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Article

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Abstract: School nursing is a specialized nursing practice focused on promoting child health within the school and community environment, integrating healthcare with the educational process. The aim was to explore the experiences of nurses and teachers regarding the implementation of a school nursing pilot programme in primary education in the Canary Islands. A phenomenological study was conducted with nurses and teachers participating in the pilot programme in the Canary Islands (Spain) during the 2023-2024 academic year. No exclusion criteria were applied. In-depth interviews were conducted from May to June 2024 until data saturation, using a semi-structured interview script. Interviews were recorded and transcribed for descriptive and interpretative thematic analysis, employing intentional and co-occurrence coding, followed by triangulation using Atlas-Ti software (version 24.1.0). Quality criteria (credibility, transferability, dependability, and confirmability) were ensured. A total of 21 informants (7 nurses and 14 teachers) were interviewed. Two main themes were categorized: School Nurses and School Nursing Project. Nurses identified eight sub-themes: workload, experiences, career opportunities, profile, suggested improvements, weaknesses, time management, and improvement needs. Teachers identified six sub-themes: approach, importance, expectations, children's health, school health, and pilot experiences. The identified analytical categories provide an initial framework for exploring and advancing the integration of this professional role into the Canary Islands' educational system. Emphasis is placed on the need to optimise working conditions for school nurses and their pivotal role in addressing health needs and promoting children's wellbeing within the school setting.

Keywords: school nursing; nursing; nursing care; nurse's role; qualitative research

1. Introduction

The National Association of School Nurses (NASN) defines school nursing as a specialised nursing practice focused on protecting and promoting the health of children within the school and community environment. This role facilitates their optimal development and academic success

through ethical, evidence-based practice (Veronese & Rossetto, 2024). School nursing bridges healthcare and education(Veronese & Rossetto, 2024; Wainwright et al., 2000), leveraging the school setting as a conducive space for health promotion and the encouragement of healthy behaviours (Wainwright et al., 2000).

The role of school nurses in education has been widely studied, particularly concerning the management of prevalent chronic conditions (Leroy et al., 2017) such as diabetes (Brackney & Cutshall, 2015), childhood obesity (Lofton et al., 2016; Quelly, 2014; Schroeder et al., 2016), respiratory diseases (Hardy et al., 2024; Isik et al., 2019; Wing et al., 2024; Worrell et al., 2015), mental health (Fothergill et al., 2003; March et al., 2022), and the administration of pharmacological treatments (Lowe et al., 2022). Their involvement in health promotion campaigns (Wainwright et al., 2000) has also been examined, including education on menstruation (Bergen et al., 2024; LeBlanc, 2024; Tobbell, 2024), healthy sleep habits (Jakobsson, 2024), child abuse prevention (Peck et al., 2024), heatstroke prevention (Bultas & Oerther, 2024), and school vaccination programmes (McNally et al., 2024), among others. Moreover, their presence and impact during the COVID-19 pandemic (Hoffman et al., 2024; Kim et al., 2024; Santana-López et al., 2023; Veronese & Rossetto, 2024; White et al., 2024) have been the subject of significant research. Other explored topics include school nurses' interactions with families (Nahum et al., 2022), the impact of school nursing programmes on student health (Lineberry & Ickes, 2015; Nash et al., 2021) and the training of teachers for emergency response (Elizalde et al., 2024). However, there remains a need to generate evidence demonstrating school nurses' effectiveness to policymakers and to expand research on their skills and competencies in diverse international contexts (Wainwright et al., 2000).

Despite the growing interest in this field, the study of professionals' perceptions and experiences regarding the school nurse role has been less extensively covered in scientific literature (McNally et al., 2024; Nahum et al., 2022; Quelly, 2014), underscoring the importance of exploring this aspect through qualitative approaches.

Against this background, the Regional Government of the Canary Islands has developed and implemented a school nursing pilot programme in the Autonomous Community. As an insular territory, the programme's implementation posed organisational challenges requiring close collaboration among institutions of varied natures and characteristics, as well as among professionals with diverse academic and professional backgrounds. This study aims to explore the experiences of nurses and teaching staff regarding the implementation of the school nursing pilot programme in early years and primary education in the Canary Islands.

2. Materials and Methods

2.1. Design

A qualitative study with a phenomenological approach was conducted, following Van Manen's methodological proposal (Errasti-Ibarrondo et al., 2018; van Manen, 2017), which integrates Husserl's descriptive perspective with Heidegger's interpretative hermeneutics (Mendieta-Izquierdo et al., 2015).

