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Satisfaction with life and its predictive factors in a cohort of fathers 24-months postpartum

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Abstract
Satisfaction with life is considered an essential indicator of quality of life and has implications not only for parents but also for the general health of society. It is relevant to know the factors that could explain differences in parents' satisfaction with life. The objectives of this study were to analyse the degree of satisfaction with life of a cohort of fathers 13–24 months after the birth of their child and to analyse the predictive capacity of sociodemographic, physical, psychological, and social factors on their long-term life satisfaction. This was a longitudinal study with follow-up at 6–12 months and at 13–24 months ($n = 152$ fathers). The *Fatigue Assessment Scale*, *Athens Insomnia Scale*, *Parental Stress Scale* and short version of the *Dyadic Adjustment Scale* were completed online at 6–12 months. Finally, *Satisfaction with Life Scale* was assessed between 13 and 24 months after birth. The mean score of life satisfaction of the participants 13–24 months after the birth of their child was 18.72 ($SD = 3.71$) and was negatively correlated with fatigue, insomnia, and stress ($p < 0.01$), and positively correlated with dyadic adjustment ($p < 0.01$). The final hierarchical regression model showed that educational levels and insomnia were the main predictive variables for life satisfaction during the second-year postpartum. This work has important implications for clinical practice because it allows health professionals to understand the factors influencing satisfaction with life and health among fathers and to plan more effective antenatal and postnatal care.

Keywords Father · Fatigue · Parenthood · Sleep · Personal satisfaction · Stress, physiological

Introduction

The arrival of a new member of the family is considered a major life event for both parents (Luhmann et al., 2012). This transition period, known in the literature as the transition to parenthood (TTP), begins with the pregnancy and can last until the child is up to 2 or 3 years old (Canário & Figueiredo, 2017). The TTP requires reviewing roles and functions to adapt to the new demands that caring for a child entails (Westrupp et al., 2022). Although it can be considered a stressful and challenging period (Gillath et al., 2016), it is also worth noting that most parents consider the arrival of a child as one of the most rewarding and happiest times of their lives (Nelson et al., 2014). However, the academic literature on this topic has shown contradictory results (Nelson et al., 2014; Pollmann-Schult, 2017), with some studies indicating a decrease in the levels of parental well-being and satisfaction (Margolis & Myrskylä, 2011; Stanca, 2012), while others showing the opposite (Pollmann-Schult, 2014; Mikucha, 2016).

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Subjective well-being is a term which "reflects an overall evaluation of the quality of a person's life from her or his own perspective" (Diener et al., 2018) and is measured in the scientific literature under synonyms such as well-being, happiness, or satisfaction with life (SWL; Nelson et al., 2014). However, subjective well-being is a broader concept that captures how individuals assess their own lives, including both cognitive evaluations and affective feelings (Diener et al., 2018). In turn, satisfaction with life (SWL) is a cognitive component of subjective well-being and is defined as "people's explicit and conscious evaluations of their lives, often based on a factor that the individual deems relevant" (Diener et al., 2018).

Satisfaction with life is considered an important indicator of a relatively stable quality of life over time (Eid & Diener, 2004) with implications not only for parents but also for child development and the general health of society (Nomaguchi & Milkie, 2020). Consequently, an additional aspect also being investigated by academics is the trajectory of SWL when parents have a child. In this sense, the results of the meta-analysis by Luhmann et al. (2012), which included 113 longitudinal studies, showed that the birth of a child implies an initial increase in SWL, both in mothers and fathers, which then decreases and is maintained in the long term. In addition, similar results have also been found in more recent longitudinal studies in a European context (Mikucka & Rizzi, 2019; Myrskylä & Margolis, 2014), with an increase in SWL noted after the birth of the first child. The SWL subsequently decreased from the first year until it reached pre-birth levels at around two years, with this change being more pronounced in mothers than in fathers (Margolis & Myrskylä, 2015; Mikucka & Rizzi, 2019; Myrskylä & Margolis, 2014).

