



# Predicting Changes to Sexual Activity in Later Life: A Longitudinal Study

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## Abstract

**Introduction** Prior research has focused intensively on understanding why some older adults are sexually active and others are not. However, very few studies have examined changes in the sexual frequency and the related predictors.

**Methods** This study analyzed longitudinal data from the Survey of Health, Aging and Retirement in Europe (2017–2020), specifically data from 978 Czechs ( $mean_{age} = 69.7$ ;  $SD_{age} = 7.8$ ; 60% women). Logistic and ordinal regression models were constructed to identify older people who were likely to maintain their sexual frequency; cease their sexual activity; and experience a change (i.e., increase or decrease) in the frequency of their sexual activity.

**Results** Partnership status discriminated sexually active people from entirely sexually inactive people at both time points. Sexual cessation was connected to an increased number of chronic illnesses and poorer socioeconomic status. However, the target variables were ineffective in predicting the changes in sexual frequency among sexually active people in a heterosexual relationship.

**Conclusions** This suggests that a more complex set of factors should be taken into consideration in future research.

**Policy Implications** Recommendations related to good health and relationship stability may make later-life sexual activity more normative compared to previous older generations and linking sexual activity to successful ageing still needs to be critically reviewed.

**Keywords** Older adults · Later-life sexuality · SHARE · Longitudinal data · The Czech Republic

## Introduction

Later-life sexual expression is an important aspect of older adults' lives that contributes to successful aging (Štulhofer et al., 2019). Because the frequency of later-life sexual activity changes over time (Field et al., 2013; Træen et al., 2017), prior research has intensively focused on identifying the factors that explain why some older adults are sexually active and others are not. A review of studies has shown that, together with social expectations and attitudes about later-life sex, a set of biological, psychological, interpersonal, and systemic factors might be at play, with

the prior frequency of sexual behavior, health status, and access to a partner all playing critical roles in the continuation of sexual activity (Bell et al., 2017; Delamater, 2012; Træen et al., 2017). The focus of the present study is to understand, from a longitudinal perspective, how—and if—selected factors previously identified in cross-sectional studies may be relevant to explain changes in sexual activity at older age.

## Selected Factors Associated with Sexual Activity in Later Life

It has been shown that older adults who report good health and higher sexual desire are more likely to be sexually active in their later lives (Fischer et al., 2021; Kontula & Haavio-Mannila, 2009; Lee et al., 2016; Palacios-Ceña et al., 2012; Tetley et al., 2018). Two recent studies showed that self-perceived health (i.e., the way people evaluate their own health status) was strongly associated with recent sexual activity (Erens et al., 2019; Stentagg et al., 2021) and it was identified as the most important

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predictor for sexual interest, especially in older men (Træen et al., 2018b). Results from a representative survey among community-dwelling adults aged 50+ in England indicate that both women and men who perceived their health as poor or fair were significantly less likely to report engaging in any sexual activity in the past year compared to individuals who reported good health (Lee et al., 2016). Moreover, objective indicators of health status, such as a number of chronic diseases, age-related physical or mental illnesses (e.g., diabetes, cardiovascular diseases, depression), and related medical treatment, have been found to be negatively linked to sexual functioning and, correspondingly, to later-life sexual activity, as well as to lower satisfaction with sex life (Buczak-Stec et al., 2021; Field et al., 2013; Foley, 2015; Freak-Poli et al., 2017; Palacios-Ceña et al., 2012).

However, the way in which suffering from chronic illnesses contributes to sexual decline or increased sexual distress among the aging generation is complex, with observed relational and gender differences (Delamater, 2012; Lee et al., 2016). For example, people in a close relationship tend to establish compensatory mechanisms, such as engaging in intimate partnered behaviors, in order to reduce health-related barriers in their pursuit of penetrative sex (Erens et al., 2019). Also, experiencing long-lasting illness has been found to decrease the likelihood of recent sexual activity for older men, but not for older women (Erens et al., 2019). In line with this, older women's lower sexual activity has been attributed mainly to the poorer health status and worsened sexual functioning of their male partners (Fischer et al., 2021; Lodge & Umberson, 2012; Ševčíková & Sedláková, 2020). In this regard, several studies indicate that later-life female sexuality in particular is likely to be affected by other factors, such as interpersonal or psychological issues, rather than by individual (sexual) health status (DeLamater & Koepsel, 2015; Hinchliff et al., 2010; Træen et al., 2017). Still, that does not imply that the onset of illness in older women has a negligible impact on their sexual activity (Erens et al., 2019; Jen, 2017).

