup>ns</sup>	1.00		44.9 <sup>ns</sup>	1.00		64.5*	1.00	
65–69 years	49.5	0.91	0.57–1.43	55.8	1.54	0.89–2.66	41.5	0.87	0.50–1.52	69.3	1.71	0.77–3.79
70–75 years	46.7	0.73	0.44–1.23	59.5	1.70	0.96–3.01	49.3	0.98	0.56–1.73	44.6	0.73	0.32–1.64
<i>Level of education</i>												
Primary	37.9 <sup>ns</sup>	1.00		53.1 <sup>ns</sup>	1.00		45.2 <sup>ns</sup>	1.00		51.5*	1.00	
Secondary	51.5	1.85	0.99–3.44	58.3	1.30	0.80–2.09	42.3	1.21	0.59–2.48	69.3	1.72	0.82–3.59
Tertiary	50.4	1.64	0.90–2.97	52.0	0.94	0.58–1.53	48.7	1.47	0.71–3.05	53.7	0.85	0.36–2.03
<i>Place of residence</i>												
Rural	49.1 <sup>ns</sup>	1.00		60.5 <sup>ns</sup>	1.00		47.8 <sup>ns</sup>	1.00		51.1 <sup>ns</sup>	1.00	
Medium urban	49.7	1.06	0.72–1.55	52.9	0.74	0.50–1.11	46.2	1.04	0.63–1.72	63.2	1.52	0.66–3.54
Urban	49.5	1.08	0.64–1.82	49.3	0.69	0.38–1.24	36.5	0.68	0.35–1.34	62.3	1.57	0.63–3.88
<i>Relationship status</i>												
No partner	17.4 <sup>***</sup>	1.00		32.4 <sup>***</sup>	1.00		12.8 <sup>***</sup>	1.00		50.0 <sup>ns</sup>	1.00	
Partner	56.4	5.72	3.37–9.70	58.9	3.02	1.75–5.21	52.5	7.56	3.82–14.94	61.3	2.14	0.60–7.59
<i>Retired from work</i>												
No	49.7 <sup>ns</sup>	1.00		50.8 <sup>ns</sup>	1.00		40.0 <sup>ns</sup>	1.00		76.9 <sup>***</sup>	1.00	
Yes	49.2	1.27	0.82–1.97	56.2	0.79	0.46–1.37	45.8	1.17	0.58–2.35	55.1	0.28	0.12–0.67
<i>Church attendance</i>												
Never	47.2*	1.00		52.3 <sup>ns</sup>	1.00		47.8 <sup>ns</sup>	1.00		60.4 <sup>ns</sup>	1.00	
Less than once a year	46.2	0.91	0.59–1.41	54.1	0.96	0.58–1.57	35.3	0.56	0.30–1.03	51.6	0.93	0.35–2.52
Once or twice a year	48.7	1.01	0.66–1.54	56.9	1.11	0.69–1.78	44.6	0.92	0.54–1.57	61.8	1.28	0.56–2.93
Once a month or more	67.2	2.18	1.18–4.03	62.3	1.56	0.82–2.96	47.6	0.79	0.46–1.36	65.1	1.68	0.74–3.84

For each country: The first column shows the bivariate analysis, per cent sexually satisfied. The second column shows the multivariate logistic regression analysis (adjusted odds ratios (AOR) with 95% confidence intervals (CI) for having been sexually active, weighted data). \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ; *ns* not significant

Field et al., 2013; Palacios-Ceña et al., 2012). One reason for this discrepancy could be that we included 60–65-year-olds, who, in our study, were the group of individuals who reported, across countries, the highest frequency of sexual activity. With the exception of Portugal, odd ratios showed that across gender and country, younger participants compared to older, and partnered participants compared non-partnered were more likely to have had sexual activity in the past 12 months. It should be noted that in only 14 of the Portuguese were non-partnered.

Women in all four countries reported a lower level of (any kind of) sexual activity compared to men. Previous research has shown that among the reasons for sexual inactivity, aging women often report partner-related factors, particularly the lack of a partner or male partner-related sexual difficulties (Beckman et al., 2008; Lindau et al., 2007; Schick et al., 2010), while men tend to attribute sexual inactivity to personal, health-related reasons (Beckman et al., 2008; Schick et al., 2010).