However, as suggested by Mikucka and Rizzi (2019), researchers still only have a partial understanding of the relationship between parenthood and life satisfaction. Therefore, it is advisable to continue investigating the factors that could explain the results described above (Margolis & Myrskylä, 2015; Nelson et al., 2014). In this sense, the work by Nelson et al. (2014) revised different moderating variables that could help us to understand the inconsistencies in the results published on life satisfaction and happiness after the birth of a child. Of note, they reflected that younger parents reported lower levels of SWL and suggested that these parents had fewer economic resources, greater job instability, and a lower degree of maturity and academic training to face the demands of parenting (Myrskylä & Margolis, 2014; Nelson et al., 2014). In addition, they also concluded that parents reported lower well-being when their children were young and explained this, in part, by them experiencing a worsening of sleep, more significant fatigue, and less satisfaction with their partner. However, other studies have reported the opposite, with greater SWL among parents when their children were very young compared to elementary, middle, or high-school ages (Nomaguchi, 2012; Pollmann-Schult, 2014). Perhaps this can be explained by parents having better quality relationships with younger children (Nomaguchi & Milkie, 2020) or because their perceived emotional benefits were higher (Nomaguchi, 2012; Pollmann-Schult, 2014).

Hence, it will be advisable to continue analysing the circumstances that contribute to the SWL of parents in order to understand which elements influence this outcome. Moreover, it will be important to also investigate the factors that could explain differences in parents' life satisfaction in different geographic areas (Pollmann-Schult, 2017). For example, parenthood was more positively associated with SWL in Swedish, Danish, and Norwegian countries than in the United States or Continental European countries (Pollmann-Schult, 2017). Social, economic, labour policies, social norms, and the specific characteristics of the environment may underlie these differences in the perception of parental wellbeing and satisfaction (Myrskylä & Margolis, 2014; Pollmann-Schult, 2017). In particular, in the Spanish context, Gómez-Ortiz et al. (2023) analysed how SWL was related to parental stress and rewards among mothers and fathers who were using social services and had underage children. However, to the best of our knowledge, other aspects of parenthood related to SWL, specifically in the TTP period, have not yet been investigated in Spain.

Finally, it is worth mentioning that less attention continues to be focused on fathers during the TTP (Cabrera et al., 2018). For example, in the meta-analysis by Luhmann et al. (2012), only 30.9% of the sample included in the analysis of SWL was male. However, studies exploring parental SWL according to sex have noted differences between fathers and mothers. For instance, regarding the trajectories of satisfaction over time, mothers showed a greater increase after a birth (Mikucka & Rizzi, 2019; Myrskylä & Margolis, 2014) and a steeper decline during the care-intensive stages of parenthood (Mikucha, 2016; Mikucka & Rizzi, 2019) when compared to the fathers' SWL in the same period. Therefore, it is evident that researchers need to assess and address the unique needs of fathers during the TTP. The objectives of this current study were (a) to analyse the degree of SWL of a cohort of fathers 13–24 months after the birth of their child; and (b) analyse the predictive capacity of sociodemographic, physical, psychological, and social factors on their long-term life satisfaction.

Materials and methods

Design

This was an observational study with a longitudinal follow-up at three time-points: at the time of hospital discharge, 6–12 months after discharge, and 13–24 months after the birth. The mean age of the babies whose fathers had responded to the 6–12-month follow-up was 235 days ($SD = 28.85$) while that of the babies whose fathers had responded to the 13–24-month follow-up was 540.57 days ($SD = 82.98$).

Setting and sample

The participants were recruited from October 2013 to March 2016 at the time of postpartum discharge by midwives and nurses at 16 different Spanish public hospitals from different geographical areas of the Valencian Community ($n = 12$), Castilla la Mancha ($n = 2$), and Catalonia ($n = 2$) through a non-probabilistic convenience sampling procedure. All the public hospitals in the Valencian Community with a maternity unit ($N = 26$) were initially invited to participate in this study and those that responded and agreed to take part were included. In addition, hospitals from Castilla la Mancha and Catalonia also formed part of the study cohort. These institutions reached out to us because they had received information about the project from other study collaborators and were interested in participating. They were in an active process of improving their clinical practices and sought updated information on perinatal care.

