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ORIGINAL ARTICLE

Autonomous competences and quality of professional life of paediatric nurses in primary care, their relationship and associated factors: A cross-sectional study

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Abstract

Aims and Objectives: To identify the autonomous competences and quality of professional life of paediatric nurses in primary care, their relationship and possible associated factors.

Background: The autonomous competences of paediatric nurses vary among healthcare providers in Catalonia, Spain. Autonomy is related to quality of professional life, but little is known about autonomous competences and other factors contributing to paediatric nurses' quality of professional life.

Design: A cross-sectional study following the STROBE statement.

Methods: Data from 206 paediatric primary care nurses were analysed. A self-administered survey consisting of an ad hoc questionnaire and a validated instrument to measure quality of professional life (QPL-35 questionnaire) was conducted. Descriptive, bivariate and general multivariate regression analyses were used to identify the relationship between autonomous competences and quality of professional life, and its predicting factors.

Results: 47.6% nurses reported a medium level of autonomous competences, 46.6% a high level, and 5.8% a low level. Quality of professional life was medium-high for the domains perception of managerial support and global perception of workload and for the item disconnect from work after work shift, and very high and high values for the domain intrinsic motivation and for the item quality of work life, respectively. Autonomous competences and perceived autonomy were factors associated with quality of professional life. Other associated factors were academic background, specific training and being a paediatric nurse specialist.

Conclusions: Paediatric nurses in primary care have a medium-high level of autonomous competences and they perceive a high level of autonomy. Autonomous competences and level of perceived autonomy are predictors of quality of professional life.

Relevance to clinical practice: Enhancing paediatric nurses' autonomous competences and academic background, receiving specific training and being paediatric nurse specialists might improve their quality of professional life, healthcare quality and outcomes for the child population.

KEYWORDS
autonomy, competences, job satisfaction, nurses, paediatrics, primary health care, quality of professional life

1 | INTRODUCTION

Quality of professional life is a multidimensional concept (Parveen et al., 2017). An integrative review of the literature reported that quality of professional life is defined as the result of a process and it is mainly considered as a subjective phenomenon influenced by feelings and personal perceptions (Vagharseyyedin et al., 2011). Also, quality of professional life is understood as the balance between workload and the ability to deal with it (Alonso Fernández et al., 2002). It has a direct influence on the quality of the services provided (Parveen et al., 2017), and there is a proved relation between quality of professional life and the outcomes in professional practice (Warren et al., 2007). Therefore, quality of professional life becomes crucial for health organisations due to its influence on healthcare quality and outcomes. Knowing and measuring quality of professional life of healthcare providers helps to identify the strengths and weaknesses within healthcare organisations and design interventions to improve the satisfaction of both healthcare workers and users, the quality of the services provided and healthcare outcomes.

The predictive factors of the quality of professional life identified in the literature include management, collegiality, demographic characteristics, workload, work promotion, salary and incentives, and autonomy (Dehghan Nayeri et al., 2011; Vagharseyyedin et al., 2011).

Autonomy is defined as the level of control workers have of their own organisation and workload (Liu et al., 2005). Autonomy includes the ability to make decisions in clinical practice and also attributes such as independence, skills, ability, competence and knowledge, decision-making capacity, judgement and self-determination (Keenan, 1999). According to MacDonald (2002), professional autonomy involves having control over the professional practice including independent judgement, and nurses—as health professionals—are free to establish their own rules based on standards of technical and ethical excellence. A concept analysis of nurse practitioners' autonomy highlighted that autonomy allows nurses to perform their practice to the maximum extent of their advanced training and it was defined as the use of nurses' own experience, clinical judgement and responsibility to practice without limitation in professional collaboration with other healthcare professionals (Peacock & Hernandez, 2020). Bahadori and Fitzpatrick (2009) suggest that nurses with a high level of autonomy and decision-making authority will have more professional competence in the health care of their patients and therefore lead to better population health outcomes. Consequently, autonomy becomes a key factor to be considered when dealing with professional competence. Autonomy is also identified in the literature as part of the quality of professional life (Brooks, 2001; García-Sánchez, 1993; Misener & Cox, 2001; Pron, 2013). It is an aspect to be considered when we talk of job satisfaction or quality of professional life.

What does this paper contribute to the wider global clinical community?

- Paediatric nurses had a medium-high level of autonomous competences, a high level of perceived autonomy in the competences performed and their quality of professional life (QPL-35 questionnaire) scored medium-high for the perception of managerial support and global perception of workload as well as for the item disconnect from work after work shift and obtained a high score for intrinsic motivation and very high score for quality of work life.
- The number of autonomous competences performed and the level of perceived autonomy are predictors of the quality of professional life of paediatric nurses. Other factors associated with quality of professional life included nurses' marital status, being a caregiver, number of years worked at current health centre, working hours, number of autonomous child health checks conducted by the nurse, academic background, being a paediatric nurse specialist, having specific training in paediatric health care and the role of the paediatrician.
- Enhancing autonomous competences of paediatric nurses in primary health care and academic background, receiving specific training and being a paediatric nurse specialist might improve paediatric nurses' quality of professional life.

1.1 | Background

Quality of professional life has been widely studied among healthcare professionals in both primary and hospital health care, although

studies are more limited as far as nursing professionals are concerned, and especially, registered nurses in paediatric primary health care. Since quality of professional life influences quality of healthcare services and quality of care provided, it is a core issue for healthcare organisations. However, a recent systematic review on the quality of professional life of primary healthcare nurses worldwide reported the absence of consistent scientific evidence on the overall quality of professional life score of primary healthcare nurses (Laserna Jiménez, Casado Montañés et al., 2021).