A relationship status and a set of related factors have also been associated with sexual activity in later life, with the availability of a partner most prevalent (Field et al., 2013; Freak-Poli et al., 2017; Træen et al., 2017). Specifically, the death of a partner seems to accelerate sexual decline or even cessation. While many cross-sectional studies have shown that the frequency of sexual activity is indeed higher among partnered older people in comparison to those who are single (Erens et al., 2019; Freak-Poli et al., 2017; Stentagg et al., 2021), relationship length and form can also contribute to the variability of sexual frequency in later life. On one hand, older adults in long-term intimate relationships tend

to benefit from the established intimacy and engage in partnered sex well into later life because they perceive it as a way to strengthen their bond, enhance their love, and convey commitment (Erens et al., 2019; Ševčíková & Sedláková, 2020). On the other hand, literature indicates that the longer duration of a relationship may lead to a decline in sexual desire, arousal, and sexual activity, even after controlling for confounding factors, such as age and the couple's health statuses (Karraker & Delamater, 2013; Mark & Lasso, 2018). Establishing a new relationship in older age is often considered to be a turning point in later-life sexuality, and it is associated with an increase in sexual activity, which is facilitated by a reawakening sexual desire, a change to the meaning of sex in one's life, or the discovery of fulfilling, pleasurable, and satisfactory partnered sex (Fileborn et al., 2015; Gore-Gorszewska, 2021; Watson et al., 2017). The frequency of partnered sex also varies across relationship types (Connidis et al., 2017; Koren, 2014). Specifically, older adults who stay in less traditional relationship types (e.g., living apart together relationships, dating, cohabitation) are likely to report higher levels of sexual activity than older individuals in traditional marriages (Ševčíková et al., 2021). This suggests that relationship duration and forms may exert a complex effect on sexual activity among older individuals.

## Longitudinal Studies

Despite growing evidence for the specifics of later-life sexual expression, a lack of longitudinal research design has been repeatedly identified in review studies as a gap in the existing literature (Delamater, 2012; Træen et al., 2017). Most of the known factors have been identified in cross-sectional surveys or in studies that employed a retrospective approach by asking participants about the perceived differences between their present and past sexual lives (Træen et al., 2018b). This is limiting because no potential causal links can be inferred.

A scarcity of prospective studies on sexual life in older age can be observed in a systematic review by Bell et al. (2017), which examined 57 research papers about sexual activity after age 60 and the associated factors. Only two out of the four longitudinal-design papers that were examined were published in the past two decades. One study introduced new measures for sexuality and physical contact, but no longitudinal findings were reported (Galinsky et al., 2014); the second study was focused on predicting life expectancy among sexually active older Taiwanese people (Chen et al., 2007). More recent longitudinal studies of sexuality in later life are also selective in their area

of interest (e.g., examination of associations between alcohol use and sexual activity in later life; Grabovac et al., 2021) or analyze factors related to the decrease of sexual satisfaction among middle-aged and older adults (Buczak-Stec et al., 2021). In this respect, there is no prospective research that uses population-representative cohorts to study how sexual activity changes at older age and what explanatory factors may be responsible for sexual continuity and discontinuity among older people.

Therefore, the purpose of this longitudinal study is to fill this research gap by exploring different patterns of changes in sexual frequency in later life—which may vary from an increase to a decrease to cessation—and how health and relational factors may be responsible for these changes. Moreover, this longitudinal study is interested in the factors that are responsible for maintaining sexual activity with cohort data from the Czech Republic, a country that is known for liberal attitudes towards sexual expression, both in the communist past and at present (Bělehradská & Lišková, 2021; Manea & Rabušic, 2020; Weiss, 2012).

Drawing from previous cross-sectional studies that identified health and relationship statuses among the key factors associated with the continuation or cessation of sex in later life (DeLamater, 2012; Freak-Poli et al., 2017; Træen et al., 2017), we propose to examine their effects from a longitudinal perspective. We hypothesize the following relationships: Compared to those who are sexually inactive at two time points (i.e., time 1, time 2), people who are sexually active at both time points are likely to report better health status (Hypothesis 1a), and they are more likely to be in a relationship (Hypothesis 1b).

We hypothesize that cessation in sexual activity is more likely to be present in people whose health status worsened (Hypothesis 2a) and who lost their partner between time 1 and time 2 (Hypothesis 2b) than among those who reported no such change.