Participants had to meet the following inclusion criteria (a) be a father of a baby born in one of the participating hospitals and (b) be able to speak and write fluently in Spanish. Men whose partners had multiple pregnancies and those whose newborns had serious health problems were excluded. According to the annual registry of births from the 16 hospitals participating in this work, approximately 22,000 mothers were eligible as participants. All the fathers who were in the hospital with their partners at the time of their discharge after the birth of their baby were invited to participate. Initially, 1,570 fathers were included in the study, with 20 being excluded because of the aforementioned criteria. Of the 1,550 fathers included at the time of postpartum hospital discharge, 364 were lost to follow up because they had provided an incorrect email contact. The questionnaire was finally sent to a total of 1,186 fathers. At 6–12 months, a total of 311 (26.22%) fathers had completed the survey for this present study. Finally, 152 (48.87%) fathers also participated in the 13–24-month follow-up (Fig. 1).

Measurements

Sociodemographics variables

We evaluated the following sociodemographic variables: age; nationality (Spanish/non-Spanish); current marital status (married or domestic partner; separated and/or divorced; single; widower); cohabiting status (yes/no); educational

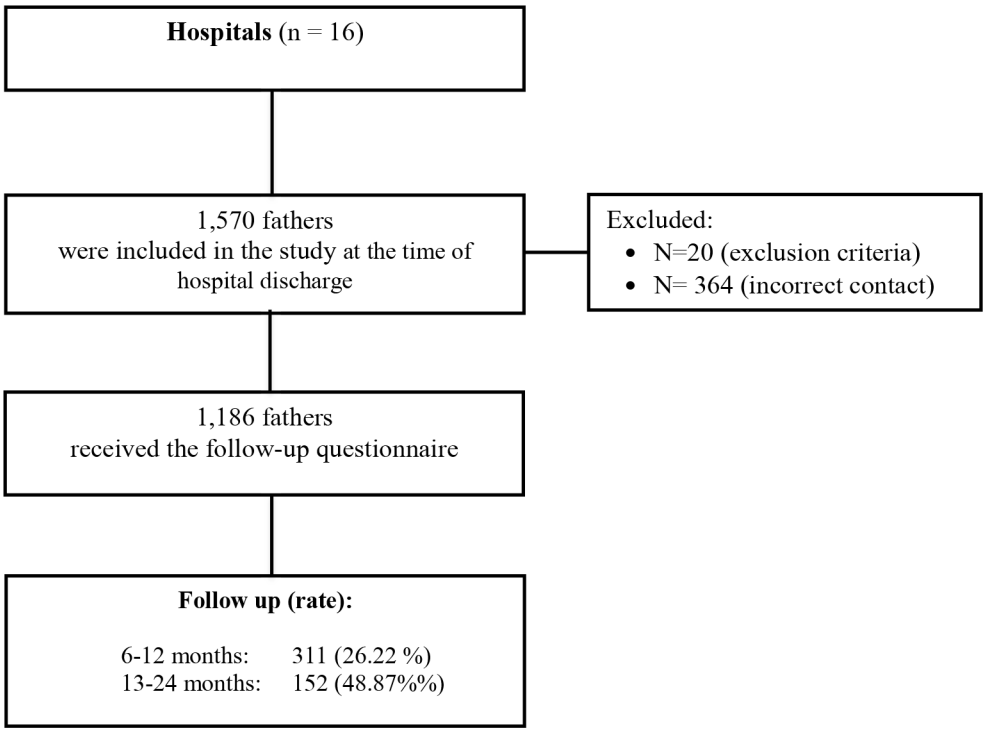

Fig. 1 Flowchart

level (incomplete primary studies; complete primary education; secondary education; or higher education); annual wage (as the household income level per year, measured on an 8-point scale ranging from less than €6,000 to more than €60,000 per year); employment status (yes/no); and previous experience with paternity (dichotomous variable: first-child or previous children).