Internationally and at different healthcare levels, nurses' autonomy is a relevant aspect identified in the literature due to its documented relation with job satisfaction (Halcomb & Ashley, 2017; Pron, 2013; Torunn Bjørk et al., 2007). Considering that a high level of autonomy and decision-making authority will allow nurses more professional competence in the health care of patients, this research addresses the competences performed autonomously and their level measured through the number of screenings and independent techniques performed by nurses in paediatrics in relation to disease prevention and health promotion activities in child and adolescent health care. To our best knowledge, no research has examined the relationship between autonomous competences and the quality of professional life of paediatric nurses in primary health care, and specifically of non-specialised nurses or advanced practice nurses in our country. The investigation of the level of autonomous competences and their impact on the quality of professional life of paediatric nurses in primary health care may help to address related factors in order to improve the quality of the services provided, the process of health care and the overall population health. Furthermore, considering the significant shortage of paediatricians and general practitioners in primary health care globally (Buerhaus, 2018; Poghosyan et al., 2017; Van Esso et al., 2010) as well as the diversity of healthcare providers and organisational models, enhancing the autonomous competences of paediatric nurses in primary health care might allow to improve nurses' quality of professional life. Therefore, it becomes a strategy which contributes to improve health access, equity and outcomes for the population. Consequently, the following study question arises: how does the level of autonomous competences in activities of disease prevention and health promotion performed by paediatric nurses in primary health care impact on the quality of professional life?

2 | METHODS

2.1 | Aims

The aims of the study were as follows: (1) to identify the autonomous competences and the level of autonomous competences in activities of disease prevention and health promotion performed by paediatric nurses to children and adolescents in public primary healthcare centres in Catalonia, Spain, and to identify their quality of professional life, (2) to assess the relationship between the level of autonomous competences of paediatric nurses in primary health care and their quality of professional life, and (3) to identify the factors associated with the quality of professional life, such as sociodemographic, professional, labour and extra-labour factors as well as those related to the autonomous competences and service organisation.

2.2 | Study design

This study employed a multi-centre, cross-sectional design according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (Von Elm et al., 2007) (see Appendix S1).

2.3 | Participants

Nurses working in paediatric areas in public primary health centres in Catalonia, autonomous community of Spain, with public or private management and different types of organisation within their teams were eligible for the study. The management teams of the different health providers of the primary healthcare units were contacted by email. Convenience sampling was used to ensure the feasibility of the project after acceptance by the centre management and nurses to participate in the study. Twenty-one out of the 37 health providers of the Catalan Health Service (CatSalut), and 133 primary healthcare teams of the 369 existing primary healthcare centres participated in the study. The sample was made up of a total of 206 nurses who met the inclusion criteria. The inclusion criteria were as follows: work experience as a nurse for a minimum of 3 years, working on a weekly basis in paediatrics (at least one day a week). The exclusion criteria were nurses who had worked for different primary healthcare providers over the past year.

In October 2019, the management units of the centres were contacted by email. Information meetings were held for the paediatric nurses of the centres whose management units agreed to participate. During these information meetings, the information sheets were handed over to the nurses and the signed informed consent forms were collected. In March 2020, due to the global COVID-19 pandemic situation, all face-to-face information meetings were cancelled and the study was put on hold provisionally. In October 2020, the information meetings were resumed in virtual format through Zoom, a software program for video conferencing.

2.4 | Data collection

Data were collected in two phases due to the COVID-19 pandemic situation. In February 2020, the first phase of 2-month data collection was started. Participants were recruited by email. A first email was sent to the nurses who had accepted to take part in the study, had been informed, had received the information sheet and had signed the informed consent form. The questionnaires were delivered by email. A reminder email was sent a month after the beginning of the study.

The second phase of data collection started in October 2020, also for a 2-month period. In this phase, those participants who could not attend the on-site meetings period were recruited and informed. The informed consent forms were sent by email and were returned signed by encrypted mail (ZIP Windows). In this phase, an online questionnaire was used with the Google form tool. The acceptance of the signed consent took also place at the beginning of the online survey. The information sheets were sent by email as well as the informed consent forms and the link to access the online form using either the centralised email at the address of the centres that had made dissemination or the email of the nurses who had agreed to participate during the online meetings. One month after the start of the data collection, an email reminder was sent. The online survey was performed to encourage and facilitate the participation in the study. The survey, either in paper or electronic format, did not contain any confidential information. Participants received a certificate of collaboration and participation in the study. Only the principal investigator had access to the identification data of the participants. In both phases, the identification data and the data obtained from the survey were dissociated to ensure the anonymity of the answers.

2.4.1 | Measurements

The survey consisted of two sections: a questionnaire ad hoc and a validated instrument to measure the quality of professional life. The ad hoc questionnaire was structured in three phases according to the type of collected variables. In the first phase, sociodemographic, professional, labour and extra-labour variables were collected. In the second phase, the data collected were related to the nurse's autonomous competences in disease prevention and health promotion activities in child and adolescent health care: the techniques and examinations performed to the child/adolescent, the level of perceived autonomy in the competences performed and the number of child health checks conducted autonomously by the nurse. The screenings/autonomous techniques were measured considering the total sum of 22 items with 100% autonomous competence. The same value was assigned for all items corresponding to autonomous competences identified and performed by nurses. The autonomous competence was classified into three levels: low level of autonomous competence if the sum of the items was lower or equal to 9 items, medium level of autonomous competence if the sum ranged between 10 and 17 items, and high level of autonomous competence if the sum of the items was higher or equal to 18 items. The three categories were developed on the basis that values lower than 40% on autonomously performed techniques and screenings were considered low level of autonomous competence, whereas if higher than 80%, they were classified as high level of autonomous competence. The variable level of autonomy perceived regarding the nurse's competences in children health checks was assessed by a 10-point Likert scale, being 0 'lack of autonomy' and 10 'total autonomy'. Data were collected on the number of autonomous health checks performed to children by the nurse—without the paediatrician's intervention—according to the 'Childhood with Health Program' (score ranges from 0 to 12 health checks). In the third phase, the data collected involved the organisation of the paediatric service.