Due to the shortage of longitudinal studies and theories for changes in later-life sexual frequency among sexually active people, we do not propose a specific hypothesis.

We also propose to control this study for socioeconomic status for the following reasons. Firstly, a better financial situation may translate into better health and a reduced number of sexual difficulties because individuals who have resources can invest in their health care treatment. As indicated in a recent study by Momtaz et al. (2014), socioeconomic status may support the maintenance of sexual activity in older age. Secondly, a good financial situation has been associated with later-life re-partnering (Vespa, 2012). It may be assumed that people who have a good socioeconomic status will be more sexually active because they are more likely to enter a new relationship in older age.

## Method

### Data

We analyzed data from the Survey of Health, Aging and Retirement in Europe (SHARE) project. It is a longitudinal panel study conducted in 28 European countries and Israel (Börsch-Supan et al., 2013). The aim of the SHARE survey design was to draw inferences about aging, health, and economic-related topics about the population of people aged 50 and older across countries with probability-based sampling. The most common cluster design in SHARE was two-stage sampling with geographical areas (usually municipalities) as the primary sampling units, and households or individuals as the secondary sampling units. Specifically, this paper uses data from Czech respondents in Wave 7, version 8.0.0 (Börsch-Supan, 2022a), and Wave 8, version 8.0.0 (Börsch-Supan, 2022b). Both were collected in Czech households in 2017 (Wave 7) and 2019–20 (Wave 8). We used the data from the main SHARE questionnaire, which was administered via computer-assisted personal interviews, and from an additional drop-off questionnaire, which contained customized questions for each country and focused on more sensitive topics. We analyzed only the Czech sample, because the question on sexual behavior was not administered in other countries.

### Participants

The Czech panel sample was selected based on stratified probability sampling, with the inclusion rule set at being at least 50 years old. In Wave 7, out of the projected 4360 eligible households in the Czech Republic, there were 3074 households (70.5%) with at least one completed interview (Bergmann et al., 2019). This rate can serve as a general estimate for the response rate. In Wave 8, the longitudinal sample of Czech households showed a 55% response rate and the refreshment sample showed only a 9% response rate (Bergmann & Börsch-Supan, 2021).

Out of the 1190 participants who responded to the key question about their frequency of sexual activity in both waves (see “Measurement”), we managed to pair the answers with the sociodemographic data for 984 participants (83%). Six people were excluded because they indicated that they were younger than 50. Thus, the sample eligible for analysis consisted of 978 participants in total. The participants were about 70 years old, on average ( $SD = 7.8$ ). The sample consisted of 392 males (40%) and 586 females (60%). Regarding their highest level of finished education, 113 participants indicated primary education (12%), 257 vocational secondary education (26%), 399 secondary

**Table 1** Descriptive statistics

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>min</i>	<i>max</i>	Skewness	Kurtosis
Frequency of sex per month (Wave 7)	978	1.84	1.11	1	1	5	0.95	−0.46
Frequency of sex per month (Wave 8)	978	1.69	1.01	1	1	5	1.22	0.31
Age	978	69.65	7.77	70	50	94	0.18	−0.31
Ability to make ends meet	971	3.13	0.88	3	1	4	−0.67	−0.47
Number of chronic diseases (Wave 7)	977	2.19	1.64	2	0	8	0.80	0.40
Number of chronic diseases—change in time	977	0.12	1.41	0	−5	6	−0.06	1.04
Self-perceived health (Wave 7)	978	2.88	0.85	3	1	5	0.03	0.47
Self-perceived health—change in time	977	0.02	0.78	0	−3	3	0.02	1.25

education (41%), 27 vocational tertiary education (3%), and 182 tertiary education (19%) (Table 1).

## Measurement

The following selection of measurement tools available in the SHARE survey was guided by existing research evidence on potential predictors of later-life sexual activity.

### Frequency of Sexual Activity

To take into consideration the individual's differences in the meaning of "sex" and the specifics of later-life sexual expression (i.e., moving from vaginal intercourse to other partnered sexual activity; Gore-Gorszewska, 2021), respondents were invited to answer a deliberately broadly worded question (*Over the last 12 months, how often did you have sex with your husband/wife, partner, or acquaintance?*) with response options *I didn't have any sex* (1), *Once a month or less often* (2), *Twice or three times a month* (3), *Once or twice a week* (4), and *Three times a week or more often* (5).