Physical and psychological variables

The *Fatigue Assessment Scale* (FAS; Michielsen et al., 2004), which comprises 10 items that assess the intensity of fatigue. All the items present 5-point Likert-type multiple choice response alternatives. Total scores for the FAS range from 10 to 50, with higher scores representing greater fatigue. Both the original version and the Spanish version (Cano-Climent et al., 2017) presented a one-dimensional factorial structure and, in the case of the Spanish version, a Cronbach alpha coefficient of 0.88.

The *Athens Insomnia Scale* (AIS; Soldatos et al., 2000) and its Spanish version (Gómez-Benito et al., 2011), designed to assess insomnia in the month prior, were used. The AIS consists of 8 items with a 4-point Likert-type response scale (0–3). The scores can range from 0 to 24, with higher scores representing greater levels of insomnia. Consistent with the original, the Spanish version shows a one-dimensional structure and has a Cronbach alpha coefficient exceeding 0.80 (Gómez-Benito, et al., 2011).

The Spanish version of the *Parental Stress Scale* (PSS; Oronoz et al., 2007) comprising 12 items. The PSS shows good psychometric properties with a two-factor structure (Stressors and Parenting Rewards) and a Cronbach alpha of 0.77 and 0.76, respectively. The items on the PSS are evaluated with a 5-point Likert-type response scale (1 'totally disagree' to 5 'totally agree'). The scores can range from 12 to 60 points, with higher scores indicating higher levels of parental stress. The Cronbach alpha for the parent sample was 0.80.

Social variable

The short version of the *Dyadic Adjustment Scale* (DAS; Bornstein and Bornstein 1988) in its Spanish version (Santos-Iglesias et al., 2009), with a total of 13 items was used to assess the quality and adjustment of the parental couple relationships. A higher score indicates that the couple have a better fit. The DAS has adequate psychometric properties with a good model fit after confirmatory factor analysis (goodness of fit index [GFI] = 0.95, adjusted goodness of fit index [AGFI] = 0.93, and root mean squared error of approximation [RMSEA] = 0.05), and an excellent internal consistency (α = 0.83). The cut-off point for clinical interpretation is 44 for the low and high adjustments.

Dependent variable

The *Satisfaction with Life Scale* (SWLS; Diener et al., 1985) in its Spanish version (Arce, 1994) was used to assess the SWL. Consists of 5 items with Likert-type multiple-choice response alternatives with values ranging from 5 'strongly agree' to 1 'strongly disagree'. Their scores can range from 5 to 25 points, with higher scores showing better SWL. The SWLS shows good psychometric properties with a Cronbach alpha of 0.88 and a one-dimensional structure (Cabañero-Martínez et al., 2004).

Procedures

This study was part of a wider project on the experience of pregnancy, childbirth, and the TTP, which studied several variables related to the physical and psychological well-being of men and women (Cano-Climent, 2017). The participants completed the questionnaires at three different time points. The sociodemographic variables were collected through a paper-based survey administered at the baseline time point on the day of hospital discharge after the birth and was completed at the hospital. The FAS, AIS, short version of the DAS, and PSS were completed online after 6–12 months. Finally, between 13 and 24 months after the birth, SWL was evaluated through another online questionnaire. To increase the participation rate and reduce sample losses, a standardised procedure was used in which 3 emails containing the questionnaire link were sent at 10-day intervals until a response was received.

The study was approved by the Clinical Research Ethics Committee of the General Directorate of Public Health and the Higher Centre for Public Health Research, both belonging to the Health Council of the Valencian Community. Prior to completing the questionnaires, the fathers completed their informed consent to participation. The confidentiality and follow-up of the data collected was ensured by using an encrypted code for each participant. The code comprised the initials of the hospital their partner was treated at followed by a unique number assigned to each participant. This number coincided with the order in which the data were collected for that hospital. The contact information and encrypted code were kept by the principal investigator in an independent database, used solely for sending follow-up surveys.