Quality of professional life was measured by questionnaire QPL-35 (García-Sánchez, 1993), validated in primary care in 1995 (Cabezas, 2000). PL-35 questionnaire was chosen on account of its wide use in different media in Spain (Alonso Fernández et al., 2002; Martín Fernández et al., 2008; Puello Viloria et al., 2014; Sosa-Cerda et al., 2010). It is a self-administered anonymous questionnaire with a Cronbach's alpha value of 0.84. This instrument assesses the quality of professional life, understood as the balance between workload and the ability to deal with it (Fernández Araque et al., 2016). This measuring scale includes all factors affecting the quality of professional life, which identifies the weaknesses, threats, strengths and opportunities of the institutions. It enables team managers to address problems and enhance their strengths and improve the quality of professional life of their employees and the services provided and consequently the health outcomes for the population.

QPL-35 questionnaire consists of 35 Likert-style questions, assessing three domains: perception of managerial support, global perception of workload and intrinsic motivation, and two items unrelated to any of the three domains: 'disconnect from work after work shift' and 'quality of work life'. The domain 'perception of managerial support' is assessed by 13 items, the domain 'global perception of workload' by 11 items and the domain 'intrinsic motivation' by 9 items, and two other items were assessed independently: 'disconnect from work after work shift' and 'quality of work life'. Responses are rated from 1 to 10 and measure the perception of the quality of professional life. The higher the score, the higher the perceived quality of professional life. 'The application of the questionnaire in different areas of the National Health System, with different characteristics as for the organisation, health care environment and professional situation guarantees the reliability and consistency of the instrument' (Martín et al., 2004, p. 133), being a reference tool in primary health care for the measurement of the quality of life at work. 'Questionnaire QPL-35 shows an appropriate assessment capacity and proves to be an instrument sensitive to changes related to the perception of the quality of professional life at the population level' (Martín Fernández et al., 2008, p.332). Each item of QPL-35 questionnaire should be completed before moving to the next question, except for the last item 'collegiality' which should be completed only in case of having management responsibilities.

2.5 | Ethical considerations

This study has been evaluated and approved by the Drug Research Ethics Committee (CEIm) of the 'Institut Universitari d'Investigació en Atenció Primària Jordi Gol' (IDIAP Jordi Gol) of Barcelona with code IDIAP 4R19/052 and has been conducted according to the Belmont report and the Helsinki Declaration on the 'ethical

principles for medical research involving human subjects'. The data obtained were used anonymously and confidentially, according to the Organic Law on Protection of Personal Data and Guarantee of Digital Rights (LOPDGDD). Participants were informed of the research objectives, voluntary participation, anonymous questionnaire responses and confidentiality of the data before the completion of the questionnaires. Only the principal investigator has access to the identification data of participants considering how the informed consent forms were collected during the COVID-19 pandemic, and the possible participation of the nurses in a second phase of qualitative methodology of the study. The only purpose for revealing the identification data (email) was to conduct the study and be able to contact the health professionals who agreed to participate.

2.6 | Data analysis

A univariate descriptive analysis of all variables was performed. Frequencies and percentages were calculated for qualitative variables (nominal and ordinal). For quantitative variables, mean and standard deviation or median and interquartile range were computed. A bivariate descriptive analysis was performed between the quality of professional life and the main sociodemographic, professional, labour and extra-labour, autonomous competence and organisation variables. A descriptive bivariate analysis was conducted. Pearson's coefficient correlation was used to evaluate differences in the quantitative variables or chi-square statistic for the qualitative variables in relation to the quality of professional life. Pearson's correlation was used to analyse the relationship between paediatric nurses' quality of professional life and nurses' level of autonomous competences as well as nurses' perceived level of autonomy. The quantitative–qualitative variables were compared either by parametric tests such as t-Student or analysis of variance (ANOVA) tests or nonparametric tests such as Mann–Whitney U or Kruskal–Wallis H tests depending on the category level of the variables. A general stepwise multivariate regression analysis was conducted to identify the factors predicting the participants' quality of professional life (QPL-35). No significant variables were removed from the model and only the explanatory variables were conducted to test the significance. The dependent variables introduced in the model were the three domains and two items of quality of professional life (QPL-35 questionnaire) and the independent variables included sociodemographic, professional, labour and extra-labour, autonomous competence and organisation variables which were significant in the bivariate analysis and those which were expected to predict the dependent variables. The variance inflation factor values ranged between 1.000 and 1.121 indicating the absence of multicollinearity. Significance levels were designated at p values <.05. Statistical Package for the Social Science (SPSS) v. 25.0 software for Windows (IBM Corp. in Armonk, NY, USA) was used for the statistical analyses in this study.

2.7 | Validity and reliability

Data collection was undertaken to ensure the privacy of the answers and the confidentiality of the data assuring the internal validity of the study. Only QPL-35 questionnaires without missing data were considered. To assure the reliability of the study, the responses of the participants to QPL-35 questionnaire were submitted to assess internal consistency. The adequacy of Cronbach's alpha values ranging from 0.82 to 0.85 confirmed the internal consistency of the measures and accordingly the internal consistency showed by Cabezas (2000) study who presented Cronbach's alpha values ranging from 0.75 to 0.86. The mean Cronbach's alpha was 0.84 in this study as also reported by Cabezas (2000). Table S1 shows the reliability of the measures.

3 | RESULTS

3.1 | Descriptive data

3.1.1 | Sample characteristics

A total of 206 nurses for both phases aged 24–62 participated in the study. The participants were paediatric nurses in primary health care working in both publicly and privately owned centres which make up the public healthcare network in Catalonia. The overall response rate was 20.6%. Female were the main participants accounting for 95.6%. Most of the nurses had specific training in paediatrics (88.3%), and a specialist nurse qualification (66.3%), being the paediatric nursing specialty predominant (86.6%) over the family and community nursing specialty (13.4%). Sociodemographic and professional characteristics are summarised in Table 1. Main employment status of participants was statutory (42.2%), with a permanent contract (45.6%), nurses' years of service at current health centre had a mean of 11.4 (SD 8.6), the mean years of work in primary health care was 14.5 (SD 9.07), and the mean years of work in paediatric primary health care was 11.11 (SD 8.17). Table 2 shows the labour characteristics of the participating nurses.