It may be argued that technological developments (e.g., “smart” devices, dating sites) and increased access to and familiarity with these developments have made it possible to meet

new sexual partners, also among the cohort studied here (Wion & Loeb, 2015). The implication of this may be a change in the importance of partner status for levels of sexual activity. However, using the current data, with the exception of Portuguese men, we found that having a partner (still) was the most important predictor for sexual activity across genders and countries.

We found a relationship between level of education and sexual activity in Norwegian, Danish, and Portuguese men, and in Norwegian, Belgian, and Portuguese women. Men and women with tertiary education had higher frequencies of sexual activity than those with primary education. More educated, middle-class persons may place a higher value on maintaining sexual activity than persons with primary education (Schmidt, 1989; Træen & Stigum, 1998), because sex is more connected to the middle-class idea of sexuality as a mutual exchange of intimacy and pleasure.

We found that the attendance of religious services once or twice per year predicted sexual activity negatively in (mainly Protestant) Danish men and positively in (mainly Roman Catholic) Belgian women. We find this interesting and tentatively

**Table 7** Sexual satisfaction in women, by sociodemographic factors separately for each country

	Norway <i>n</i> = 544		Denmark <i>n</i> = 440		Belgium <i>n</i> = 519		Portugal <i>n</i> = 202	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
<i>Age group</i>								
60–64 years	51.4 <sup>ns</sup>	1.00	55.8 <sup>ns</sup>	1.00	37.6 <sup>ns</sup>	1.00	51.9 <sup>ns</sup>	1.00
65–69 years	51.7	1.03 0.65–1.64	59.7	1.13 0.61–2.07	41.5	1.41 0.81–2.47	50.0	1.83 0.79–4.25
70–75 years	48.9	1.10 0.65–1.85	50.3	0.75 0.41–1.39	43.8	1.60 0.89–2.88	33.3	1.14 0.46–2.79
<i>Level of education</i>								
Primary	49.0 <sup>ns</sup>	1.00	54.6 <sup>ns</sup>	1.00	40.0 <sup>ns</sup>	1.00	34.2*	1.00
Secondary	52.7	1.09 0.56–2.15	49.4	0.77 0.46–1.27	43.2	1.32 0.65–2.69	51.7	3.58 1.60–7.99
Tertiary	49.8	1.06 0.54–2.10	60.8	1.22 0.71–2.09	37.8	1.15 0.55–2.43	53.8	4.29 1.60–11.51
<i>Place of residence</i>								
Rural	56.7 <sup>ns</sup>	1.00	59.3*	1.00	45.6 <sup>ns</sup>	1.00	60.0 <sup>ns</sup>	1.00
Medium urban	48.0	0.74 0.50–1.10	48.9	0.74 0.48–1.15	36.7	0.74 0.45–1.23	43.6	0.27 0.10–0.70
Urban	45.9	0.68 0.40–1.18	64.4	1.56 0.82–2.98	44.9	1.11 0.60–2.08	43.2	0.39 0.15–0.99
<i>Relationship status</i>								
No partner	25.6***	1.00	29.7***	1.00	27.4***	1.00	25.5***	1.00
Partner	60.2	4.71 3.10–7.15	59.0	3.64 1.98–6.67	51.8	2.95 1.90–4.60	52.2	3.42 1.42–8.20
<i>Retired from work</i>								
No	51.0 <sup>ns</sup>	1.00	57.4 <sup>ns</sup>	1.00	39.6 <sup>ns</sup>	1.00	60.0**	1.00
Yes	50.6	1.06 0.69–1.65	54.2	0.98 0.52–1.84	40.8	0.93 0.54–1.60	38.0	0.36 0.17–0.78
<i>Church attendance</i>								
Never	51.9 <sup>ns</sup>	1.00	49.6 <sup>ns</sup>	1.00	38.8 <sup>ns</sup>	1.00	55.0 <sup>ns</sup>	1.00
Less than once a year	46.7	0.68 0.42–1.12	56.0	1.45 0.83–2.49	38.1	0.93 0.45–1.93	26.9	0.22 0.06–0.75
Once or twice a year	51.6	0.88 0.56–1.40	57.1	1.47 0.88–2.47	40.6	0.92 0.55–1.55	43.6	0.56 0.21–1.49
Once a month or more	52.4	0.86 0.50–1.47	58.1	1.63 0.83–3.20	45.7	1.05 0.58–1.91	50.0	0.98 0.41–2.33