Analysis

Descriptive analyses of the main study variables were performed for the final study sample. The associations

Table 1 Sociodemographics data ($N = 152$)

Variables	n (%)
Aged *Mean (SD)*	35.91 (3.80)
Nacionality	
Spain	146 (96.1)
Others	6 (3.9)
Current Civil Status	
Married or domestic partner	129 (84.9)
Separated or divorced	1 (0.7)
Single	22 (14.5)
Cohabitation status	
Yes	149 (98%)
No	3 (2%)
Education level	
Incomplete primary education	7 (4.6)
Primary education	40 (26.3)
Secondary studies	31 (20.4)
Higher education	74 (48.7)
Annual wage	
< 6000 euros	5 (3.3)
6000–8999 euros	3 (2)
9000–11999 euros	5 (3.3)
12000–17999 euros	23 (15.1)
18000–29000 euros	57 (37.5)
30000–44999 euros	36 (23.7)
45000–60000 euros	15 (9.9)
> 60000 euros	6 (3.9)
Employment situation	
Yes	135 (88.8)
No	17 (11.2)
Previous experience with paternity	
First-child	95 (62.5)
Previous children	57 (37.5)

between the variables of fatigue, insomnia, dyadic adjustment, and stress in the fathers at 6–12 months, and SWL at 13–24 months were analysed using Pearson bivariate correlations. Finally, a hierarchical regression was performed to identify which group of variables (sociodemographic, physical-psychological, or social) more strongly influenced the levels of SWL. Predictor variables were introduced in three blocks, ensuring that all the variables within each block were included in the model simultaneously. The variables included in each block were: (a) block 1, sociodemographic variables: father's age, educational level (secondary education vs. others and higher education vs. others), and employment status (yes vs. no), cohabiting status (yes/no) and previous experience with paternity (first-child/previous children); (b) block 2, physical and psychological variables (fatigue, insomnia, and parental stress assessed with the FAS, AIS, and PSS, respectively); and (c) block 3, social variables (dyadic adjustment assessed with the DAS). The fathers' SWL at 13–24 months after the birth of their child was used as the dependent variable. The level of significance considered was $p < 0.05$. The analyses were performed with SPSS software (version 22.0; IBM Corp., Armonk, NY).

Table 2 Descriptive values (mean and standard deviation) and correlations of the different scales evaluated

	M(SD)	AIS	PSS	DAS	SWLS
1. FAS	19.70 (7.28)	0.58***	0.49***	-.46***	-.27***
2. AIS	5.10 (3.92)	1	0.30***	-.29***	-.31***
3. PSS	24.08 (6.40)		1	-41***	-.25**
4. DAS	50.06 (7.60)			1	0.21**
5. SWLS	18.72 (3.71)				1

M = average; *SD* = Standard deviation; *FAS*, Fatigue Assessment Scale; *AIS*, Athens Insomnia Scale; *PSS*, Parenteral Stress Scale; *DAS*, Dyadic Adjustment Scale; *SWLS*, Satisfaction with Life Scale; $^{**}p < 0.01$; $^{***}p < 0.001$

Results

Participants

From the total sample of participants who met the inclusion criteria, we selected those who had completed all the study metrics. As shown in Table 1, the final sample comprised a total of 152 fathers with a mean age of 35.91 years ($SD = 3.80$; range = 25–43) who were mostly married or in a partnership (84.9%, $n = 129$); they had a high educational level (48.7%, $n = 74$), were active in the workplace (88.8%, $n = 135$), and had a mean annual income of €12,000 to €44,999 (76.3%, $n = 116$). With regard to parenthood, for 62.5% ($n = 95$) it was their first child.

Table 2 shows the life satisfaction and its relationship with physical and psychological variables. The SWL of the participants at 13–24 months after the birth of their child was 18.72 ($SD = 3.71$) and was negatively associated with all the physical and psychological variables measured between 6 and 12 months; higher SWL was associated with lower fatigue ($r = -0.27$; $p < 0.001$), insomnia ($r = -0.31$; $p < 0.001$), and parental stress ($r = -0.25$; $p < 0.01$). Likewise, the levels of dyadic adjustment at 6–12 months showed a statistically significant positive relationship with the levels of SWL at 13–24 months ($r = 0.21$; $p < 0.01$).

