



The Loud Silent Side of Single Parenthood in Europe: Health and Socio-Economic Circumstances from a Gender Perspective

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Abstract

Lone parenthood is one of the multiple accepted family types that make up today's societies. In Europe, 3.2% of total households were single adults with children in 2019. Understanding the socioeconomic and demographic transformations that have led to the relatively high rates of single-parent families have attracted the attention and concern of researchers and policy makers. This study contributes to the literature by exploring trends in and predictors of health outcomes, lifestyle factors (obesity, smoking and alcohol) and social support among single-parent families and cohabiting couples in 20 European countries. To do so, microdata from the European Health Interview Survey-EHIS (2013–2015 and 2018–2020) is used. Running multivariate logistic regressions, we estimate the impact of individual factors associated with single parents' health status, lifestyle factors and social support, adjusting by demographic characteristics and stressors. Our analysis suggests that both single mothers and fathers are left behind in several respects compared to their couple counterparts: lower education levels, lower income and worse economic conditions, worse physical health, and poorer social support relationships. Differences in health status, lifestyle factors and social support between single and couple parents, both mothers and fathers could be associated with the unequal distribution of demographic and stress factors found in this article. Understanding these characteristics of single-parent families could enable the establishment of community-level interventions to mitigate the adverse effects of lone parenthood and their children.

Keywords Lone parents · Health · Social support · Inequality · Gender differences · European Health Interview Survey

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Introduction

Single-parent households are growing in recent decades around the world. This upward trend is due to demographic changes in the family and household structure. In this context, lone parenthood is one of the multiple accepted family types that make up today's societies. In 2013, there were 186.9 million households in the 27 countries of the European Union while six years later, these households increased

to 195.3 million, by almost 5%. Of these households, 5.8 and 6.2 million families were single adults with children in 2013 and 2019, respectively, accounting for 3.13% and 3.20% of total households (Eurostat, 2021). It is worth noting the large gender gap that exists in this topic. There is a high proportion of lone mothers, which has decreased only slightly from 82.74 to 81.35% between 2013 and 2020. Although women make up the majority of single parents, the trend of lone fathers has increased by almost 2.3% over the last few years, such that they now make up 18.65% of single parents. This family structure has become a global social concern due to the growing vulnerability due to various factors such as severe economic hardships, lack of support networks, and social stigma. These families often struggle to make ends meet financially, may lack the support networks that two-parent families often have, and social stigma against single-parent families can also contribute to their social exclusion (Ayebe et al., 2022; Maldonado &

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Nieuwenhuis, 2015; Mencarini et al., 2019). In this regard, single-parent households are characterized by economic and social deficits and disadvantages compared to two-parent families (Freeman, 2017). Hence, it is particularly interesting to examine this topic in international research.

Lone parents, especially mothers, are one of the most vulnerable groups from both social and economic perspective. Therefore, single motherhood is related to poverty and negative physical and mental health outcomes (Li, 2020; Thomson & McLanahan, 2012). This adverse position is mainly due to exposure to conditions of prolonged stress, social exclusion challenges faced by lone parents. Difficulties in family life and/or parental role and work combinations, lack of social support and economic strain contribute to this situation (Rousou et al., 2013). Economic challenges can be understood as the need to care for children limits employment and career opportunities for single mothers. Consequently, they are expected to be unemployed or employed in low-pay and low-status occupations more frequently than partnered mothers (Millar & Ridge, 2013).

At the same time, an association between socio-economic conditions and health has been established (Pascual et al., 2018). Poverty and unemployment influence women's health negatively. In particular, work-life balance, work-family conflict and work-care responsibilities probably imply poor physical and mental health. In that respect, literature indicates that lone mothers show worse self-perceived health status than both married and unmarried cohabiting mothers (Fritzell et al., 2007; Kühn et al., 2023; Van de Velde et al., 2014). Several studies have also compared the mental health of single parents to their couple counterparts, demonstrating that lone parenthood is associated with depression and anxiety (Collings et al., 2014; Stack & Meredith, 2018). As far as we know, health status, lifestyle factors and social support of single parents (both mothers and fathers) have not been explored at the same time in comparison to those who have a partner. Moreover, only a limited number of studies have utilized data to analyze multiple European countries simultaneously.

The aim of the current study was twofold. Firstly, we analyzed the trends of socio-demographic characteristics, stressors, health status, lifestyle determinants (obesity, smoking and alcohol) and social support between lone and cohabiting parents across 20 European Union (EU) countries. In this context, we attempted to explain whether these characteristics of single parents and those parents living with a partner have changed over time. As a secondary objective, we aimed to show whether and to what extent differences in demographic characteristics and stress factors explain the poorer health conditions, lifestyle factors and social support faced by lone parents. Furthermore, a distinction was made between mothers and fathers.

This article contributes to the literature by exploring trends in health outcomes, lifestyle factors and social support among single-parent families and cohabiting couples in 20 EU countries. This allows for a detailed understanding of the dynamics within different European contexts, which is lacking in many existing studies that focus on specific regions or countries. In addition, this research aims to fill gaps in the literature by identifying and comparing the effects that some demographic factors and stressors may have on the health of single-parent families. This analysis goes beyond the basic understanding of the differences between lone parents and parents with a partner. Furthermore, the study makes a noteworthy distinction between mothers and fathers, recognizing potential gender-specific differences. This gender-focused analysis is particularly valuable, as it acknowledges and explores potential nuances in the experiences of lone parenthood. In particular, understanding the contribution of each determinant to worse health outcomes and lifestyle factors is appropriate to provide personalized support for this vulnerable population group.

This research is structured as follows. Next Section reviews the literature related to the topic while the following Section describes the data used, defines the variables considered and the methodological approach. Finally, we present the main findings of the research and indicate the limitations and strengths, and we conclude.

Previous Literature

Not only have mother-headed households increased in recent years, but so have single-parent households headed by fathers. However, most of the literature has focused almost exclusively on lone mothers. Current research on the health of single motherhood has examined the differences in health outcomes between lone mothers and their partnered counterparts. Several studies have also analyzed the association between single parenthood and socio-economic and health conditions, suggesting a significant negative relationship. But how these conditions have evolved over time? Do these effects differ by gender when distinguishing between mothers and fathers?