3.1.2 | Nurses' level of autonomous competences

Paediatric nurses' autonomous competences in primary health care were measured through a total of 22 screenings and activities performed by them. Table 3 shows most common screenings and activities performed independently by paediatric nurses in primary health care. These were performed in child health checks by a number of nurses >70% and included weight/height measurement, skin, oral, eye and genitourinary examination, blood pressure, locomotor system examination, vaccination, health education, psychomotor development assessment, mental health examination, pubertal development assessment and identification of warning signs. Table 4 summarises the different variables on the level of paediatric

TABLE 1 Sociodemographic and professional characteristics of participating paediatric nurses in primary health care $n = 206$ (100%)

Variables	N (%)	Mean (SD)
Age	205 (99.5)	43.78 (9.83)
Gender		
Male	9 (4.4)	
Female	197 (95.6)	
Marital status		
Married	134 (65)	
Single	51 (24.8)	
Separated	2 (1)	
Divorced	19 (9.2)	
Academic background		
Degree	146 (70.9)	
Postgraduate (official master)	56 (27.2)	
Doctorate	4 (1.9)	
Specific paediatric training		
Yes	182 (88.3)	
No	24 (11.7)	
Nursing specialty qualification		
Yes	68 (33.7)	
No	134 (66.3)	
Specialist nurse qualification ($N = 67$)		
Paediatrics	58 (86.6)	
Family and Community	9 (13.4)	

TABLE 2 Labour characteristics of participating paediatric nurses in primary health care $n = 206$ (100%)

Variables	N (%)	Mean (SD)
Employment status		
Statuary	87 (42.2)	
Permanent contract	94 (45.6)	
Temporary contract	25 (12.1)	
Working hours		
Full-time	182 (88.3)	
Part-time	24 (11.7)	
Number of years worked at current health centre	205 (99.5)	11.4 (8.6)
Years of service at primary health care		14.5 (9.07)
Years of service in paediatrics at primary health care	205 (99.5)	11.11 (8.17)
Gross salary/year (euro)		
<15,000	5 (2.5)	
15,000–25,000	85 (42.1)	
>25,000	112 (55.4)	
Position of responsibility		
Yes	18 (9)	
No	182 (91)	
Current working health centre		
ICS	134 (65)	
Non-ICS	72 (35)	
Non-ICS providers ($N = 73$)		
Consortium	33 (45.2)	
OSI	20 (27.4)	
EBA	6 (8.2)	
Other	14 (19.2)	
Province of working health centre		
Barcelona	135 (65.9)	
Girona	35 (17.1)	
Lleida	22 (10.7)	
Tarragona	13 (6.3)	
Adult population health care		
Yes	90 (43.9)	
No	115 (56.1)	
Patient quotas in paediatrics		
Own patients' quota	185 (89.8)	
Other nurses' quota	21 (10.2)	

Abbreviations: EBA, Associative Base Entity; ICS, Catalan Health Institute; OSI, Integrated Health Organisation.

nurses' autonomous competences. The level of autonomous competence according to the screenings and autonomous techniques performed by the nurse showed that 47.6% ($N = 98$) of the nurses had a medium level of autonomous competence, 46.6% ($N = 96$) a high level, and 5.8% ($N = 12$) a low level. Overall, nurses proved to have a medium-high level of autonomous competences. The perceived level of paediatric nurses' autonomy in the competences was 7.96 (SD 1.55) (rated on a 10-point Likert scale, 0 = 'lack of autonomy' to 10 = 'total autonomy'). As for the perceived level of autonomy according to the group categorisation, most nurses (70.4%) reported to be autonomous for most screenings and techniques ranging between 7 and 9. The number of autonomous health checks performed by the nurse without any paediatrician's intervention was 4.44 (SD 2.66) ranging between 0 and 12.

3.1.3 | Nurses' quality of professional life

According to the quality of professional life questionnaire (QPL-35) (Table S2), the domain perception of managerial support scored medium-high with a mean score of 6.91 (SD 1.19). The domain global perception of workload scored medium with a mean score of 6.1 (SD 1.09). The domain intrinsic motivation scored high with a mean score of 8.5 (SD 0.72). The item 'disconnect from work after work shift' scored medium-high with a mean score of 6.98 (SD 2.23). On average, paediatric nurses working in primary health care had a high score on the item quality of work life as evidenced by a mean score of 7.16 (SD 1.5) for QPL-35 questionnaire.

TABLE 3 Screenings and autonomous techniques performed by paediatric nurses in primary health care $n = 206$ (100%)

Variables	Perform, *N* (%)	Do not perform, *N* (%)
Weight-height measurement	206 (100)	0 (0)
Skin examination	189 (91.7)	17 (8.3)
Oral examination	185 (89.8)	21 (10.2)
ENT examination	129 (62.6)	77 (37.4)
Eye examination	170 (82.5)	36 (17.5)
Lung examination	129 (62.6)	77 (37.4)
Heart examination	52 (25.2)	154 (74.8)
Genitourinary examination	160 (77.7)	46 (22.3)
Abdominal and groin area examination	114 (55.3)	92 (44.7)
Blood pressure	205 (99.5)	1 (0.5)
Locomotor system examination	159 (77.2)	47 (22.8)
Vaccination	206 (100)	0 (0)
Health education	206 (100)	0 (0)
Psychomotor development assessment	197 (95.6)	9 (4.4)
Mental health examination	152 (73.8)	54 (26.2)
Pubertal development assessment	171 (83)	35 (17)
Referral to other specialists	111 (53.9)	95 (46.1)
Analytical request according to protocols or clinical practice guidelines	97 (47.1)	109 (52.9)
Prescription of medical products	141 (68.4)	65 (31.6)
Prescription of drugs	103 (50)	103 (50)
Identification of warning signs	193 (93.7)	13 (6.3)
Community activity ($N = 205$)	137 (66.8)	68 (33.2)

3.2 | Bivariate analysis

3.2.1 | Relationship between the quality of professional life of paediatric nurses and sociodemographic, professional, labour and extra-labour variables

The bivariate analysis between the quality of professional life of paediatric nurses in primary health care and sociodemographic, professional and extra-labour variables showed statistically significant differences between some of the domains/items and the variables (Table S3). Regarding sociodemographic and professional variables, there were statistically significant differences between the global perception of workload and the nurses who had been on medical leave over the last year ($p = .036$), between the item disconnect from work after work shift and the academic background of nurses ($p = .025$), and between the item quality of work life and having specific training in health promotion and disease prevention in childhood ($p = .012$). Regarding the labour variables, the working hours variable showed statistically significant differences on the perception of managerial support ($p = .015$) and intrinsic motivation ($p = .004$) and the item disconnect from work after work shift ($p = .002$) (Table S4).