2.2. Study Setting and Recruitment

The study population consisted of two groups of participants. The first group included nurses involved in the pilot programme ($n = 20$) for the implementation of the school nurse role in primary education institutions in the Canary Islands, Spain. The second group comprised teachers from 60 educational centres participating in the pilot programme. The initial selection of participants was carried out using convenience sampling, followed by theoretical sampling to recruit key informants, thereby maximising the richness and diversity of discourse surrounding the studied phenomenon until data saturation was reached.

2.3. Inclusion and Exclusion Criteria

Inclusion criteria encompassed nurses participating in the school nursing programme and teachers from the educational centres involved in the programme during the 2023/2024 academic year. Teachers were included regardless of whether they participated in health promotion and disease prevention activities. No exclusion criteria were applied.

2.4. Data Collection

Data were collected through in-depth interviews (AFH, SJGB, LFM) conducted both face-to-face and online (Amaris-Macías & Casilimas, 2022). In-person interviews were held in offices within the educational institutions, ensuring a comfortable, interruption-free environment. For virtual interviews, the Webex® platform (the official teleconferencing tool of the Regional Government of the Canary Islands) was used, guaranteeing a stable, seamless connection. Interviews took place between May and June 2024, lasting between 60 and 120 minutes, with prior scheduling coordinated with participants. No one else was present during the interviews. Data collection concluded once data saturation was reached.

The interview script was developed using Atlas-Ti® software (version 24.1.0), leveraging its artificial intelligence (AI) module to generate context- and objective-driven questions. These were subsequently refined to align with the intended analytical categories established during coding. Questions in the semi-structured script were tailored to each participant group, as detailed in Table 1.

Table 1. Semi-structured interview script for nurses and teachers.

Participants	Questions
Nurses	Can you describe your experiences as a participant in the school nursing pilot programme?
	What challenges or weaknesses have you identified in the implementation of the school nursing pilot programme?
	What improvements are needed to further develop the role and profile of school nurses?
	Are there specific areas within the pilot programme require enhancement to ensure its success?
Teachers	How would you describe your experiences with the school nursing pilot programme at your school?
	What shortcomings have you noticed in the programme's implementation, and what areas do you think could be improved?
	What do you see as the main needs for advancing the integration of school nurses into the educational system?
	How do you perceive the role of school nurses, and what impact do you think the programme has had on the school community?
	Which aspects of the programme have been most effective, and what suggestions would you make to strengthen the school nurse role?

Sociodemographic variables were collected, including island of residence, age, sex, and years of professional experience. For nurses, additional information was gathered regarding their main primary care facility, postgraduate training, and the number of assigned educational institutions. For teachers, variables included class tutoring, teaching level, and subjects, as well as the number of students at their school.

2.6. Data Analysis

The interviews were recorded and transcribed verbatim to be incorporated into the thematic analysis units, along with researchers' field notes. The analysis followed an intentional coding strategy (Chen et al., 2018; Naeem et al., 2023), supported by Atlas Ti software (version 24.1.0) and

based on Strauss' methodology, which consists of two phases. Firstly, a phenomenological reduction was conducted by two researchers (HGdlT, CARS) identifying descriptive units of meaning and grouping them into subthemes. Then, a phenomenological interpretation was applied through inductive data analysis to understand the studied phenomenon. Finally, selective coding was performed by merging similar subthemes to identify central theoretical categories or overarching themes that explain the phenomenon (del Moral & Suárez-Relinque, 2020). Additionally, a comparative axial coding of the data was carried out through co-occurrence analysis of units of meaning and subthemes. Discrepancies in the analysis were discussed and resolved through triangulation among the research team members until a consensus was reached.

2.7. Rigour and Reflexivity

To ensure rigour, the quality criteria proposed by Lincoln and Guba (Lincoln & Guba, 1985; Schwandt et al., 2007) were followed. Credibility was achieved through detailed data collection at all stages, with descriptive processes verified by informants during the review of results. Transferability was ensured through a comprehensive description of the setting, participants, context, and methods used. Dependability was evaluated via an external review of the results by an expert unfamiliar with the data collection and analysis. Confirmability was established through researcher and data triangulation, wherein all team members read the transcripts and reached a consensus on units of meaning (UM), subthemes, and themes. The research team also engaged in continuous reflexivity to address potential biases and influences. Two of the researchers (HGdlT, CARS) were men with PhD degree and prior experience in qualitative research. The remaining researchers (AFH, SJGB, LFM, BRO) were women, nurses without prior experience in qualitative research, who were employed as school nurses during the study. The female researchers had a prior relationship with the participating nurses through training received before the start of the project. However, there was no prior relationship with the teachers. The manuscript was prepared in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (Tong et al., 2007).