Single motherhood is associated with worse self-assessed health status (Burström et al., 1999; Fritzell & Burström, 2006; Fritzell et al., 2007; Kim et al., 2010; Kühn et al., 2023; Rousou et al., 2013, 2016; Whitehead et al., 2000; Young et al., 2005). Furthermore, single mothers also report more likelihood of limiting long-standing illness than cohabiting mothers (Van de Velde et al., 2014). When both parents are included in the study, it is proved that both single fathers and mothers have worse health status than couples (Westin & Westerling, 2006). Empirical evidence has also indicated

that lone mothers present worse mental health (Li, 2020; Rousou et al., 2016) and higher levels of psychological distress than mothers who have a partner (Dziak et al., 2010; Mishra et al., 2021; Rousou et al., 2019). Moreover, larger stress levels, depressive symptoms and suicidal ideation are negatively related to the quality of life of lone mothers (Kim & Kim, 2020). However, the body of research regarding the differences between lone mothers' and fathers' psychological health status is not so extensive. Both single mothers and fathers have greater risk of mood disorders than their married counterparts (Wade et al., 2011), but lone mothers have larger probability of psychological distress or anxiety disorders than single fathers (Collings et al., 2014; Wade et al., 2011). Furthermore, depressive symptoms (Rattay et al., 2017) and suicidal ideation prevalence are larger among both single mothers and fathers compared to their couple counterparts (Kong et al., 2017).

According to other health indicators, lone mothers present a greater likelihood of experience clinical risks for cardiovascular disease (Young et al., 2005) and chronic illness (Wickrama et al., 2006) compared to their partnered counterparts. In addition, single mothers show greater risks of hospitalization and mortality than mothers living with a partner (Fritzell et al., 2007; Rogers et al., 2020). In general, lone fathers have higher risk in dying and greater mortality rates than single mothers and couple fathers. They have less favorable risk factors associated with premature mortality, such as lower fruit and vegetable consumption and higher monthly binge drinking (Chiu et al., 2018).

The characteristic of being single among parents is not only associated with harmful health conditions, but also with lifestyle and risky health-related behaviors. The influence of these factors can manifest in several ways. For instance, the presence of a single parent may limit the time available for engaging in healthy lifestyle habits, contributing to a higher risk of obesity. Additionally, the emotional burden and additional demands associated with solo parenting could increase the propensity for tobacco and alcohol consumption. It is demonstrated that both lone mothers and fathers present larger risk of substance use disorders than their partnered counterparts (Wade et al., 2011). More specifically, single mothers are much more likely to be smokers (Burstrom et al., 2010) as well as overweight or obese than cohabiting mothers (Young et al., 2005), but the evidence is not entirely conclusive on this last lifestyle indicator (Rattay et al., 2017). Also, Rattay et al. (2017) have found that lone fathers show higher risk for smoking compared to fathers living with a partner. In addition, alcohol dependence is higher among single mothers and fathers than parents who live together (Kong et al., 2017) and this problem has implied a lower quality of life in lone mothers compared to married mothers (Kim & Kim, 2020).

Moreover, a growing body of evidence analyzing the labor market situation of single mothers has indicated lower employment and career development opportunities (Li, 2020) compared to their couple counterparts. In fact, lone mothers experience a complicated balance between parenting and work (Hancioglu & Hartmann, 2014), showing that this group suffer greater levels of work-family conflict (Dziak et al., 2010). Being unemployed has a more harmful effect on single mothers than on that living with a partner (Burström et al., 1999; Fritzell et al., 2012; Whitehead et al., 2000) and implies prolonged stress situations (Rousou et al., 2013). In other words, professional job status related to the economic level is associated with higher quality of life in lone mothers (Kim & Kim, 2020).

On the other hand, lone parenthood is associated with worse economic position and higher levels of financial hardship (Albert, 2018; Dziak et al., 2010; Li, 2020; Rousou et al., 2013; Young et al., 2005). A vulnerable socio-economic condition as financial strain and lower monthly family income is associated with higher probability of less than good health status and larger rates of ill health in single mothers compared to mothers who have a partner (Ayebe et al., 2022; Burström et al., 1999; Fritzell & Burström, 2006; Kim et al., 2010; Rousou et al., 2016, 2019; Van de Velde et al., 2014). Poor lone mothers present higher risk of psychological distress (Franz et al., 2003) and prolonged stress situations (Rousou et al., 2013). In addition, single mothers are more likely to suffer material disadvantage than cohabiting mothers (Burstrom et al., 2010). Focusing on single parents, Collings et al. (2014) and Kong et al. (2017) conclude that lower socio-economic status is related to greater risk of poor mental health. Meanwhile, Rattay et al. (2017) suggest that lower socio-economic status do not only explain the health impairments of lone parents.

Empirical evidence also has shown the lack of social support among single mothers (Young et al., 2005), which impact negatively on their health status (Rousou et al., 2013). More specifically, lone mothers without additional personal support for their child experience higher risk of psychological distress (Franz et al., 2003). In addition, those who have reported unmet need for help or support suffered more work-to-family strain (Baxter & Alexander, 2008). In this regard, Trujillo-Alemán et al. (2022) have demonstrated that structural social capital (political engagement, social support, and social activity) has a statistically significant positive relationship with self-perceived health. Several studies have shown that lone mothers present lower social support levels than their married counterparts but access to this type of support makes it easier for single mothers to cope with and manage day-to-day problems (Kim et al., 2010). In addition, the characteristic of being single among mothers is associated with poorer interpersonal relationships and less

chance of remarriage (Li, 2020). Meanwhile, other studies have indicated that social support can influence parental adjustment and behavior. Men are less likely than women to face the responsibility of being the sole caregivers and social support appears to be more of a protective factor for lone fathers than for mothers (Wade et al., 2011). However, Rattay et al. (2017) conclude that social support does not simply explain the health impairments of single parents.