3.2.2 | Relationship between the quality of professional life of paediatric nurses and the level of autonomous competences

Table 5 summarises the relationship between the quality of professional life of nurses according to QPL-35 questionnaire and the level of autonomous competences. Pearson's correlation coefficient was used to analyse the relationship between the domains and items of

TABLE 4 Level of perceived autonomy and autonomous competences of participating paediatric nurses in primary health care $n = 206$ (100%)

Variables	*N* (%)	Mean (SD)
Level of perceived autonomy in the competences performed	203 (98.5)	7.96 (1.55)
Groups according to perceived level of autonomy in the competences performed (scale 0–10)		
Total autonomy (score 10)	29 (14.3)	
Autonomous in most of the screenings/techniques (score 7–9)	143 (70.4)	
Autonomous in half of the screenings/techniques (score 5–6)	23 (11.3)	
Very little or little autonomy in the screenings/techniques (score 1–4)	8 (3.9)	
No autonomy (score 0)	0 (0)	
Number of autonomous health checks per nurse		4.44 (2.66)
Level of autonomous competence according to the screenings/autonomous techniques performed		
Low level (<10 items)	12 (5.8)	
Medium level (10–17 items)	98 (47.6)	
High level (>17 items)	96 (46.6)	

TABLE 5 Bivariate correlation between the quality of professional life (QPL-35 questionnaire) and the level of autonomous competences of nurses, and between the quality of professional life and the level of perceived autonomy in the competences performed ($n = 206$)

Variables	Sum of screenings/autonomous techniques	Level of perceived autonomy in the competences performed
Perception of managerial support	$r = .157^{*}$ $p = .024$	$r = 0.306^{**}$ $p < .001$
Global perception of workload	$r = .234^{**}$ $p = .001$	$r = -0.001$ $p = .986$
Intrinsic motivation	$r = .207^{**}$ $p = .003$	$r = 0.298^{**}$ $p < .001$
Disconnect from work after work shift	$r = -.161^{*}$ $p = .021$	$r = -0.036$ $p = .610$
Quality of work life	$r = -.070$ $p = .318$	$r = 0.133$ $p = .58$

Note: r = Pearson's correlation; Sig. (bilateral) p = level of statistical significance.

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

the quality of professional life questionnaire with the sum of screenings and activities performed by paediatric nurses in primary health care, and with paediatric nurses' level of perceived autonomy in the competences performed. We found statistically significant differences between the domain managerial support ($p = .024$), global perception of workload ($p = .001$), intrinsic motivation ($p = .003$) and disconnect from work after work shift ($p = .021$), and the sum of screenings and autonomous techniques performed by the nurse. There were also statistically significant differences between the domain managerial support ($p < .001$) and intrinsic motivation ($p < .001$), and the paediatric nurses' level of perceived autonomy in the competences performed.

3.3 | General multivariate regression analysis

A general multivariate regression model analysis was used to analyse the factors predicting the quality of professional life of the participants (QPL-35 questionnaire). To know the factors associated with the quality of professional life, the different domains of QPL-35 questionnaire were introduced as dependent variables: perception of managerial support, global perception of workload and intrinsic motivation, and the items disconnect from work after work shift and quality of work life. The following independent variables were introduced: age, gender, marital status, number of children, being a caregiver, years of service at the current health centre, employment status (type of contract), working hours, years of service at primary health care, years of service in paediatric primary health care, academic background, having a specialist nurse's degree, being a paediatric nurse specialist, having specific training in paediatric care, gross annual salary, holding a position of responsibility, working health centre ('Catalan Health Institute'/ 'non-Catalan Health Institute'), province where they work, temporary medical leave in the past year, experience of a traumatic event in the past year, level of perceived autonomy in the competences performed, sum of activities and screenings of autonomous competences, number of autonomous health checks performed by the nurse according to the 'Childhood with Health Program', role of the paediatrician, role of the nurse and the additional variable response-to-the-survey before or after the COVID-19 pandemic.

A general linear stepwise model was performed. Non-significant variables were removed from the model and general linear model analyses of associated factors were conducted to test the significance. The final adjusted model included the significant factors. A higher level of perceived autonomy in the competences performed ($B = 0.289$, $p < .001$) and not being a caregiver ($B = 0.912$, $p = .005$) were positively associated with the domain perception of managerial support. Factors such as being separated ($B = -1.818$, $p = .016$) and a higher number of autonomous health checks performed by the nurse ($B = -0.078$, $p = .016$) were negatively associated with this domain. The role of the paediatrician as a consultant ($B = 1.040$, $p > .001$) increased the global perception of workload mean score. Factors such as not being a caregiver ($B = -1.290$, $p < .001$) and being single ($B = -0.444$, $p = .019$) decreased the global perception of workload mean score. A higher level of perceived autonomy in the competences performed ($B = 0.127$, $p < .001$), being a paediatric nurse specialist ($B = 0.337$, $p = .009$), and a working full-time ($B = 0.367$, $p = .038$) was positively associated with intrinsic motivation. A higher number of years worked at current health centre ($B = -0.025$, $p < .001$) decreased the intrinsic motivation mean score. Variables such as having a PhD in nursing ($B = -3.563$, $p = .004$) and conducting a higher number of autonomous health checks ($B = -0.132$, $p = .033$) were related to a lower ability to disconnect from work after work shift. Having specific training in paediatric care ($B = 0.490$, $p = .056$) and a higher level of perceived autonomy in the competences performed ($B = 0.200$, $p = .009$) increased the quality of work life. Conducting a higher number of autonomous child health checks ($B = -0.119$, $p = .007$) was negatively associated with the item paediatric nurses' quality of work life. Table 6 shows that all significance levels, statistical power and effect size are adequate.