2.8. Ethical Considerations

Although the design of this study did not anticipate potential harm to participants, ethical approval was sought and obtained from the Ethics Committee for Research with medicinal products (ECRmp) for the Las Palmas–Dr. Negrín University Hospital in Gran Canaria (code: 2023-216-1). Additionally, the University Hospital Complex of the Canary Islands in Tenerife reviewed the study and determined that no further evaluation was required. Participant anonymity and voluntary participation were ensured through the use of pseudonyms, and data were handled in compliance with the Spanish Organic Law 3/2018 of 5 December, on Personal Data Protection and Guarantee of Digital Rights. Authorisation to record interviews was requested following the signing of informed consent by participants. All recordings and transcripts were securely stored in accordance with current legislation, with access restricted exclusively to the research team.

3. Results

3.1. Sociodemografic Results

A total of $n = 21$ informants was interviewed. Of these, $n = 7$ were nurses, each assigned to between two and four schools. The sociodemographic characteristics of this group are detailed in Table 2.

Table 2. Sociodemographic characteristics of participating nurses.

Nurse	Island	Sex	Years of experience	Main primary care facility	Postgraduate education	Assigned schools

N1	La Gomera	Female	3	San Sebastián de la Gomera	Yes	2
N2	La Palma	Female	31	Tijarafe	Yes	2
N3	El Hierro	Female	19	Valverde	Yes	4
N4	Tenerife	Female	26	Icod	Yes	4
N5	Lanzarote	Female	34	Costa Teguise	Yes	3
N6	Fuerteventura	Female	32	Península de Jandía	No	4
N7	Gran Canaria	Female	21	San Gregorio	Yes	2

Regarding the teachers, n = 14 participants from various primary education centres were included. Their characteristics are detailed in Table 3.

Table 3. Sociodemographic characteristics of participating teachers.

Teacher	Island	Sex	Years of experience	Class tutor	Teaching level and subjects taught	Number of students
T1	Fuerteventura	Female	33	No	Primary education	402
T2	Fuerteventura	Female	5	No	Primary education, SEN	402/284 *
T3	Gran Canaria	Female	22	No	Primary education, SEN, Music	402
T4	Gran Canaria	Female	9	Yes	Primary education, SEN, English	402
T5	Gran Canaria	Male	8	No	Primary education, SEN, PE	506
T6	Tenerife	Female	16	No	Primary education	420
T7	Fuerteventura	Female	4	No	Primary education, Music	210
T8	Fuerteventura	Male	16	No	Primary education, English	210
T9	Gran Canaria	Female	25	No	Primary education, SEN, Natural Sciences	411
T10	Tenerife	Male	7	No	Primary education, PE, Mathematics	51
T11	La Gomera	Female	18	No	Primary education, SEN	455
T12	La Palma	Female	11	No	Primary education, SEN	241
T13	La Gomera	Female	1	Yes	Primary education, SEN	455
T14	El Hierro	Male	37	No	Primary education, Mathematics	96

Note: * = Teaches in two schools. SEN = Special Educational Needs. PE = Physical Education.

3.2. Descriptive Results

In the interviews *c*onducted with nurses, a total of n = 221 verbatims were coded and grouped into n=116 UM, which were organised into n = 8 subthemes and n = 2 main themes (*School Nurses* and *School Nursing Project*). The theme *School Nurses* included the following subthemes: *Workload* (n = 19 UM), *School Nurses' Experiences* (n = 64 UM), *Career Opportunities* (n = 82 UM), *The School Nurse Profile* (n = 136 UM). The theme *School Nursing Project* encompassed the following subthemes: *Suggested*

Improvements (*n* = 28 UM), *Identified Weaknesses* (*n* = 16 UM), *Time Management* (*n* = 80 UM), *Improvement Needs* (*n* = 37 UM).

Regarding the interviews conducted with teachers, a total of *n* = 103 verbatims were coded and structured into *n* = 31 UM. These units were grouped into *n* = 6 subthemes, distributed across *n* = 2 main themes (*School Nurses* and *School Nursing Project*). The theme *School Nurses* included the following subthemes: *Approach to School Nursing* (*n* = 19 UM), *Importance of the Presence of School Nurses* (*n* = 27 UM). The theme *School Nursing Project* encompassed the following subthemes: *Expectations* (*n* = 25 UM), *Improving Children's Health* (*n* = 48 UM), *School Health* (*n* = 53 UM), *Experiences from the Pilot Programme* (*n* = 43 UM). The complete list of themes, subthemes, and identified UM is detailed in Table 4.

Table 4. Themes, subthemes, and units of meaning.