Predictive variables of life satisfaction at 13–24 months

The hierarchical regression model was statistically significant for model 2, which included personal physical and psychological variables (FAS, AIS, and PSS) $F(9,142) = 3.43$, $p = 0.001$, as well as for model 3 that also added the social variable, DAS, $F(10,141) = 3.17$, $p = 0.001$ (see Table 3). Model 2 predicted 17.8% variance, while Model 3, which included all three blocks, predicted a total of 18.4% variance

Table 3 Hierarchical regression model taking satisfaction with life as a predictive variable (12 months)

Blocks	Variable	St β	t	p	Inferior 95% CI	Superior 95% CI	ΔR^2	F	p	R^2
1								1.64	0.139	.064
	Father's age	-.04	-0.52	0.606	-0.21	0.12				
	Secondary studies	-.11	-1.03	0.305	-2.61	0.82				
	Higher education	.16	1.48	0.141	-0.39	2.74				
	Employment situation	-.12	-1.48	0.114	-3.36	0.48				
	Cohabiting status	-.15	-1.79	0.075	-8.37	0.41				
	Previous experience with paternity	-.08	-0.97	0.335	-1.92	0.66				
2							0.115***	3.43	0.001	0.178
	Father's age	-.02	-0.28	0.780	-0.18	0.14				
	Secondary studies	-.12	-1.13	0.261	-2.56	0.70				
	Higher education	.21	2.02	**0.045**	0.33	3.03				
	Employment situation	-.11	-1.41	0.160	-3.18	0.53				
	Cohabiting status	-.10	-1.21	0.227	-6.87	1.65				
	Previous experience with paternity	-.05	-0.64	0.522	-1.64	0.84				
	FAS	-.08	-0.76	0.449	-0.15	0.06				
	AIS	-.20	-2.13	**0.035**	-0.37	-0.01				
	PSS	-.15	-1.68	0.095	-0.19	0.01				
3							0.005	3.17	0.001	0.184
	Father's age	-.02	-.19	0.85	-.17	0.14				
	Secondary studies	-.11	-1.09	0.276	-2.53	0.73				
	Higher education	.21	2.02	**0.045**	0.03	3.03				
	Employment situation	-.12	-1.46	0.148	-3.23	0.49				
	Cohabiting status	-.10	-1.22	0.226	-6.88	1.64				
	Previous experience with paternity	-.04	-.51	0.611	-1.57	0.93				
	FAS	-.05	-.45	0.652	-.14	0.08				
	AIS	-.20	-2.11	**0.036**	-.37	-0.01				
	PSS	-.14	-1.46	0.145	-.19	0.03				
	DAS	.09	0.95	0.346	-.50	0.13				

FAS, Fatigue Assessment Scale; *AIS*, Athens Insomnia Scale; *PSS*, Parenteral Stress Scale; *DAS*, Dyadic Adjustment Scale; ***$p < .001$

in the SWL scores. The two variables that significantly predicted SWL scores were higher levels of education and insomnia. The association for the former was positive, indicating higher levels of SWL in fathers with higher education levels ($\beta = 0.21$, $p = 0.045$), while in the latter case, the association with insomnia was negative ($\beta = -0.20$, $p = 0.036$).