For each country: The first column shows the bivariate analysis, per cent sexually satisfied. The second column shows the multivariate logistic regression analysis (adjusted odds ratios (AOR) with 95% confidence intervals (CI) for having been sexually active, weighted data). \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ;  $ns$  not significant

speculate that this may be related to differences between Protestant and Catholic values. In Protestant men, partnered and solitary sex may be negatively associated with feelings of guilt. In Roman Catholic women, on the other hand, vaginal sexual intercourse may be positively associated with a sacred bond between man and woman confirming a loving relationship. We call for more research to explore in more depth possible explanations for these findings.

## Sexual Satisfaction

In the repeated cross-sectional Swedish study by Beckman et al. (2008), the proportion of sexually satisfied 70-year-olds was significantly higher in the 2000/1 than in the 1976/1977 wave. Interestingly, the change was greater among aging women than aging men. The proportion of satisfied women increased from 41% in 1976/1977 to 62% in 2000/2001; the respective proportions among men were 58% and 71%. This may be an indication of newer generations of older adults, and particularly women,

placing a higher value on and pursuing an “active sexuality” as compared to previous generations (Schmidt & Matthiesen, 2003). Cross-culturally, participants in this study were fairly satisfied with their sex lives. This finding corroborates previous research, which has also shown that substantial proportions of aging men and women report being sexually satisfied (Field et al., 2013; Wang et al., 2014). Further, for both men and women in all countries, relationship status emerged as an important factor for sexual satisfaction. For men, participants who had a partner were 2–7.5 times more likely to score higher on sexual satisfaction than men without a partner. Female partnered participants were 3–5 times more likely to score higher on sexual satisfaction than women without a partner.

Sexual activity has been found to be important for sexual satisfaction (Heiman et al., 2011). Across all four countries, relationship status was the best predictor of sexual satisfaction in both genders. Men and women who had access to a permanent partner were more sexually satisfied, and reported higher levels of sexual activity, than those without a partner. This finding is consistent with several previous studies

(DeLamater & Sill, 2005; Field et al., 2013; Gott, 2005; Træen et al., 2016b) and suggest that cross-culturally, sexual satisfaction is (still) tied to partner status.

An unexpected finding was that for both men and women and across countries, age did not predict sexual satisfaction. Although this finding is consistent with a few previous studies (Neto & Pinto, 2012; Thompson et al., 2011), more commonly, increasing age has been linked with reduced sexual satisfaction (Chao et al., 2011; del Mar Sánchez-Fuentes & Sierra, 2014; Dijkstra & Barelds, 2011; Field et al., 2013; Graf & Patrick, 2014; McCall-Hosenfeld et al., 2008; McFarland et al., 2011; Schick et al., 2010; Træen & Schaller, 2010). We speculate that the finding that age did not predict sexual satisfaction could be a time and/or cohort effect, as gender equality may be more prominent among this generation of older adults, compared to previous generations. Within a gender-equal couple, non-genital contact and not solely focusing on sexual intercourse may be important for feeling sexually satisfied, as this may increase the perception of being intimate and emotionally close (Graugaard et al., 2012). This reasoning supports DeLamater and Karraker's (2009) thesis that the sexual relationship may undergo changes with age as a function of biological, psychological, social, and cultural factors, and these changes may in turn be related to sexual satisfaction.

Across all countries, we found no significant differences in sexual satisfaction levels between participants living in rural vs. urban areas, which suggests that, at least in the context of some Western European countries, cultural and structural differences associated with different levels of urbanicity do not substantially impact the sexuality of aging individuals.

### Cross-Cultural Comparisons of Sexual Activity and Sexual Satisfaction

An illustration of the main findings on sexual activity and sexual satisfaction across European countries is presented in Fig. 1. Masturbation activity was highest in the Northern European countries, and lowest in Portugal, where coital activity was highest. We believe this could be linked to cultural sexual norms and perceptions where, more than in Northern Europe, in the South of Europe vaginal intercourse represents “right” or “good” sexuality, and masturbation is something compensatory and accordingly unnecessary when one has access to the “real thing” (Lewin, 1991). Further, in the South, masturbation is still more likely to be associated with shame and guilt, particularly in women (Carvalho & Leal, 2013).