### Ability to Make Ends Meet

Participants' socioeconomic situation during Wave 7 was assessed by the question "Is your household able to make ends meet?" with response options that ranged from *With great difficulty* (1) to *Easily* (4).

### Partnership

The partnership variable was coded as a factor that indicated whether a respondent was in a relationship in Waves 7 and 8 (based on self-reported marital status), the presence of a partner in the household, and having a partner outside the household. This variable had four levels that expressed all of the possible combinations of either having (*yes*) or not having (*no*) a partner in both waves (i.e., *no-no*, *no-yes*, *yes-no*, *yes-yes*). Subsequently, the category *no-yes* (i.e., having a partner only in Wave 8) was omitted from the analysis, because the group size was too small ( $n = 7$ ; see Table 2).

### Health

We measured health status with both subjective and objective measurements (i.e., self-perceived health, number of chronic diseases; both self-reported by participants) due to the complexity of the impact of health on later-life sexual activity. For instance, some chronic diseases may easily be compensated for without having any impact on sexual functioning, while other health problems may significantly affect one's own perception of their health and their capacity for sexual interaction.

### Number of Chronic Diseases

In each wave, respondents were asked to mark a list with the major chronic diseases with which they had been diagnosed. The list comprised of 21 chronic conditions (e.g., high blood pressure or hypertension, diabetes or high blood

**Table 2** Sexual frequency in categories

Partnership				Sexual frequency			
Category	Age	% women	<i>n</i>	Category	Age	% women	<i>n</i>
No-no	72.83(7.65)	83.4%	277	No-no	72.91(7.07)	72.0%	522
No-yes	66.14(5.87)	71.4%	7	No-yes	69.41(7.06)	51.3%	39
Yes-no	70.10(6.85)	74%	50	Yes-no (ceased)	68.62(7.32)	48.1%	81
Yes-yes	68.29(7.51)	48.6%	644	Yes-yes (active)	64.87(6.34)	44.9%	336

sugar, Parkinson's disease). The number of chronic diseases was calculated as the sum of the incidences of the different diseases. The possible scores ranged from 0 to 21.

### Change in Number of Chronic Diseases

The change in the number of chronic diseases was expressed as the number of chronic diseases in Wave 8 minus the number of chronic diseases in Wave 7. Possible scores ranged from  $-21$  to  $21$ .

### Self-Perceived Health

In each wave, a self-perceived health scale (Self-perceived Health Scale, US Version; used in the Health and Retirement Study), which consisted of a single question, was administered to respondents. The question read "Would you say your health is..." with response options that ranged from *excellent* (1) to *poor* (5). We reverse-coded the answers from *excellent* (5) to *poor* (1) so that the higher score indicates better self-perceived health.

### Change in Self-Perceived Health

The change in self-perceived health was expressed as the self-perceived health in Wave 8 minus the self-perceived health in Wave 7. Possible scores ranged from  $-4$  to  $4$ .

### Analysis

We used logistic and ordinal regression models to test our hypotheses. Within the regression models, we designated the frequency of sexual activity as the dependent variable for all of them. Other variables (see "Measurement"), plus gender and age, served as predictors. The predictors were entered step-by-step, but for the sake of conciseness, only the final models were presented. For the purposes of the logistic regression analysis, we dichotomized the dependent variable as *sexually inactive* (original response 1) and *sexually active* (original responses 2–5) in either wave and created corresponding combination groups to be compared.

For the first model, we coded the sexual activity into two categories: not participating in sexual activities in either wave (*no-no*; the reference group) and participating in sexual activities in both waves (*yes-yes*).

Similarly, we coded the second model's dependent variable into two categories for the frequency of sexual activities: non-zero frequency in both waves (*active*) and non-zero frequency in Wave 7 with zero frequency in Wave 8 (*ceased*). We selected the *active* category as the reference category to test that the cessation in sexual activity is more likely to be present in people who experience a negative change in health status (Hypothesis 2a) or lose their partner between Wave 7

and Wave 8 (Hypothesis 2b) than among those who reported no such changes. In the third, ordinal regression model, the dependent variable was the change in frequency of sexual activities between Wave 7 and Wave 8 on an ordinal scale.

As for the partnership variable, the category *yes-no* was omitted from the analyses due to its small group size (see Table 2). We selected the category *no-no*, which represents the respondents who did not have a partner in either Wave 7 or Wave 8 as the reference category for the logistic regression model to test Hypothesis 1b. The category *yes-yes*, which represents the respondents who had a partner in both waves, was used as the reference category for the logistic regression to test Hypothesis 2b and for the ordinal regression models. To better control for type I errors in our results, we set the critical  $p$  value to the more conservative threshold of  $p=0.033$ .