The present article explores several lone mothers' and fathers' indicators compared to their couple counterparts. To do so, we use a data set not found in the literature so far. In particular, the sample consists of the last two waves (2013–2015 and 2018–2020) of European Health Interview Survey (EHIS). The article focuses on demographic characteristics and stressors which can affect single parents' health status, lifestyle factors and social support. The article's contribution highlights the European component, as 20 EU countries have been analyzed at the same time.

Materials and Methods

Data

This study was based on micro-data from the EHIS analyzing the last two waves, allowing us to trend analysis. This survey started in 2006–2009 with the first wave and since then it has been carried out every five years. Specifically, the following waves were conducted in 2013–2015 and 2018–2020, which were the two considered in this analysis. The EHIS was conducted in all the Member States of the European Union with a high degree of comparability of population's health conditions and use of health services among them. It provided self-reported information related to health status, health care use, health determinants, and socio-economic background variables for population aged 15 or over living in private households. In our analysis, we restricted ourselves to parents aged 15–64 years, with children aged 24 years or younger in the household.

Therefore, the EHIS included the necessary information to analyze health poverty in lone parents by containing information on the household structure and socio-economic and demographic factors of the individuals. In this context, we defined single parenthood as a mother or father living in the household with at least one of his/her child/children aged less than 25 at the time of the survey and not living with a (legal or “de facto”) partner in the same household. Meanwhile, “couple parent” was characterized by those mothers or fathers who were cohabiting with a partner in terms of their actual living arrangements within the household with at least one child under 25 years old, regardless of whether the relationship with the partner was legally registered (e.g.,

marriage or civil union) or “de facto” relationship. It was important to note at this point that lone parenthood (motherhood and fatherhood) was the dependent variable in this study, which was measured as a dichotomous variable taking value 1 when the parent (mother or father) was single and value 0 otherwise.

Therefore, we have eliminated data from the sample for any other definition of parent and respondents with missing information were also excluded from the analysis and 20 EU countries were finally included in the analysis (Austria, Bulgaria, Cyprus, Czechia, Germany, Denmark, Estonia, Croatia, Ireland, Lithuania, Luxembourg, Latvia, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, Iceland and Malta). In this sense, 52,039 individuals were included in the study in 2013–2015 and 42,715 individuals in 2018–2020. The sample available for analysis consisted of far fewer single mothers (5051 in 2013–2015 and 4064 in 2018–2020) than couple mothers (23,732 in 2013–2015 and 19,522 in 2018–2020), as happened with lone and partnered fathers (1847 in 2013–2015 and 1411 in 2018–2020 compared to 21,409 in 2013–2015 and 17,718 in 2018–2020).

Variables

A range of variables that characterize the domains of demographic characteristics, stressors, health status, lifestyle factors and social support were used to explore the health outcomes, lifestyle factors and social support in lone parenthood in Europe and the extent to which these determinants varied by demographic and stressors factors. The exogenous variables were determined by evidence from the literature (Ayebe et al., 2022; Baxter & Alexander, 2008; Kim et al., 2010; Rattay et al., 2017). All these variables are shown in Table 1.

Beginning with demographic characteristics, the parent's age, the degree of urbanization, the nationality and the education level were included. Single parenthood could be from teenage years to retirement age. Therefore, we focused on parents between 15 and 64 years old. Because health trends differ markedly by age, this variable was captured into three age groups (*age*): 16–29, 30–49 and 50–64 years old, being the age group between 30 and 49 the main concerned about family responsibilities. The degree of urbanization indicated the character of an area. Based on the share of local population living in urban clusters and in urban centers, it was classified into two types of area (*urban dwelling*): thinly populated area (rural area), and intermediate density area and densely populated area (urban area). Regarding nationality (*foreign*), native individuals and those born in another EU Member State or in a non-EU country were considered. Based on the International Standard Classification of Education (ISCED)-2011, *educational level* was recoded

Table 1 List and description of demographic characteristics, stressors, health status, lifestyle factors and social support variables considered

Variable	Description	
<i>Demographic characteristics</i>	Age	Age of respondent (three different categories: 16–29 years, 30–49 years and 50–64 years)
	Urban dwelling	Degree of urbanization: rural (thinly populated area) and urban area (intermediate density and densely populated area)
	Foreign	Country of birth of respondent
	Education level	Primary (early childhood development, pre-primary, and primary education), secondary (lower, upper secondary education and post-secondary but non-tertiary education), and tertiary (short-cycle, bachelor level or equivalent, master level or equivalent, doctoral level or equivalent) education
<i>Stressors</i>	Income quintile	Q1 (below 1st quintile), Q2 (between 1st quintile and 2nd quintile), Q3 (between 2nd quintile and 3rd quintile), Q4 (between 3rd quintile and 4th quintile) and Q5 (between 4th quintile and 5th quintile)
	Employment status	Employed and unemployed (retired, unable to work due to longstanding health problems, fulfilling domestic tasks, student, compulsory military, or civilian service and other)
	Household size	Number of persons living in household, including the respondent
<i>Health status</i>	Living with children	Number of persons aged less than 14 years living in household
	Self-perceived health status	How the respondent perceives his/her health on a five-response scale: very good, good, fair, bad and very bad
	Chronic disease	Suffering from asthma; bronchitis, chronic obstructive pulmonary disease or emphysema; myocardial infarction; coronary heart disease or angina pectoris; high blood pressure; stroke; arthrosis; low back disorder; neck disorder; diabetes; allergies; cirrhosis of the liver; urinary incontinence, problems in controlling the bladder; kidney problems; or depression in the past 12 months
<i>Lifestyle factors</i>	Limiting long-standing illness	Suffering from any illness or health problem of a duration of at least six months
	Smoking habits	Type of smoking behavior: daily smoking and otherwise (occasional smoking or no smoking)
	Alcohol consumption	Consuming alcoholic drinks of any kind (beer, wine, cider, spirits, cocktails, premixes, liqueurs, homemade alcohol...) 1–2 days a week or more in the past 12 months
<i>Social support</i>	Body mass index	BMI of respondent (obese if BMI's respondent ≥ 30 kg/m ²)
	No one to count on	Number of close people to count on in case of serious personal problems

Source Authors' elaboration from EHS 2013–2015 and 2018–2020

as primary (early childhood development, pre-primary, and primary education), secondary (lower, upper secondary education and post-secondary but non-tertiary education), and tertiary (short-cycle, bachelor level or equivalent, master level or equivalent, doctoral level or equivalent) education.