Themes	Participants	Subthemes	Units of meaning
School nurses	Nurses	Workload	Busy workload, Clear work plan, Need for organisation, Work plan, Prepared workshops, Stable schedule, Variable expectations
		School nurses' experiences	Career advancement, Career development, Career opportunities, Experiences, Feeling excluded, Increased workload, Integration, Isolation, Motivations, New opportunities, Noise, Occupation, Positive experiences, Professional growth
		Career opportunities	Accidental discovery, Addressing expectations, Career advancement, Career advancement opportunities, Career development opportunities, Career opportunity, Changing expectations, Considering to participate, Deciding to participate, Education opportunities, Clarification of expectations, Feeling isolated, Future career development, Social mobility opportunities, Motivations for participation, Need for improvement, New opportunities, Opportunity for career advancement, Opportunity for career growth, Positive experiences, Programme benefits, Training, Variable experiences
		The school nurse profile	Addressing needs, Clarifying expectations, Changing expectations, Collection of relevant data, Defining clear expectations, Developing the profile of the school nurse, Rewarding, Improved training, Improving the profile, Inter-professional coordination, Lack of clear expectations, Motivational workshops, Motivators, Pilot programme, Positive experiences, Profile development needs, School nurse training, Strengthening the profile of the school nurse, School nurse, Standardisation of expectations, Varied expectations
	Teachers	Approach to school nursing	Clinical and pedagogical approach, Clinical aspect, Clinical point of view, Necessary aspect, Pedagogical aspect, Pedagogical point of view
		Importance of the presence of	Collaboration, Education, Importance, Positive, Potential, Presence, Relevance, Healthcare worker

		school nurses	
School nursing project	Nurses	Suggested improvements	Effective communication, Institutional support, Motivation, Organisation, Planning, Recognition, Selection process, Task sharing, Training, Time management, Work plan, Working time, Workload management
		Identified weaknesses	Lack of support, Lack of resources, Lack of time, Motivation, Sense of belonging, Work overload
		Time management	Allocation of adequate study time, Attention to students, Busy, Excessive workload, Implementation of workshops, Increased workload, Intensive training load, Lack of integration, Lack of time to study, Organisation of study time, Programme organisation, Resource allocation, Recognition of work, Tasks required, Time management, Training load, Time to study, Time to study at home, Workload management, Workshop preparation
		Improvement needs	Better organisation, Clear expectations, Continuous training, Effective communication, Integration, Updating knowledge, Planning, Time management, Working hours, Work overload, Workshops, Work plan, Workload management
	Teachers	Expectations	Expectations
		Improving children's health	Rewarding, Health care, Health and education, Positive collaboration, Positive experiences
		School health	Educational institutions, Educational resource, Pedagogical need, School health, School nurses
		Experiences from the pilot programme	Changes, Collaboration, Education, Educational need, Health, Positive experience

The co-occurrences among subthemes identified in the interviews with nurses revealed significant discursive relationships. Notable connections included the co-occurrence between *School Nursing Project-Time Management* and *School Nurses-The School Nurse Profile* ($n = 80$), as well as between *School Nurses-Experiences of School Nurses* and *School Nurses-Career Opportunities* ($n = 52$). For the teachers, the most relevant co-occurrences were observed between *School Nursing Project-Experiences of the Pilot Programme* and *School Nursing Project-Improving Children's Health* ($n = 36$). Other notable co-occurrences included those between *School Nurses-Importance of the Presence of School Nurses* and *School Nursing Project-School Health* ($n = 27$), as well as between *School Nursing Project-School Health* and *School Nursing Project-Expectations* ($n = 23$). The full list of co-occurrences is available in Supplementary material 1.

3.2.1. School Nurses

The theme *School Nurses* was addressed by both nurse and teacher participants. For the nurses, the most prominent subthemes included the following:
- *The School Nurse Profile*

This subtheme emerged as the most significant in the nurses' accounts. It highlighted how school nursing provides new career opportunities to expand their skills and scope of practice. Participants shared their experiences and often divergent expectations, emphasising the motivational and

educational aspects present since the project's inception. Against this backdrop, they stressed the importance of selecting professionals whose profiles align closely with the school environment:

'You've really got to enjoy working with kids… I think having some paediatric or community nursing specialisation, or even a university-level course, would be a good idea… Plus, training in basic and advanced paediatric life support is crucial, just in case something happens. And you need to be pretty confident when it comes to teaching...' (N6).

'Paediatric training is absolutely essential, not just for promoting health but also on the clinical side of things. At the end of the day, we're the ones on site, and if something happens, we'll be the ones they call. Tech skills and a knack for research should also be must-haves for a school nurse.' (N4).