The overall coefficient of determination (goodness of fit) for the quality of professional life general linear model for perception of managerial support $R^2 = 0.209$, indicating that the variables included in the model explained 20.9% of the variance of perception of managerial support; for global perception of workload $R^2 = 0.203$, indicating that the variables included in the model explained 20.3% of the variance of global perception of workload; for intrinsic motivation $R^2 = 0.187$, indicating that the variables included in the model explained 18.7% of the variance of intrinsic motivation; for the ability

TABLE 6 Results from the general multivariate regression model analysis (stepwise) between the dimensions of the quality of professional life (QPL-35 questionnaire) and the explanatory variables ($N = 154$)

Dependent variables	Explanatory variables[a]	F	R^2	AR^2	B	95% CI		SE	β	t	p-value
						Min	Max				
Perception of managerial support											
Model 1		19.945 (1152)	0.116	0.110							<0.001**
	Level of perceived autonomy				0.246	0.137	0.354	0.055	0.341	4.466	<0.001**
Model 2		13.330 (2151)	0.150	0.139							<0.001**
	Level of perceived autonomy				0.244	0.137	0.351	0.054	0.338	4.505	<0.001**
	Being a caregiver (0 = yes; 1 = no)				0.796	0.157	1.435	0.323	0.185	2.460	0.015*
Model 3		10.764 (3150)	0.177	0.161							<0.001**
	Level of perceived autonomy				0.248	0.142	0.354	0.053	0.344	4.640	<0.001**
	Being a caregiver (0 = yes; 1 = no)				0.819	0.188	1.450	0.319	0.190	2.564	0.011*
	Marital status (0 = married/ single/widow(er)/divorced; 1 = separated)				−1.682	−3.177	−0.186	0.757	−0.165	−2.222	0.028*
Model 4		9.815 (4149)	0.209	0.187							<0.001**
	Level of perceived autonomy				0.289	0.180	0.398	0.055	0.401	5.231	<0.001**
	Being a caregiver (0 = yes; 1 = no)				0.912	0.286	1.537	0.317	0.212	2.879	0.005**
	Marital status (0 = married/ Single/widow(er)/divorced; 1=separated)				−1.818	−3.293	−0.342	0.747	−0.178	−2.434	0.016*
	Number of autonomous health checks according to the 'Childhood with Health Program'				−0.078	−0.141	−0.015	0.032	−0.188	−2.431	0.016*
Global perception of workload											
Model 1		13.300 (1152)	0.080	0.074							<0.001**
	Being a caregiver (0 = yes; 1 = no)				−1.163	−1.793	−0.533	0.319	−0.284	−3.647	<0.001**
Model 2		15.857 (2151)	0.174	0.163							<0.001**
	Being a caregiver (0 = yes; 1 = no)				−1.316	−1.920	−0.713	0.306	−0.321	−4.308	<0.001**
	Role of the paediatrician (0=reference/complement to the nurse; 1=consultant)				0.948	0.414	1.402	0.230	0.307	4.125	<0.001**

(Continues)

TABLE 6 (Continued)

Dependent variables	Explanatory variables[a]	F	R^2	AR^2	B	95% CI Min	95% CI Max	SE	β	t	p-value
Model 3		12.772 (3150)	0.203	0.188							<0.001**
	Being a caregiver (0 = yes; 1 = no)				−1.290	−1.885	−0.695	0.301	−0.315	−4.282	<0.001**
	Role of the paediatrician (0 = reference/complement to the nurse; 1 = consultant)				1.040	0.586	1.494	0.230	0.337	4.529	<0.001**
	Marital status (0 = married/widow(er)/Separated/divorced; 1 = single				−0.444	−0.814	−0.074	0.187	−0.176	−2.373	0.019*
Intrinsic motivation											
Model 1		13.643 (1152)	0.082	0.076							<0.001**
	Level of perceived autonomy				0.133	0.062	0.204	0.036	0.287	3.694	<0.001**
Model 2		10.904 (2151)	0.126	0.112							<0.001**
	Level of perceived autonomy				0.127	0.057	0.197	0.035	0.274	3.592	<0.001**
	Number of years worked at current health centre				−0.019	−0.032	−0.005	0.007	−0.210	−2.752	0.007**
Model 3		9.716 (3150)	0.163	0.146							<0.001**
	Level of perceived autonomy				0.125	0.056	0.193	0.035	0.289	3.596	<0.001**
	Number of years worked at current health centre				−0.025	−0.039	−0.011	0.007	−0.273	−3.460	0.001**
	Paediatric nursing specialty (0 = yes; 1 = no)				−0.330	−0.585	−0.075	0.129	−0.201	−2.588	0.012*
Model 4		8.547 (4149)	0.187	0.165							<0.001**
	Level of perceived autonomy				0.127	0.060	0.195	0.034	0.275	3.709	<0.001**
	Number of years worked at current health centre				−0.025	−0.039	−0.012	0.007	−0.283	−3.624	<0.001**
	Paediatric nursing specialty (0 = yes; 1 = no)				0.337	−0.590	−0.085	0.128	−0.205	−2.640	0.009**
	Working hours (0 = part-time; 1 = full-time)				0.367	0.021	0.714	0.175	0.155	2.093	0.038*
Disconnect from work after work shift											
Model 1		7.452 (1152)	0.047	0.040							0.007**
	Academic background (0 = degree/postgraduate; 1 = doctorate)				−3.380	−5.826	−0.934	1.238	−0.216	−2.730	0.007**

TABLE 6 (Continued)