Discussion

The first objective of this study was to analyse the degree of SWL among a cohort of fathers 13–24 months after the birth of their child. The results indicated that the perception of the participating fathers of their SWL was moderate and was slightly lower than that obtained by Cabañero-Martínez et al. (2004) in a Spanish sample of pregnant and postpartum women ($M = 19.56$). A relevant factor that should be considered when contextualising this slight decrease is the timing of the evaluation and the sample composition in the other study, which consisted of mothers. As previously reported, SWL increased in both men and women during the gestation period, even two years before the birth (Mikucka & Rizzi, 2019; Myrskylä et al., 2014) and during the first year postpartum (Margolis & Myrskylä, 2015); this was followed by a subsequent decline to pre-birth levels (Margolis & Myrskylä, 2015; Mikucka & Rizzi, 2019; Myrskylä & Margolis, 2014; Nelson et al., 2014). For example, in the European context, it has been found that SWL drops rapidly one year after the birth of a child (Myrskylä & Margolis, 2014), or even immediately after the birth (Mikucka & Rizzi, 2019). The high demand and fatigue during the early years of caregiving could explain this decline (Myrskylä & Margolis, 2014). On the other hand, it has also been shown that the emotional rewards associated with having children do not always offset the cost of parenting (aspects of sustained physical, mental, and financial investment and effort) concerning the current culture of intensive parenting (Nomaguchi & Milkie, 2020). In any case, these drops vary greatly depending on several related factors such as gender, family income, level of education or likely to work (Margolis & Myrskylä, 2015).

The second objective of this work was to examine the variables that influence the SWL of fathers in the long term. Firstly, our findings indicated that the educational background of the fathers was a significant sociodemographic variable which positively influenced their perceived SWL. Fathers with a higher level of education perceived an increase in their quality of life in the second year postpartum. These data are supported by Myrskylä and Margolis (2014), who reported higher SWL in fathers with higher education levels during their child's first 9 years of life compared to participants with lower educational levels.

Although parents with higher educational levels often take on roles with more extensive commitments, suggesting they may be more burdened by caregiving and child-raising demands (Altintas, 2016; Nomaguchi & Brown, 2011), their elevated levels of SWL might be attributed to their access to greater personal, social, and material resources. These resources could potentially alleviate the difficulties and challenges associated with parenting (Nomaguchi & Brown, 2011; Westrupp et al., 2022). In turn, Myrskylä and Margolis (2014) suggested that this association might be because of the strong desire for children among highly educated men or their greater psychological rewards from parenthood.

However, the results also indicated that psychological variables such as fatigue, sleep problems, and parental stress were negatively related to SWL in our cohort. Notwithstanding, the regression model we created indicated that, among these variables, insomnia predicted SWL and contributed the greatest weight to the model. Sleep is noteworthy as a significant variable in the transition to parenthood due to shorter sleep cycles of the baby, associated with their typical needs and development (Richter et al., 2019). These interruptions in the baby's sleep patterns significantly impact the usual sleep patterns of both mothers and fathers (Coles et al., 2022), leading to a decrease in the amount and satisfaction with sleep, which is more pronounced in the first year postpartum (Richter et al., 2019). Our findings showed that if the father's sleep was affected before the first year after the birth, this was also reflected in lower SWL in the second year postpartum. These associations are consistent with the findings reported by Wynter et al. (2020) in a recent scoping review which showed the link between fathers' sleep problems and their mental health and well-being. Therefore, health professionals should also include interventions focused on the detection, prevention, and management of sleep among the fathers under their care (Da Costa et al., 2019; Wynter et al., 2020). Furthermore, it is advisable to continue investigating sleep in fathers and its associations with their health, given that a significant part of research and clinical practice already focuses on maternal sleep and the mother's health (Coles et al., 2022; Wynter et al., 2020).

Finally, concerning the social variable of dyadic adjustment, our results indicated a positive correlation between the quality of parental relationships and levels of SWL in fathers at 13–24 months. Nevertheless, when incorporating this variable into the regression model, it did not emerge as a significant predictor of SWL compared to the other variables included. In any case, it would still be advisable for professionals to address and not overlook the quality of couples' relationships because this variable is associated with overall wellbeing and psychological issues, as suggested elsewhere (Carr et al., 2014; Kılıç et al., 2024). Indeed, Figueiredo et al. (2018) reported an association

between the quality of couples' relationships and depression and anxiety during the TTP. In line with these results, Terrone et al. (2020) also observed that the perceived dyadic adjustment by fathers was negatively related to their own psychiatric symptoms as well as that of the mother. Furthermore, Escribano et al. (2022) found evidence for a positive relationship between dyadic adjustment and the perceived quality of life in both parents. Therefore, it will be crucial to promote psycho-educational interventions and prevention programs for emotional adjustment in couples postpartum (Terrone et al., 2020).