Within stressors considered in the analysis as conditions that generate stress in an individual, we found income, employment status, household size and the number of children aged less than 14 living in the household. *Income quintile* was categorized into five groups according to the net monthly equivalized income of the household: Q1 (below 1st quintile), Q2 (between 1st quintile and 2nd quintile), Q3 (between 2nd quintile and 3rd quintile), Q4 (between 3rd quintile and 4th quintile) and Q5 (between 4th quintile and 5th quintile). *Employment status* was categorized into two groups: employed and unemployed (retired, unable to work due to longstanding health problems, fulfilling domestic

tasks, student, compulsory military or civilian service and other). The *household size* was considered according to the number of persons living in household, including the respondent. Moreover, the variable *living with children* was included as the number of persons aged less than 14 years living in household.

Several health variables were included to measure health conditions. *Self-rated health* was considered as it was a reliable and valid health indicator as was shown in the literature to be associated with healthcare utilization, future health problems and mortality (Jylhä, 2009; Wuorela et al., 2020). Respondents were asked to assess their general health status on a five-response scale (very good, good, fair, bad and very bad). We transformed this variable into a binary variable indicating “good” when respondent rated her or his health status as very good or good and designating “poor” for fair, bad or very bad health. Furthermore, the number of reported

chronic illnesses was included according to the wide range of illnesses considered in the EHIS. Participants were asked to indicate if they suffered any of the following diseases in the past 12 months: asthma; bronchitis, chronic obstructive pulmonary disease or emphysema; myocardial infarction (heart attack); coronary heart disease or angina pectoris; high blood pressure; stroke (cerebral hemorrhage, cerebral thrombosis); arthrosis (arthritis excluded); low back disorder; neck disorder; diabetes; allergies; cirrhosis of the liver; urinary incontinence, problems in controlling the bladder; kidney problems; depression. We created the *chronic illnesses* variable taking value 1 if the answer was affirmative to any of these questions and, therefore, the respondent was considered to have “at least one selected chronic condition”. For *limiting long-standing illness*, individuals were asked to indicate if they had any long-term limitation and they had to answer yes or no. In our analysis, this variable takes the value 1 if parents had any long-term limitation and 0 otherwise.

Main lifestyle factors were chosen as potential determinants of the association between lone parenthood and risky habits. *Smoking* was included, differentiating between daily smoking and otherwise (occasional smoking or no smoking). Alcohol consumption was used according to the consumption of alcoholic drinks of any kind (beer, wine, cider, spirits, cocktails, premixes, liqueurs, homemade alcohol...) at least one or two days a week in the past 12 months. In addition, Body Mass Index (BMI) was calculated as the ratio of self-reported body weight (kg) and height squared (m^2), and we categorized two weight-groups. In this sense, people with a $BMI \geq 30 \text{ kg/m}^2$ were classified as obese, and those with a BMI lower than 30 were considered as non-obese.

Furthermore, *social support* was captured as if the respondent had no one to count on in case of serious personal problems. Hence, we considered that the perceptions of social support were captured using this kind of item (McNamara et al., 2021).

Statistical Analyses

As a first step, descriptive statistics were calculated for all demographic characteristics, stressors, health conditions, social support and lifestyle factors for lone parents and parents living with a partner. The results were stratified according to sex and were expressed as appropriately in frequencies and 95% Confidence Interval (CI).

Next, we studied whether and to what extent differences in demographic characteristics and stress factors explained the poorer health conditions, lifestyle factors and social support faced by single parents. The dichotomous nature of the outcome variable suggested logistic regression as the appropriate technique for the analysis (DeMaris, 1995). Logistic regression methodology was considered as

a strong statistical research instrument due to the straightforward relationship between the Odds Ratios (OR) and the regression coefficients (Hosmer et al., 2013). In this sense, we could examine the association between the independent variables and lone parenthood.

Our dependent variable y was a binary one, and therefore, it takes the value 1 if the individual had a certain characteristic, in this case if the person (mother or father) considered was single (with probability p) and 0 otherwise (with probability $(1 - p)$). Then, we used discrete choice models as follows:

$$P = \text{Prob}(y = 1|X) = \frac{\exp(X'\beta)}{1 + \exp(X'\beta)} \quad (1)$$

This Eq. (1) derived from the linear probability model, $\ln\left(\frac{p}{1-p}\right) = X'\beta$, where F was the distribution function of a random variable, X was a vector of explanatory variables, and β indicated a vector of unknown parameters. In our case, the function F took the logistic distribution and, hence, we had the functional form shown in (1).

In addition, in this model, the logit (log of odds) could be described as follows:

$$\ln\left(\frac{p}{1-p}\right) = X'\beta \quad (2)$$

The logit model returned us the coefficients as the corresponding OR, which could be interpreted as the ratio of the probability of success and the probability of failure. Furthermore, we considered 0.05 level of significance, that was, a 95% CI. In this sense, statistical significance was accepted for p -values < 0.05 . All analyses were performed using STATA statistical software, version 18.

By adding stepwise the explanatory variables to the model, it was possible to show which demographic characteristics and stress factors influenced the health conditions, social support and lifestyle factors of single parents. In this context, Model 1 was adjusted for age, the degree of urbanization, the nationality and the education level. Model 2a also included income quintile, Model 2b employment status, and Model 2c the household size and the number of children aged less than 14 in the household. In Model 3, all variables were included at the same time.

Results

Table 2 exhibits the prevailing trends for the selected demographic characteristics, stressors, health conditions, social support and lifestyle factors by parenthood status: single mothers or fathers, and couple mothers and fathers.