Dependent variables	Explanatory variables[a]	*F*	R^2	AR^2	B	95% CI		SE	*β*	*t*	*p*-value
						Min	Max				
Model 2		6.142 (2151)	0.075	0.063							0.003**
	Academic background (0 = degree/postgraduate; 1 = doctorate)				−3.563	−5.986	−1.140	1.226	−0.228	−2.905	0.004**
	Number of autonomous health checks according to the 'Childhood with Health Program'				−0.132	−0.252	−0.011	0.061	−0.169	−2.157	0.033*
Quality of work life											
Model 1		4.245 (1152)	0.027	0.021							0.041*
	Specific training in paediatric health care (0 = yes; 1 = no)				0.540	0.022	1.058	0.262	0.165	2.060	0.041*
Model 2		4.137 (2151)	0.052	0.039							0.018*
	Specific training in paediatric health care (0 = yes; 1 = no)				0.528	0.015	1.042	0.260	0.161	2.035	0.044*
	Number of autonomous health checks according to the 'Childhood with Health Program'				−0.084	−0.168	0.000	0.042	−0.157	−1.987	0.049*
Model 3		5.185 (3150)	0.094	0.076							0.002**
	Specific training in paediatric health care (0 = yes; 1 = no)				0.490	−0.014	0.995	0.255	0.150	1.922	0.056
	Number of autonomous health checks according to the 'Childhood with Health Program'				−0.119	−0.206	−0.033	0.044	−0.223	−2.728	0.007**
	Level of perceived autonomy				0.200	0.050	0.350	0.076	0.215	2.637	0.009**

Note: p = level of statistical significance.

Abbreviations: AR^2, adjusted *R*-square; B, unstandardised regression coefficients; CI, confidence interval; *F*, *F*-test; Max, maximum value; Min, minimum value; R^2, *R*-square; SE, standard error.

*Association is significant at the 0.05 level for *t*-test (2-tailed).

**Association is significant at the 0.01 level for *t* test (2-tailed).

to disconnect from work after work shift $R^2 = 0.075$, indicating that the variables included in the model explained 7.5% of the variance of disconnect from work after work shift; and for the quality of work life $R^2 = 0.094$, indicating that the variables included in the model explained 9.4% of the variance of the quality of work life.

4 | DISCUSSION

The first objective of the present study was to identify the autonomous competences of paediatric nurses in primary health care and describe the level of autonomous competences performed and their quality of professional life. In accordance with our findings, a study performed in a specific region of Spain suggests that paediatric nurses' skills in primary health care during child health checks consisted in monitoring physical development, health education and vaccination (Soriano Faura et al., 2016). A research performed in Australia which examined the roles and responsibilities of nurses in primary health care reported the following activities: immunisation, phone triage/advice, child health/development advice, wound care and Healthy Kids Checks as frequent tasks performed by nurses in child health care (Walsh et al., 2015). A recent global systematic review that assessed the available evidence on paediatric nurses' clinical autonomous competences regarding disease prevention and health promotion activities for children and adolescents in primary health care confirms these findings and reports health education and advice, child and adolescent health and development assessment, immunisations and child health checks, as the most common nursing autonomous competences (Laserna Jiménez, López Poyato, et al., 2021). Despite previous research which identified limitations in paediatric nurses' autonomous competences, we found that paediatric nurses in Catalonia perform a larger number of autonomous competences in disease prevention and health promotion activities such as weight/height measurement, skin, oral, eye and genitourinary examination, blood pressure, locomotor system examination, vaccination, health education, psychomotor development assessment, mental health examination, pubertal development assessment and identification of warning signs.

Our findings indicate that the majority of paediatric nurses have a medium-high level of autonomous competences performed, whereas they perceive a high level of autonomy. Therefore, the difference between both values shows that nurses perform a lower level of autonomous competences than expected when compared to their high level of perceived autonomy. This can also be observed in the number of autonomous health checks performed by nurses without the paediatrician's intervention, which is lower than half of the health checks performed according to the 'Childhood with Health Program' (Generalitat de Catalunya, Departament de Salut, 2008). Although the original health program showed that the child/adolescent health checks were performed by both professionals, with a differentiated role in conducting specific screenings/activities, a latest update shows that these screenings are performed by either the paediatrician or the nurse depending on the characteristics of each healthcare team, in a coordinated way. Our findings show that the model of paediatrician–nurse combined health checks prevails as reported by Soriano Faura et al. (2016) in other autonomous communities of Spain.

As for the quality of professional life of the participants according to QPL-35 questionnaire, our study shows that perception of managerial support, global perception of workload and the item disconnect from work after work shift scored medium-high. Intrinsic motivation and quality of work life mean scores were very high and high, respectively. In line with our findings, Garrido et al. (2010) and Villarín et al. (2015) reported that the quality of professional life of nurses in primary health care was lower for the domains managerial support and intrinsic motivation, and for the two other independent items. The domain workload achieved the highest score. In both studies, the item quality of work life scored really lower with means of 5.37 (SD 1.85) and 5.1 (SD 2.1), respectively. The existence of multiple instruments to measure the quality of professional life makes it difficult to compare the results obtained in this study. A research study performed in Spain reported a job satisfaction of primary healthcare nurses mean score similar to the one we found. It was 7.02 and it was measured through CSML questionnaire on a Likert-style ranging from 1 to 10 (being 10= maximum satisfaction) (Pérez-Ciordia et al., 2013). This is in line with our study, which shows a high score on the item quality of work life, mean 7.16.

The bivariate analysis in relation to sociodemographic, professional and work-related variables according to the different items of QPL-35 questionnaire showed the following factors had statistically significant differences in these variables: having an episode of temporary medical leave in the past year, academic background, having specific training in health promotion and disease prevention in childhood and working hours. The latter was the variable which showed significant differences in a greater number of domains and items: perception of managerial support, intrinsic motivation and disconnect from work after work shift. The literature suggests that the most satisfying aspects for primary healthcare nurses are competences and interpersonal relationships, whereas other less satisfying related factors are salary, lack of promotion opportunities, training and management positions (Pérez-Ciordia et al., 2013). This is in line with our findings, which show that the academic background of nurses and specific training in child health care are key factors for quality of professional life.