Data analyses were conducted in *R* (R Core Team, 2019b). We used the *foreign* package (R Core Team, 2019a) and the *tidyverse* package (Wickham, 2017) to load and clean the data, the *psych* package (Revelle, 2019) to inspect the data, and the *nnet* and *MASS* packages (Venables & Ripley, 2002) to build logistic and ordinal regression models, respectively.

## Results

### Descriptive Statistics

Descriptive statistics of distinct partnership and sexual frequency groups are presented in Table 2.

Table 3 contains the matrix of Kendall's correlation coefficients between the variables. Note the moderate negative correlation between the number of chronic diseases and the self-perceived health in Wave 7 ( $\tau=-0.39$ ), alongside the strong positive correlation between the frequencies of sexual activities across both waves ( $\tau=0.73$ ). The correlation matrix suggests no correlation between predictors strong enough to considerably bias the regression analysis.

### Regression Models

#### Logistic Regression Model to Predict Sexual Activity

In the first model, the *no-no* category, which indicated sexual inactivity at both waves, served as the reference category. We found only partial support for Hypothesis 1a. Those who were sexually active in both waves reported slightly fewer chronic diseases ( $OR=0.78$ ,  $p=0.003$ ), but not better self-perceived health ( $OR=1.31$ ,  $p=0.106$ ), than those who were sexually inactive at both waves. Hypothesis 1b, according to which those who were sexually active at both the time points were more likely to be in a relationship than those who were sexually inactive at both time points, was confirmed because



**Table 3** Correlation matrix

	1	2	3	4	5	6	7	8
1. Age	1							
2. Ability to make ends meet	.06	1						
3. Number of chronic diseases (Wave 7)	.17*	-.13*	1					
4. Number of chronic diseases—change in time	<.01	.03	-.32*	1				
5. Self-perceived health (Wave 7)	-.17*	.10*	-.39*	.08*	1			
6. Self-perceived health—change in time	-.01	.03	.04	-.11*	-.39*	1		
7. Frequency of sex per month (Wave 7)	-.36*	.12*	-.17*	-.02	.16*	.04	1	
8. Frequency of sex per month (Wave 8)	-.36*	.13*	-.20*	-.02	.19*	.05	.73*	1

The table shows Kendall's  $\tau$  coefficients

\* $p < .01$

the sexually active people were much more likely to be in a relationship ( $OR = 23.50$ ,  $p < 0.001$ ) (Table 4).

### Logistic Regression Model to Predict Sexual Cessation

We selected only two categories of the frequency of sexual activities for the second regression model. The *active* reference category included those with non-zero sexual activity at both waves. The *ceased* category comprises of people who were sexually active in the first wave, but inactive in the second wave. A likelihood-ratio test did not show any substantial improvement to the model after adding the self-perceived health,  $\chi^2(1) = 0.02$ ,  $p = 0.885$ , or its change in time,  $\chi^2(1) = 0.02$ ,  $p = 0.884$ . Table 5 summarizes the final model results. Higher age predicted the higher chance for sex cessation ( $OR = 1.11$ ,  $p < 0.001$ ), and higher ability to make ends meet predicted lower chances for sex cessation ( $OR = 0.62$ ,  $p = 0.006$ ). Hypothesis 2a was not supported, because, although people who ceased their sexual activities did report slightly worse health in terms of the number of

chronic diseases ( $OR = 1.31$ ,  $p = 0.020$ ), there was no significant difference between the groups in the changes in the number of chronic diseases over time ( $OR = 1.07$ ,  $p = 0.516$ ) or the self-perceived health over time ( $OR = 0.97$ ,  $p = 0.884$ ). Regarding Hypothesis 2b, people who lost their partner before the second wave ( $n = 21$ ) showed significantly higher chances to cease their sexual activity ( $OR = 3.81$ ,  $p = 0.009$ ) compared to the reference group of people who had a partner in both waves ( $n = 375$ ).