Table 2 Mean values for female and male parents, single and with partners, respectively

	Survey year 2013–2015				Survey year 2018–2020			
	Single mothers		Couple mothers		Single fathers		Couple fathers	
	(N = 5051) % (95% CI)	(N = 1847) % (95% CI)	(N = 23,732) % (95% CI)	(N = 21,409) % (95% CI)	(N = 4064) % (95% CI)	(N = 1411) % (95% CI)	(N = 19,522) % (95% CI)	(N = 17,718) % (95% CI)
Demographics								
Age group, in years								
15–29	26.1 (24.9–27.3)	62.6 (60.4–64.9)	21.5 (21.0–22.0)	20.8 (20.3–21.3)	24.3 (23.0–25.7)	56.3 (53.8–58.9)	22.0 (21.4–22.6)	22.1 (21.5–22.7)
30–49	58.2 (56.8–59.5)	23.3 (21.4–25.3)	66.7 (66.1–67.3)	60.4 (59.7–61.0)	55.2 (53.7–56.7)	26.1 (23.8–28.4)	63.5 (62.8–64.1)	55.8 (55.1–56.5)
50–64	15.7 (14.7–16.7)	14.0 (12.4–15.6)	11.8 (11.4–12.2)	18.8 (18.3–19.3)	20.4 (19.2–21.7)	17.6 (15.6–19.6)	14.5 (14.0–15.0)	22.1 (21.5–22.7)
Urban dwelling	67.7 (66.4–69.0)	63.2 (61.0–65.4)	59.9 (59.3–60.6)	59.8 (59.1–60.4)	72.8 (71.4–74.1)	68.4 (66.0–70.8)	64.6 (64.0–65.3)	64.8 (64.1–65.5)
Foreign	9.3 (8.5–10.1)	7.9 (6.7–9.1)	8.5 (8.1–8.8)	7.5 (7.1–7.8)	11.4 (10.4–12.4)	9.0 (7.5–10.5)	10.9 (10.4–11.3)	10.4 (10.0–10.9)
Education level								
Primary	24.4 (23.2–25.6)	41.4 (39.2–43.7)	18.7 (18.2–19.2)	21.5 (20.9–22.0)	22.5 (21.2–23.7)	33.4 (30.9–35.8)	16.6 (16.1–17.1)	19.3 (18.7–19.9)
Secondary	46.6 (45.2–48.0)	44.1 (41.9–46.4)	46.0 (45.3–46.6)	48.6 (47.9–49.3)	43.6 (42.1–45.2)	43.1 (40.5–45.7)	39.8 (39.1–40.5)	43.5 (42.8–44.3)
Tertiary	29.0 (27.8–30.3)	14.5 (12.9–16.1)	35.3 (34.7–35.9)	29.9 (29.3–30.5)	33.9 (32.5–35.4)	23.5 (21.3–25.7)	43.6 (42.9–44.3)	37.1 (36.4–37.9)
Stressors								
Income quintile								
Q5 (Between 4th and 5th quintile)	9.0 (8.2–9.8)	13.1 (11.6–14.6)	20.2 (19.7–20.7)	22.6 (22.1–23.2)	8.5 (7.6–9.3)	15.7 (13.8–17.6)	24.4 (23.8–25.0)	28.2 (27.5–28.8)
Q4 (Between 3rd and 4th quintile)	14.3 (13.3–15.2)	14.5 (12.9–16.1)	22.8 (22.3–23.3)	24.1 (23.5–24.7)	16.3 (15.2–17.5)	17.2 (15.2–19.1)	25.5 (24.9–26.1)	26.3 (25.6–26.9)
Q3 (Between 2nd and 3rd quintile)	17.1 (16.1–18.2)	17.2 (15.5–18.9)	21.5 (21.0–22.0)	21.2 (20.7–21.8)	20.2 (18.9–21.4)	22.7 (20.5–24.9)	23.0 (22.4–23.6)	22.1 (21.5–22.7)
Q2 (Between 1st and 2nd quintile)	24.0 (22.9–25.2)	21.2 (19.3–23.0)	18.4 (17.9–18.9)	17.5 (17.0–18.0)	23.8 (22.5–25.1)	21.9 (19.7–24.1)	15.2 (14.7–15.7)	13.9 (13.4–14.5)
Q1 (Below 1st quintile)	35.6 (34.2–36.9)	34.0 (31.8–36.2)	17.1 (16.6–17.6)	14.5 (14.1–15.0)	31.3 (29.8–32.7)	22.6 (20.4–24.8)	11.8 (11.3–12.2)	9.5 (9.1–9.9)
Unemployed	37.8 (36.5–39.2)	51.0 (48.7–53.3)	37.1 (36.4–37.7)	23.9 (23.3–24.5)	32.3 (30.8–33.7)	42.2 (39.6–44.7)	31.9 (31.3–32.6)	19.0 (18.4–19.6)
Household size (≥ 3 people)	45.6 (44.3–47.0)	51.5 (49.2–53.8)	99.9 (99.8–99.9)	99.7 (99.6–99.7)	48.1 (46.5–49.6)	52.4 (49.8–55.0)	99.8 (99.7–99.8)	99.9 (99.8–99.9)
Living with child aged < 14 years	50.8 (49.4–52.2)	29.7 (27.6–31.8)	64.4 (63.8–65.0)	62.5 (61.8–63.1)	48.7 (47.2–50.3)	30.3 (27.9–32.7)	61.9 (61.2–62.6)	59.7 (59.0–60.4)
Health status								
Less than good self-perceived health status	24.0 (22.8–25.1)	14.8 (13.2–16.5)	17.4 (17.0–17.9)	15.9 (15.4–16.4)	23.3 (22.0–24.6)	15.6 (13.7–17.5)	16.7 (16.2–17.2)	14.6 (14.1–15.2)
Any chronic disease	51.2 (49.8–52.5)	37.4 (35.2–39.6)	44.5 (43.9–45.1)	41.0 (40.4–41.7)	50.1 (48.6–51.6)	40.6 (38.0–43.2)	42.9 (42.2–43.7)	40.7 (40.0–41.4)
LLI	38.0 (36.7–39.4)	25.1 (23.1–27.0)	31.8 (31.2–32.3)	28.8 (28.2–29.4)	40.5 (38.9–42.0)	31.3 (28.9–33.7)	35.3 (34.6–36.0)	31.8 (31.1–32.5)
Lifestyle factors								
Daily smoker	26.4 (25.2–27.6)	21.4 (19.5–23.3)	13.7 (13.3–14.1)	23.4 (22.8–23.9)	22.9 (21.6–24.2)	23.5 (21.3–25.7)	13.0 (12.5–13.5)	21.4 (20.8–22.0)
Alcohol consumption*	20.7 (19.6–21.8)	31.7 (29.6–33.9)	21.3 (20.7–21.8)	44.4 (43.7–45.0)	20.5 (19.3–21.8)	37.7 (35.2–40.2)	21.1 (20.5–21.7)	44.6 (43.8–45.3)
Obese (BMI ≥ 30 kg/m ²)	11.6 (10.7–12.4)	9.2 (7.9–10.5)	11.3 (10.9–11.7)	15.0 (14.6–15.5)	14.6 (13.5–15.7)	11.4 (9.7–13.1)	12.5 (12.0–13.0)	16.2 (15.7–16.8)
Social support								
No one close to count on	2.4 (2.0–2.8)	2.2 (1.5–2.8)	1.0 (0.9–1.2)	1.1 (0.9–1.2)	2.7 (2.2–3.2)	2.4 (1.6–3.2)	0.9 (0.8–1.0)	1.3 (1.2–1.5)