In relation to the second objective of the study: to investigate the relationship between the level of autonomous competences and the quality of professional life of paediatric nurses, we found a significant relationship between the autonomous competences and the level of perceived autonomy, and the quality of professional life, which are correlated in several domains and items. We can establish a relationship between the domains managerial support, global perception of workload, intrinsic motivation and disconnect from work after work shift, and the total screenings and autonomous techniques performed by the nurse. On the other hand, a significant relationship can be established between the domains managerial support and intrinsic motivation and the

level of perceived autonomy. These findings are in line with a previous research (Pron, 2013), which measured the relationship between job satisfaction and the perceived level of autonomy of nurse practitioners in nurse-managed health centres. It shows that nurses were satisfied with their job, perceived their role as autonomous and were satisfied with the autonomy they had. This study reported that the challenge/autonomy subscales correlated highly with total job satisfaction. Likewise, Perdok et al. (2017) found that midwives in primary care had high scores on the level of experienced job autonomy when compared to other maternity care professionals. The experienced job autonomy scored 3.07 (SD 0.40) on a 4-point Likert-style scale. Autonomy was measured with a job satisfaction validated instrument, given the well-documented relationship between autonomy and job satisfaction (Athey et al., 2016; Pron, 2013; Wang-Romjue, 2018). The literature suggests that autonomy is a predictive factor of job satisfaction (Athey et al., 2016). Autonomy is identified as the most satisfying professional aspect for the role of nurses in primary health care, together with other elements such as patient interactions, colleagues interaction, respect, teamwork, collegiality and salary (Halcomb & Ashley, 2017; Torunn Bjørk et al., 2007).

In relation to the third purpose: to identify the variables affecting the quality of professional life of paediatric nurses, our findings suggested that the factors associated with some of the domains and items of the quality of professional life (QPL-35 questionnaire) were level of perceived autonomy, number of autonomous health checks conducted by the nurse according to the 'Childhood with Health Program', number of years worked at current health centre, working hours, marital status, being a caregiver, academic background, having a qualification of paediatric nurse specialist, specific training in paediatric health care and the role of the paediatrician.

The present study reported that a higher autonomy and academic training, such as a PhD in nursing or a qualification in paediatric nursing, are factors related to a higher quality of professional life. It should be noted the small number of nurses with a PhD in the sample. According to these results, autonomy and academic background are two factors identified in the literature with a significant influence on nurses' job satisfaction (Torunn Bjørk et al., 2007). Moreover, the paediatrician's role as consultant versus a complementary one for the nurse or reference for families proved to be a positive factor influencing the quality of professional life of nurses. The paediatrician as a consultant during the health checks offers paediatric nurses the possibility of being more autonomous and independent in the fulfilment of their activities and screenings in child health care.

Almalki et al. (2012) reported significant differences in the quality of professional life according to gender, age, marital status, being a caregiver, nursing tenure, organisational tenure, positional tenure and payment. Nurses with more working experience and time spent at their primary healthcare organisation were the most satisfied. In accordance with these findings, the present study shows that the quality of professional life of paediatric nurses is influenced by marital status, being a caregiver and full-time work. On the other hand, a higher number of years worked at current health centre negatively influenced nurses' quality of professional life.

4.1 | Limitations

Our findings should be interpreted in the light of several limitations. Data were only collected in a specific autonomous community of a specific country, which makes it difficult to generalise data to other communities or countries. Although the response rate was low, we need to highlight the participation of paediatric nurses which finally achieved a good representative sample of different healthcare providers and health centres of Catalonia. Despite these facts, the reliability found in the quality of professional life of the nurses (QPL-35 questionnaire) was a Cronbach's alpha value as reported by Cabezas (2000). Other limitation of this study to consider was the data collection. It was performed in two different stages due to the worldwide COVID-19 pandemic and data were collected through written surveys during the previous pandemic period and through online surveys eight months after the beginning of the pandemic. Although we considered the variable survey response before and after the start of the pandemic as a factor that might influence the quality of professional life, it did not show statistical significance. It is important to highlight the scarce evidence on paediatric nurses in primary health care to be able to compare our findings.

5 | CONCLUSION

Paediatric nurses in primary health care perform autonomous competences on child health checks such as weight/height measurement, skin, oral, eye and genitourinary examination, blood pressure, locomotor system examination, vaccination, health education, psychomotor development assessment, mental health examination, pubertal development assessment and identification of warning signs. Paediatric nurses had a medium-high level of autonomous competences and a high level of perceived autonomy in the competences performed. Although they showed a high mean score on the level of perceived autonomy, the number of nurses indicating high level of autonomous competences was lower than expected according to the perceived autonomy they reported. The quality of professional life of the nurses (QPL-35 questionnaire) was medium-high for the domains perception of managerial support, global perception of workload and the item disconnect from work after work shift. The domain intrinsic motivation and the item quality of work life were very high and high, respectively. The findings from this study indicate that the number of autonomous competences performed and the level of perceived autonomy are predictors of the quality of professional life of paediatric nurses in primary health care. Other factors associated with the quality of professional life were marital status, being a caregiver, number of years worked at current health centre, working hours, number of autonomous health checks

conducted by the nurse, academic background, being a paediatric nurse specialist, specific training in paediatric health care and the role of the paediatrician.

6 | RELEVANCE TO CLINICAL PRACTICE

Enhancing autonomous competences of paediatric nurses in primary health care and academic background, receiving specific training and having a qualification in paediatric nursing might improve their quality of professional life, which also might result in an improvement of the health care provided to children and families. Findings may help healthcare providers and healthcare organisations to better understand the influencing factors affecting the quality of professional life of paediatric nurses in primary health care in order to improve healthcare quality and health outcomes for the child population.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

AUTHOR CONTRIBUTIONS

All authors had a substantial contribution to the manuscript. CLJ; Conceptualisation, Study design, Data collection, Data analysis, Data interpretation, Writing—original draft, Review and editing, Final approval. EGA; Study design collaboration, Data analysis collaboration, Data interpretation collaboration, Review and editing, Final approval. ICM; Data analysis collaboration, Review and editing, Final approval. JEM; Study design collaboration, Review and editing, Final approval. NF; Study design collaboration, Data collection collaboration, Review and editing, Supervision, Final approval.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

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