We found that women in Norway and Denmark were more satisfied with their sex lives than women in Portugal and Belgium. This supports Laumann et al.'s (2006) finding that sexual satisfaction is higher in societies characterized by more gender equality. In the “liberal” Nordic cultures, sexual interaction between men and women is negotiated on more equal terms compared with Southern cultures. However, in this Nordic

cultural context, women also represent a group of the population which historically has been subordinated compared to men. The present focus on gender equality and women's rights generally, and in the sexual domain specifically, may have diminished the traditional subordinated female sex role, making women feel more in control of their sexuality and the sexual interaction. At the same time, men may have lost their superior role and become more disempowered and uncertain about their position in relation to women. This may explain why women in Norway and Denmark reported being more sexually satisfied than women in Belgium and Portugal, and also why Portuguese men were more satisfied than men in the other countries. In Mediterranean countries, men's behavior is still more influenced by patriarchal traditions (Bačák & Štulhofer, 2011; Ongaro, 2004; Rizzi, 2004; Štulhofer et al., 2011). Masculinity is positioned in opposition to femininity and the male sex role of older adults carries expectations about initiation, dominance, assertiveness, and independence. The female sex role is often associated with passivity, submissiveness, and dependency. Feelings of control and superiority may explain why Portuguese older adult men report greater sexual satisfaction in comparison with men from more Northern European countries. Similarly, feelings of subordination may explain why women in Belgium and Portugal reported less sexual satisfaction compared to those in the Nordic countries.

### Strengths and Limitations

Strengths of the present research include comparable data collection strategies and designs, and the use of identical measures, age ranges, and the inclusion of a comprehensive array of sociodemographic predictor variables of sexual activity and sexual satisfaction, across four European countries.

However, when evaluating the results of this study, the following limitations should be taken into consideration. First, decreasing response rate in large-scale public opinion surveys have been observed over the past three decades (Galea & Tracy, 2007). Despite all efforts and variable tokens or appreciation used, the British NATSAL-3 study had a response rate of 58% (Mitchell et al., 2013). In Finland, there has been a steady and non-linear decrease in response rates to the repeated cross-sectional national sexual behavior from 91% in 1971 to 37% in 2015 (O. Kontula, personal communication, 31 May 2018). In Norway, response rates in sexual behavior surveys have decreased from 63% in 1987 to 20% in 2008 (Træen, Stigum, & Magnus, 2003; Træen & Stigum, 2010). The low response rates, particularly in Portugal, likely represent a problem for the generalizability of the results irrespectively of the applied weighting (which is not a remedy for selection bias). The problem with a high non-response is also that such samples can lead to bias in prevalence estimates and associations through selection-induced collider bias (Munafò, Tilling, Taylor, Evans, & Smith, 2018). Second, the length of the questionnaire may

## Sexual satisfaction and sexual activity in 60–74 year-olds across European countries



**Fig. 1** Sexual satisfaction and sexual activity in 60–74 year-olds across European countries

have discouraged some individuals from participation, and it can reasonably be assumed that individuals with more liberal views about sexuality were more likely to participate in this study. This could have inflated sexual activity rates and sexual satisfaction findings. Third, although, during the recruitment process, we emphasized that the responses of sexually inactive individuals would be as important as those of sexually active participants, it is possible that sexually active aging men and women were overrepresented in this study (Dunne, 2002)—which, again, could have inflated estimates of sexual activity and, possibly, also sexual satisfaction. Fourth, another important limitation is the fact that we only had a small proportion of sexual minority adults, which precluded any exploration of sexual orientation-specific factors associated with sexual activity and satisfaction (de Vries, 2007). Lastly, we cannot rule out the possibility that some of our findings would also apply to younger adults (no comparison group of younger adults was available), i.e., that they are not necessarily affected by aging.

## Conclusions

The study reported in this article provides a unique comparison of sexual activity and sexual satisfaction in men and women across four European countries by utilizing comparable data collection

strategies, identical measures, age ranges, and by including a comprehensive array of sociodemographic predictor variables. Across countries, we found that the following subgroups were the least sexually active and satisfied: (1) Women, (2) non-partnered individuals, (3) men and women over the age of 70 years; and (4) women with only primary education. We believe that attention to these subgroups of older individuals may be especially important in future health promotion programs that focus on sexual activity and sexual satisfaction.

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