CI = confidence interval; LLI = limiting long-standing illness. Source: Compiled by the author using data from the EHIS (2013–2015 and 2018–2020).

In both waves, the majority of lone mothers and cohabiting parents (both mothers and fathers) were between 30 and 49 years old, while the majority of single fathers in the first wave were between 15 and 29 years old. The degree of urbanization showed higher prevalence for single mothers and fathers compared to those living with a partner. In terms of nationality, the percentage of foreign mothers was higher among the lone ones compared to those with a partner in both waves, while there was a higher rate of foreign fathers among single fathers only in the first wave selected. Regarding the educational level, the prevalences of primary and secondary education were higher in lone mothers compared to cohabiting mothers, while a greater number of mothers with a partner had completed a tertiary level of education compared to single mothers. For fathers, the percentage of primary education was higher for lone ones, while the ratio of secondary and tertiary education was higher for partnered fathers.

Most single mothers and fathers were found in the lowest income quintile, while mothers living with a partner were between the third and fourth quintile, and cohabiting fathers were between the third and fifth quintile. The prevalence of being unemployed was higher among lone parents compared to those with a partner. On the other hand, household size and the percentage of having children in the home under 14 years of age was higher for couple parents.

Differences in rates of health outcomes varied between single mothers and fathers. Self-rated health, chronic diseases and limiting long-standing illnesses showed higher prevalence for lone mothers compared to cohabiting mothers. By contrast, health indicators presented a higher

percentage among fathers with a partner compared to single fathers, except for self-reported health during the second wave.

All lifestyle factors – with the exception of alcohol consumption – presented greater ratio for single mothers compared to couple mothers. For fathers, those living with a partner showed larger prevalence than lone fathers, except for smoking habits in the second wave considered (2018–2020).

Social support variable had indicated that single mothers and fathers had a higher percentage of having no one to count on compared to partnered parents.

Tables 3 and 4 present whether and to what extent demographic characteristics and stress factors explained the poorer health conditions, lifestyle factors and social support faced by single mothers and fathers, respectively. It was worthy to note that there was a significant relationship between lone parenthood and parent's health outcomes. Adjusting by age, urban dwelling, nationality and education level, the results of Model 1 indicated that lone parents were significantly more likely to report a less than good self-perceived health status (mothers OR = 1.21; 95% CI: 1.10–1.33 and fathers OR = 1.26; 95% CI: 1.06–1.50) compared to partnered parents. It was observed that lone mothers also presented higher risk of chronic disease compared to cohabiting mothers (OR = 1.18; 95% CI: 1.09–1.28), while single fathers had lower probability of chronic disease compared to couple fathers (OR = 0.97; 95% CI: 0.83–1.14). When considering lifestyle factors, lone parenthood was significantly more likely associated with being a daily smoker (mothers OR = 1.86; 95% CI: 1.71–2.03 and fathers OR = 1.23; 95%

Table 3 Health status, lifestyle factors and social support of single mothers compared to mothers living in partnerships (results of binary logistic regression, odds ratios, 95% confidence intervals)

Mothers	Model 1		Model 2a		Model 2b		Model 2c		Model 3	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Health status										
Less than good self-perceived health status	1.21	(1.10–1.33)***	1.08	(0.98–1.19)	1.22	(1.11–1.35)***	1.18	(1.03–1.34)**	1.07	(0.94–1.22)***
Any chronic disease	1.18	(1.09–1.28)***	1.17	(1.08–1.26)***	1.17	(1.09–1.27)***	1.12	(1.01–1.24)**	1.10	(0.98–1.22)
Long-standing health problem	0.99	(0.91–1.08)	1.00	(0.91–1.09)	0.99	(0.91–1.09)	0.96	(0.85–1.08)	0.99	(0.87–1.11)
Lifestyle factors										
Daily smoker	1.86	(1.71–2.03)***	1.80	(1.64–1.97)***	1.84	(1.69–2.01)***	1.74	(1.55–1.95)***	1.66	(1.48–1.88)***
Alcohol consumption	0.97	(0.89–1.06)	1.07	(0.98–1.17)	0.96	(0.88–1.05)	0.96	(0.85–1.08)	1.01	(0.90–1.15)
Obese (BMI ≥ 30 kg/m ²)	1.07	(0.96–1.18)	1.00	(0.90–1.11)	1.07	(0.96–1.18)	1.12	(0.98–1.28)	1.06	(0.92–1.21)
Social support										
No one close to count on	2.68	(2.09–3.43)***	2.03	(1.58–2.63)***	2.70	(2.11–3.46)***	2.46	(1.78–3.41)***	1.88	(1.35–2.62)***

Note Model 1 was adjusted for age, the degree of urbanization, the nationality and the education level; Model 2a also included income quintile; Model 2b added employment status, and Model 2c the household size and the number of children aged less than 14 in the household; Model 3 is fully adjusted.