Once again in agreement with previous suggestions by Nomaguchi and Milkie (2020), these current results show the usefulness of providing real resources to fathers from a comprehensive perspective. It is also imperative not to forget the importance of workplace and institutional support with the aim of allowing fathers to feel and be more effective at coping with the demands made of them during the TTP. Importantly, taking steps to improve fathers' SWL not only pays off personally for both parents and/or the child's development, but also has an effect on society as a whole (Nomaguchi & Milkie, 2020). For example, Gómez-Ortiz and Sánchez-Sánchez (2022) reflected that one-child parents with the predisposition to have more children had higher levels of life satisfaction.

Limitations

The limitations of this research should be considered when interpreting these results. Firstly, because the sample was incidental, caution should be exercised regarding the external validity of the study. In any case, the results must always be understood within the context of the study environment and the characteristics of the analysed sample. This research focused on a sample of fathers with an average age over 30 years, who were mostly married and employed, and had a medium socio-economic level. Sociodemographic characteristics similar to our current social context (Gómez-Ortiz & Sánchez-Sánchez, 2022; Pinto et al., 2023). In any case, it would be useful to analyse the factors affecting SWL after fatherhood in other samples with more diverse characteristics, thereby enabling specific interventions to be designed to target the needs of fathers with particular demographic characteristics. In addition to examining whether the results remain stable with the most current social and political changes, for example, the new measures introduced to ensure equal treatment and opportunities between women and men in employment and occupation (Royal Decree-Law 6/2019); because better working conditions and resources, such as flexible working hours or extended parental leave, correlates with higher life satisfaction (Cho & Jung, 2022; Pollmann-Schult, 2017). Secondly, future research gathering assessment data over shorter time ranges may also be useful. In the current study, data collection intervals of six months were used for each assessment which may have led to high heterogeneity in the fathers' reported perceptions. For instance, stress level scores might have differed between fathers who responded immediately after receiving the survey compared to those who responded around the 11th month when the demands and challenges of parenthood evolve rapidly over short time spans. Thirdly, we examined the influence of certain variables on fathers' SWL after the birth of a child but our exploration of these potential factors was not exhaustive. These additional factors, such as social support in childcare or conditions and flexibility in working hours, might also be important determinants of fathers' SWL. Finally, the reduction in participation may be attributed to the longitudinal nature of our study, potentially leading to attrition due to the duration of follow-up and correlated study fatigue. In addition, while convenient, the unique use of online surveys for data collection may have resulted in lower completion rates over time. Fitzgerald et al. (2019) provide evidence that the respondents' characteristics could determine the choice of data collection method (paper or online) and response rate longitudinally, so it is useful to use mixed methods. Moreover, external factors beyond our control, such as significant life events, including divorce, job loss, or other sociodemographic variables, may have impacted participants' ability to continue the study (Gustavson et al., 2012). For example, higher loss rates are observed in men than in women (Teague et al., 2018). Although we cannot ascertain the reasons for each participant's discontinuation, longitudinal studies are valuable even with substantial attrition rates (Gustavson et al., 2012).

Conclusions

In conclusion, fathers reported a moderate level of SWL between 13 and 24 months after the birth of their child. Fathers with a higher level of education and fewer sleep problems during the first year after the birth had an increase in perceived quality of life in the second postpartum year. This work has important implications for clinical practice because it allows health professionals to understand the specific factors influencing SWL and health among fathers. In turn, this will allow health professionals to plan more effective antenatal and postnatal care.

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Data availability The datasets generated during and/or analysed in this current study are available from the corresponding author upon reasonable requests.

Declarations

Conflict of interest The Authors declare that there were no conflicts of interest.

Ethical statement The study was approved by the Clinical Research Ethics Committee at the General Directorate of Public Health and the Higher Centre for Public Health Research, both belonging to the Health Council of the Valencian Community. Prior to completing the questionnaires, the fathers completed their informed consent to participation in this work. The confidentiality and follow-up of the data collected was ensured by using an encrypted code for each participant.

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