### Ordinal Regression Model

In the ordinal regression model, we deducted the frequency of sexual activities in the second wave from the frequency in the first wave and treated the resulting data as a dependent ordinal variable. In the model, we predicted this change in the frequency of sexual activities by all other target variables (see "Measurement"). The regression results presented in Table 6 consist of the effects of negligible sizes and do not

**Table 4** Logistic regression model to predict sexual activity at older age

	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI		<i>p</i>
				Lower	Upper	
(Intercept)	9.219	1.385	10,087	668	152,266	<.001
Gender (female)	-1.233	0.213	0.292	0.192	0.443	<.001
Age	-0.202	0.018	0.817	0.788	0.847	<.001
Ability to make ends meet	0.653	0.136	1.922	1.472	2.509	<.001
Partnership (yes-yes)	3.157	0.360	23.498	11.593	47.630	<.001
Partnership (yes-no)	2.181	0.554	8.856	2.991	26.221	<.001
Number of chronic diseases	-0.255	0.087	0.775	0.654	0.918	0.003
Change in number of chronic diseases	-0.100	0.083	0.905	0.768	1.065	0.230
Self-perceived health	0.272	0.169	1.313	0.943	1.827	0.106
Change in self-perceived health	0.326	0.159	1.385	1.013	1.894	0.041

The sexually active group in both waves ( $n = 334$ ) is compared to the group sexually inactive in both waves (reference group,  $n = 512$ ). The predictor partnership has three categories which indicate whether the participant had a partner in none of the two waves (*no-no*, reference category,  $n = 258$ ), in both waves (*yes-yes*,  $n = 551$ ), or only in the first wave (*yes-no*,  $n = 37$ )

**Table 5** Logistic regression model to predict the cessation of sexual activity

	<i>ceased</i>					<i>p</i>
	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI		
				Lower	Upper	
(Intercept)	−6.637	1.753	0.001	0.000	0.017	<.001
Gender (female)	0.401	0.280	1.493	0.863	2.583	0.152
Age	0.101	0.022	1.106	1.060	1.154	0.000
Ability to make ends meet	−0.472	0.171	0.624	0.447	0.872	0.006
Partnership (no-no)	0.710	0.606	2.033	0.620	6.665	0.241
Partnership (yes-no)	1.337	0.513	3.808	1.392	10.416	0.009
Number of chronic diseases	0.266	0.114	1.305	1.043	1.632	0.020
Change in number of chronic diseases	0.071	0.110	1.074	0.866	1.332	0.516
Self-perceived health	−0.047	0.229	0.954	0.609	1.495	0.839
Change in self-perceived health	−0.034	0.233	0.967	0.612	1.527	0.884

Dependent variable is the time trend in the frequency of sexual activities with categories indicating being sexually active in both waves (reference category,  $n=334$ ), or being sexually active only in the first wave (*ceased*,  $n=80$ ). The predictor variable *partnership* has three categories which indicate whether the participant had a partner in none of the two waves (*no-no*,  $n=17$ ), only in the first wave (*yes-no*,  $n=21$ ), or in both waves (*yes-yes*,  $n=376$ , reference category)

show any significant relationship between the predictors and the dependent variable.

## Discussion

The purpose of this longitudinal study was to shed light on the selected factors that are responsible for remaining sexually active and for changes in sexual frequency among older individuals.

Our study results point to several important findings. First, the predictors for later-life sexual activity (i.e., relationship status and health status), which are well known mainly from cross-sectional studies (Delamater, 2012; Freak-Poli et al., 2017), seem to be very reliable for predicting older adults' sexual activity over the period of 2 years.

Specifically, relationship stability (i.e., having a partner in both waves) showed to be a robust facilitating factor for the continuity of partnered sex at older age. If a partner is present (and, probably, if no other subjective or objective barriers are present), older people tend to pursue sexual activity in later life. This result strengthens prior cross-sectional findings and may be further understood to reveal that sexually active older couples tend to profit from partnered sex because it helps them strengthen their relationship, convey love and commitment, and maintain the feeling of continuity and relationship exclusivity (Erens et al., 2019; Ševčíková & Sedláková, 2020).

Second, the comparison of those who ceased sexual life between the two time points with those who remained sexually active across the longitudinal survey showed that,

**Table 6** Ordinal regression model to predict changes in sexual frequency among sexually active people

	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI		<i>p</i>
				Lower	Upper	
	Gender (female)	−0.153	0.223	0.858	0.554	
Age	−0.019	0.018	0.981	0.947	1.017	0.300
Ability to make ends meet	−0.002	0.152	0.998	0.740	1.347	0.990
Partnership (no-no)	−0.208	0.584	0.812	0.258	2.592	0.722
Partnership (yes-no)	−0.247	0.616	0.781	0.234	2.679	0.688
Number of chronic diseases	0.000	0.101	1.000	0.821	1.219	0.998
Change in number of chronic diseases	−0.078	0.093	0.925	0.770	1.111	0.405
Self-perceived health	−0.002	0.184	0.998	0.696	1.434	0.993
Change in self-perceived health	0.068	0.182	1.070	0.749	1.531	0.711