Source Authors' elaboration

OR = Odd Ratio; CI = Confidence Interval; BMI = Body Mass Index.

*, ** and *** represent significant variables at 10%, 5% and 1%, respectively.

Table 4 Health status, lifestyle factors and social support of single fathers compared to fathers living in partnerships (results of binary logistic regression, odds ratios, 95% confidence intervals)

Fathers	Model 1		Model 2a		Model 2b		Model 2c		Model 3	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Health status										
Less than good self-perceived health status	1.26	(1.06–1.50)**	1.14	(0.95–1.36)	1.24	(1.04–1.47)**	1.14	(0.90–1.45)	1.04	(0.82–1.32)
Any chronic disease	0.97	(0.83–1.14)***	1.34	(1.15–1.55)***	1.30	(1.12–1.51)***	1.12	(0.92–1.37)	1.16	(0.95–1.42)*
Long-standing health problem	1.30	(1.12–1.51)	0.99	(0.84–1.16)	0.97	(0.83–1.14)	1.18	(0.96–1.46)	1.20	(0.97–1.48)
Lifestyle factors										
Daily smoker	1.23	(1.07–1.40)***	1.18	(1.03–1.35)**	1.26	(1.10–1.45)***	1.32	(1.10–1.57)***	1.25	(1.05–1.50)**
Alcohol consumption*	1.08	(0.96–1.22)	1.13	(1.00–1.28)*	1.11	(0.98–1.25)	1.00	(0.85–1.18)	1.04	(0.88–1.23)
Obese (BMI \geq 30 kg/m ²)	0.88	(0.73–1.05)	0.86	(0.72–1.03)*	0.89	(0.74–1.06)	0.84	(0.66–1.08)	0.82	(0.64–1.05)
Social support										
No one close to count on	1.85	(1.26–2.71)***	1.61	(1.10–2.36)**	1.84	(1.25–2.70)***	1.63	(0.97–2.73)*	1.44	(0.86–2.42)

Note Model 1 was adjusted for age, the degree of urbanization, the nationality and the education level; Model 2a also included income quintile; Model 2b added employment status, and Model 2c the household size and the number of children aged less than 14 in the household; Model 3 is fully adjusted.

Source Authors' elaboration

OR = Odd Ratio; CI = Confidence Interval; BMI = Body Mass Index.

*, ** and *** represent significant variables at 10%, 5% and 1%, respectively.

CI: 1.07–1.40). In addition, the likelihood of reporting having no social support to count on was estimated to be twice as high for single mothers compared to mothers who had a partner (OR = 2.68; 95% CI: 2.09–3.43), as was the case for single fathers compared to fathers living with a partner (OR = 1.85; 95% CI: 1.26–2.71).

In Model 2a, income was added to test how this characteristic affected the health, lifestyle and social support of lone parents compared to those with a partner. Thus, in the case of mothers and fathers, the results revealed that there was no longer a significant association between being single and reporting worse than good self-perceived health status. In addition, it was observed that lone parents were more likely to have a chronic disease (mothers OR = 1.17; 95% CI: 1.08–1.26 and fathers OR = 1.34; 95% CI: 1.15–1.55), to be daily smokers (mothers OR = 1.80; 95% CI: 1.64–1.97 and fathers OR = 1.18; 95% CI: 1.03–1.35) and to report having no social support to count on (mothers OR = 2.03; 95% CI: 1.58–2.63 and fathers OR = 1.61; 95% CI: 1.10–2.36). Neither the inclusion of employment status (Model 2b) nor the addition of household members led to relevant changes in the odds ratios (Model 2c) of the logistic regressions of mothers and father, except for Model 2c in the case of fathers. No health variable was significant, nor was social support significant.

The results of the final model (fully adjusted) when all control variables were included simultaneously (Model 3) revealed that significant differences continued to exist between single mothers and cohabiting ones in terms of self-assessed general health status, smoking habits and social support. In the case of fathers, the inclusion of all

control variables, there were significant results for limiting long-standing illnesses and smoking habits.

Discussion

With the transformation of family structure, social response to improving welfare of single parents has become an important concern to researchers and policy makers. In this study, microdata from the second (2013–2015) and third (2018–2020) waves of EHIS were used to examine the trends and determinants of single parenthood in 20 EU countries, and to show whether and to what extent differences in demographic characteristics and stress factors explained the poorer health conditions, lifestyle factors and social support faced by lone parents. Overall, 17% of the mothers and 7% of the fathers were identified as single in EHIS.

A number of studies had demonstrated that lone parenthood was associated with poorer health (Campbell et al., 2015). This study has revealed that single parents, both mothers and fathers, had poorer health compared to couple parents using a representative sample (EHIS) from 20 EU countries. More specifically, single mothers reported less than good self-assessed health status to a higher extent compared to mothers living with a partner. These results largely coincided with national and international research (Burstrom et al., 1999; Burstrom et al., 2010; Fritzell & Burstrom, 2006; Fritzell et al., 2007; Kim et al., 2010; Kühn et al., 2023; Li, 2020; Rousou et al., 2013; Trujillo-Alemán et al., 2019; Westin & Westerling, 2006; Young et al., 2005). Although the literature for mothers was more extensive than for fathers, the evidence for single fathers was in line with

our results, showing that this group was generally in better physical health than lone mothers (Li, 2020). Moreover, the differences in the self-assessed health status of lone and partnered mothers were greater than those between single and cohabiting fathers (Rattay et al., 2017). On the one hand, lone mothers reported limiting long-standing illness to a greater extent than did mothers with a partner. Our results were in line with the research findings of Fritzell et al. (2007) and Burstrom et al. (2010). However, the literature was not entirely conclusive when focusing on limiting long-standing illness. To the contrary, our results regarding the increase in long-term limitations in both single and cohabiting parents (both mothers and fathers) was inconsistent with those reported by Burström et al. (1999) probably due to the database.

With regard to lifestyle risk, significantly higher prevalence of smoking was identified among single mothers compared to those living with a partner. Several studies also showed that lone mothers were more likely to be current smokers than couple mothers (Burstrom et al., 2010; Rattay et al., 2017; Siahpush et al., 2002; Trujillo-Alemán et al., 2019; Young et al., 2005). In particular, Fritzell et al. (2012) proved that daily smoking was more common among non-employed single mothers. This result contrasted with the evidence indicating that the prevalence did not vary among fathers when examined according to partner status. In this sense, our findings contradicted the results of Rahkonen et al. (2005) and Dhungel et al. (2023), who found that smoking rates were exceptionally high among single fathers compared to cohabiting fathers. More recently, Chiu et al. (2018) indicated that partnered fathers were less likely to engage in risky activities and behaviors, such as cigarette smoking.

The finding that alcohol consumption was a significant lifestyle risk to lone parents was not surprising, as it was consistent with previous empirical evidence. For single mothers, it was proved that negatively affected their quality of life (Kim & Kim, 2020). For lone fathers, it had been demonstrated that this group was more likely to monthly binge drink than single mothers and couple parents (Chiu et al., 2018). However, not many studies had examined this risk factor. We had shown that the prevalence of alcohol consumption was much higher amongst fathers than mothers. This result was consistent with the findings of Collings et al. (2014) and Kong et al. (2017). However, due to the low number of lone fathers in our sample and the high proportion of missing data on alcohol consumption, we must be careful in drawing conclusions.

To an extent, our results suggested that lone mothers were significantly more likely to be obese than partnered mothers. This finding confirmed existing studies like Young et al. (2005). In this context, results for obesity were relatively

rare for single fathers, but those that were available were consistent with the findings described here.

As we had noted, lone mothers who reported having no one to count on for social support had increased. Being a single mother implied a greater risk of reduced levels of social support compared with cohabiting mothers. This result was in line with the literature showing that lone mothers were more likely to report lower levels of perceived social support (Cairney et al., 2003; Rousou et al., 2016, 2019; Young et al., 2005). Meanwhile, Rousou et al. (2013) proved that lone mothers appeared less likely to experience emotional support compared to partnered mothers, and Li (2020) indicated that respondents of his study believed that being a single mother harmed their social interactions. Slightly gender differences also existed in social support. Lone fathers had less social support than fathers living with a partner and the feeling of having no one to count on had increased in both population groups. To the contrary, recent research had demonstrated that a lone father's interpersonal relationships were not changed because of his single-parent status (Li, 2020). Nonetheless, studies on social support in the single father population are scarce. In this sense, more research is needed to determine the association between loneliness and lone parenthood.

Finally, some important limitations of the study need to be addressed. First and foremost, this research used data based on self-reported questionnaires and, therefore, it implied the subjective assessment of certain variables under consideration. Thus, it was possible that participants may had exaggerated or underreported their answers. Furthermore, response rates tended to be lower among those with worse health status or socioeconomic status as these population were less likely to participate in surveys (Lorant et al., 2007) and, hence, some results could be underestimated. Second, this study employed cross-sectional data, which did not allow for conclusions on the causality of the associations from single parenthood to self-reported health to socio-economic determinants we found. In other words, we were not able to consider the trends and dynamics of the life course of single parents and to identify causes and effects of their health and socio-economic situation. Hence, it would be important to keep in mind that the interpretation of the results for single mothers and fathers requires caution. More longitudinal studies are needed about this topic. Third, this analysis was focused on an underrepresentation of single parent families and, in particular, the small number of lone fathers (17% of the mothers and 7% of the fathers were identified as single). Future research should consider other factors that are likely to contribute to the social support of lone mothers and fathers such as social exclusion and loneliness or isolation.

One of the strengths of this paper lies in the fact that we used large and representative samples of several (20) EU countries, considering both single and couple parents (mothers and fathers) and they were compared using different waves. On the other hand, we had considered several relevant variables related to poor health status such as unhealthy behavior or body mass index. In addition, this study analyzed a very broad age range of parents. That is, we did not only focus on the age group that may be better off socio-economically (e.g., the 30–49 age group), but also included younger and older single parents and, therefore, we could make some statements about them.

Conclusions

This article aimed to examine the trends and predictors of single parenthood in 20 EU countries, analyzing socio-economic and demographic characteristics. Overall, 17% of the mothers and 7% of the fathers were identified as single. Our findings suggested that lone parents' self-reported health had worsened over the years, leading to higher health inequalities between single and couple parents. We had shown that this decline in health was to some extent due to the increasing socio-economic disadvantages faced by lone parents. Factors that may explain the poor self-assessed health status of single parents included the degree of urbanization, nationality, education level, income and household size, among others.

Understanding the socio-demographic and economic characteristics of single-parent families could enable the establishment of adequate social and welfare programs or policies to protect vulnerable population such as lone parents, and to mitigate the adverse effects of lone parenthood. In certain UE countries, those where diverse family structures exist, it is crucial to tailor policies to the specific needs of single-parent households related to economic, social and labor perspectives. Many policies implemented in recent years to support single parents need to be reconsidered in order to empowering single mothers and fathers as well as their children, addressing the unique challenges they face. In many European countries, direct financial assistance is provided to alleviate financial burdens, along with affordable housing programs. Additionally, there is a promotion of equal employment opportunities through policies that support workplace flexibility and the balance between professional and family life. The availability of affordable childcare services is another priority area, facilitating full participation in the workforce for single mothers and fathers. There are also policies aimed at enhancing the training and skills of single parents, easing their integration into the labor market and promoting economic autonomy. By

tailoring social and economic policies, European nations can work towards alleviating severe economic hardships and improving the health status of single-parent families. This approach contributes to fostering a more inclusive and supportive society across Europe (welfare state to work). However, we must be cautious regarding policy recommendations as our sample does not include certain EU countries such as Spain or Italy.

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Data Availability Data for this study can be found on the European Health Interview Survey (EHIS): <https://ec.europa.eu/eurostat/web/microdata/european-health-interview-survey> It is needed to apply for access to Eurostat's microdata.

Declarations

Competing Interests The authors have no relevant financial or non-financial interests to disclose.

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