Only people sexually active in both waves were analyzed ( $n=334$ ). Dependent variable is the change in the frequency of sexual activities (Wave 8 minus Wave 7) treated ordinally. The predictor *partnership* has three categories which indicate whether the participant had a partner in none of the two waves (*no-no*,  $n=12$ ), only in the first wave (*yes-no*,  $n=11$ ), or in both waves (*yes-yes*,  $n=311$ , reference category)

besides higher age and a negative change in relationship status, only a number of chronic diseases at time 1 had a prospective predictive effect. No changes in health status (i.e., neither the number of chronic diseases nor self-perceived health) were linked to sexual cessation across the 2 years. One potential explanation is that certain chronic illnesses, such as diabetes, cardiovascular diseases, or depression, and the side effects of pharmacological treatments, may have such a negative impact on sexual functioning and sexual frequency (Field et al., 2013) that the accumulation of additional chronic diseases over time may not have any further adverse effects on later-life sexual activity. In this respect, it is also possible that a delayed negative effect for a high number of chronic illnesses measured at time 1 occurred. Some older people may unsuccessfully tackle worsened sexual functioning due to chronic illnesses, leading to their subsequent withdrawal from sexual life (Fileborn et al., 2015; Lodge & Umberson, 2012).

Interestingly, self-perceived health status, per se, played no predictive role in sexual cessation. A shared effect with a number of chronic diseases could be at play. It is also possible that older people remain positive in the evaluation of their health status until health problems do not limit their autonomy in performing their daily activities or self-care (Smith et al., 1999). Particularly, some chronic diseases (e.g., diabetes) do not necessarily endanger the above-mentioned autonomy; therefore, they do not translate into lower self-perceived health status, but may still negatively affect selected aspects of health, such as sexual functioning (Hillman, 2012).

The results of our study indicate that the factors responsible for the cessation of sexual activity may be diverse and complex. For instance, the strong linkage between a lower ability to make ends meet and sexual cessation suggests the important role of financial factors. Lower economic resources may limit an older individual's ability to invest in the health care needed to prevent or overcome sexual difficulties and thus contribute to sexual withdrawal. At the same time, research indicates that lower socio-economic status is associated with lower chances for entering a new relationship among single older people (Vespa, 2012). This, too, may consequently lead to the cessation of sexual activity, given the key role of having a partner in maintaining sexual activity in older age.

Third, the exploratory analysis of changes in the frequency of sexual activity over time revealed that the selected predictors were not comprehensive enough to explain why sexually active individuals alter their sexual frequency, whether by reporting an increase or a decrease. Several potential reasons should be taken into consideration. It is possible that the changes in sexual frequency in our sample were subtle, not large enough to be predicted by the studied factors known to be important for sexual activity in older

age. This raises the question of whether any change in sexual frequency that occurs within the spectrum of maintaining partnered sex would be perceived as substantial by older adults. Previous research, mainly qualitative, suggests that elderly individuals value sexual activity in various forms and may redefine the meaning of sex to include a greater variety of behaviors (Connor et al., 2020; Gore-Gorszewska & Ševčíková, 2022; Ševčíková & Sedláková, 2020). Additionally, despite changes in health status, some older couples might successfully adapt their sexual practices in a way that helps maintain their sexual frequency. Both of these factors could lead to our participants reporting engagement in sexual activity with the same frequency (but in a different form, which was not controlled for in this study), resulting in inconclusive results. However, it is also possible that other factors could provide more explanatory power for nuanced changes in later-life sexual frequency, such as the partner's health problems, living environment, quality of the relationship, individual or societal ageist stereotypes, perception of age-related body changes, and the beliefs of both women and men regarding sex after menopause (Fischer et al., 2021; Jen, 2017; Smith et al., 2017; Træen et al., 2018b).

Lastly, higher age was a predictive factor for sexual inactivity or cessation over 2 years, even after controlling for health, the number of chronic illnesses, and self-perceived health status. This suggests that people's realizations of their chronological age might play an important role in maintaining an active sex life and it may come before how "young" or "old" they feel. This interpretation is derived from prior research, according to which internalized ageist beliefs facilitate withdrawal from sexual life at older age (Bradway & Beard, 2015; Delamater, 2012; Fischer et al., 2021; Gewirtz-Meydan et al., 2019). Interestingly, gender only played a role in distinguishing sexually active respondents from those who were inactive over 2 years. In this study, only older women were more likely to report no partnered sex than older men and, simultaneously, no relationship. This suggests that older women are at risk of sexual inactivity mainly due to an absence of a sexual partner (Træen et al., 2017). However, it is also possible that the effect of double standards (i.e., downplaying the importance of sexual activity in women) or body mass index might be at play. Specifically, it has been found only in older women that severe levels of obesity were negatively associated with partnered sexual activity (Kwon & Schafer, 2017).

## Limitations and Conclusion

The present study is not without limits. First, despite the large sample, some trends in later-life sexual frequency, such as resuming sexual activity, were underrepresented such that no rigorous analysis could be performed for these trends. Second, some factors known from cross-sectional



studies as associated with later-life sexual activity (e.g., sexual attitudes, relationship satisfaction) could not be analyzed, because this data was not available within the SHARE dataset. Similarly, there was no information regarding sexual orientation; therefore, our results may not apply to non-heterosexual older individuals. Moreover, our analyses involved only data from respondents who answered the sex-frequency item, thus limiting the generalization of the findings to the broader population. Nonetheless, the observed trends in sexual activity (e.g., a prevailing decline in sexual activity) seems to correspond to the sexual behavior of older people reported elsewhere (Connor et al., 2020; Freak-Poli et al., 2017; Træen et al., 2018a). Another limitation of the study is that sexual activity (i.e., partnered sex) was measured using a single item. Although the wording of the item allowed for capturing data on various forms of sexual expression, we lack information on how respondents understood this key term, leading to unnoticed interindividual differences in the interpretation of sex among participants. Lastly, the results were drawn from a sample of aged Czechs, members of a generation that underwent a late-1970s campaign that propagated the idea that sexual satisfaction contributes to the consolidation of committed relationships (Lišková, 2018). That aspect could affect the strength of the linkage between relationship status and sexual expression that was observed in our sample.

To conclude, this longitudinal study aimed to shed light on the selected factors that are responsible for changes in sexual frequency at older age, including cessation, decrease, increase, and restoration. Some factors known from cross-sectional studies, particularly relationship stability and good health, were confirmed to be robust longitudinal predictors for the continuity of partnered sex in later life. We also found that sexual cessation in older age is linked to a complex set of factors and, besides the objective barrier of suffering from chronic illnesses, socioeconomic status and sexual attitudes can be at play. However, the study is inconclusive about the prediction of later-life changes in sexual frequency among sexually active people over time. Future research on the sexuality of aging populations would benefit from the inclusion of questions for relational factors, personal attitudes, and ageist beliefs, together with more detailed questions on the forms of sexual behaviors, to exclude the competing interpretation that later-life changes in sexual frequency in sexually active people are not perceived as substantial and to account for individual perception of age-related changes (DeLamater & Koepsel, 2015).

The findings of this study have potentially important implications for the aging population and later-life sexuality, emphasizing the significance of relationship status and health status as predictors of sexual activity. To better meet the needs of older adults, social policies can provide support for maintaining healthy and fulfilling partnerships while

also challenging ageist stereotypes that discourage later-life re-partnering. This could assist older singles who desire to engage in new relationships but fear societal reception. Furthermore, public policies should prioritize accessible health-care services that address the sexual health needs of older adults, especially those with chronic diseases. Educational campaigns and appropriate treatments can play a crucial role in reducing the impact of chronic illnesses on sexual health. This knowledge would benefit not only older individuals but also healthcare providers in delivering comprehensive care. While the association between sexual activity and successful aging warrants further critical review, creating an inclusive and supportive environment that values and supports sexual well-being in later life should be a key focus of public policies.

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**Availability of Data and Material** This study used data from the SHARE project. The data are not the authors' property and cannot be shared freely, but are accessible after registration at <https://share-eric.eu/data/>

**Code Availability** The analytic script is available at [https://osf.io/usw3e/?view\\_only=dbf98b65f97f4f6ba886ceaead758185](https://osf.io/usw3e/?view_only=dbf98b65f97f4f6ba886ceaead758185) (anonymized version for peer review).

## Declarations

**Ethical Approval** The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Ethics Committee of Jena University Hospital (approval number 5290-10/17).

**Conflict of Interest** The authors declare no competing interests.

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