Selecting motivated professionals was another key element for the success of the project:

'Now I'm much happier. Honestly, it feels more doable. At the beginning, it was awful. We had training twice a week, and it would take up the entire morning. Then you had to lock yourself away at home to study. It was chaos at first. But little by little, once we finished the training and started preparing our workshops, it got a lot more motivating. And when we actually started, well, what can I say? You could see that you were someone, that you had a role here, that you were making a difference, and people would come to you. It was a whole different feeling.' (N2).

- *School Nurses' Experiences and Career Opportunities*

The co-occurrences between *School Nurses' Experiences* and *Career Opportunities* highlighted their enthusiasm for working in a school setting:

'The children know you're someone they can turn to at any time and in any situation—and not just the children, but the teachers as well...' (N5).

However, these experiences were influenced by disparities in the selection processes:

'In my case, it was a bit the other way around. They had already offered it to me, even before the official announcement was made…' (N1).

'I think it's quite important that they conduct an interview. I didn't have to go through any interviews. I called management, and they said, yes, you're the one. The rest of it was for those who applied—time worked in primary care, seniority.' (N2).

This highlights the uncertainty surrounding the required qualifications and skills and the lack of a clearly defined profile for school nurses, which led to exclusionary discussions among the nurses themselves:

'If I had been a paediatric nurse (because I'm a family nurse), then I would have had a lot of the concepts already solidified, wouldn't I? Like paediatric pathologies, which I don't really have a strong grasp of. But communication, collaboration, empathy, and social skills—those are things any nurse already has.' (N7).

Despite the challenges, the nurses viewed the project as an opportunity for both professional and personal development:

'I think this can move forward, and I'm going to do everything I can to make the [school nurse] role permanent and ensure it's here to stay. We've worked hard every day, and we've carved out our space.' (N2).

- *Workload*

Another prominent issue was the workload and lower financial compensation:

'Sure, I'm closer to home, but it doesn't make up for it because I work three times as much. I work morning, afternoon, and night. I even dream about the workshops. I prepare everything at home.' (N2).

'I work until three, but I still get calls, and I've had to attend afternoon meetings with teachers or headteachers because of issues that have come up…' (N1).

- *School Nurses: Teachers' perspectives*

For teachers, the theme *School Nurses* focused on two interconnected subthemes: *Importance of the Presence of School Nurses* and *Approach to School Nursing*. Teachers emphasised the value of having

nurses in the school environment, which provided them with a sense of security and reassurance in the event of illnesses or accidents:

'The sense of reassurance and safety they've brought to all the teaching staff and the management team has been incredible.' (T1).

'If there's no healthcare professional on-site, it's the teachers who have to step in, which carries risks given how little training we have. Healthcare, especially for minors, is a task for specialised professionals.' (T6).

'The only downside I see is that they're not at the school every day.' (T8).

Overall, teachers had a limited understanding of the functions of school nurses, often perceiving their role as being restricted to healthcare tasks:

'There's a lack of information about what the school nurse's responsibilities are.' (T5).

Despite this limited perspective, teachers recognised the educational potential of nurses in promoting health within the school community:

'The nurse can support teachers and school staff, students, and their families in improving health and quality of life, both through prevention and care, and by identifying health issues. It's a benefit for every part of the educational community.' (T6).

'Hopefully, in three years, having a nurse in school will be completely normal.' (T10).

3.2.2. School Nursing Project

Nurses and teachers alike highlighted positive aspects as well as areas for improvement regarding the *School Nursing Project*, covering topics ranging from working conditions to the integration of nurses into schools.

- *Perceptions of Project Implementation*

Nurses shared their perceptions of the project's implementation, which was influenced by institutional characteristics and the challenges posed by insularity:

'Insularity means that, since this is such a huge project run by the Canary Islands Health Service, I completely understand that all the islands need to be involved, but each island has its own particularities, and that makes things complicated.' (N7).

The complexity of planning and disparities in resource allocation created inconsistencies in the process:

'Each school has its own characteristics. Some schools don't have any multiculturalism, and then there are others with 72 different nationalities…' (N5).

Nurses' experiences also varied depending on the specific conditions of their assigned schools:

'Structurally, the physical space matters. For instance, I have a bathroom in my office and a sink for washing my hands. We don't have scales, a height measurer—so many things in other schools. Next year I'm sure we'll have everything sorted, but right now I think it's been a limitation.' (N4).

'They've given me a huge consultation room, beautifully set up, full of light—everything's perfect.' (N6).

- *Identified Weaknesses, Improvements Needs, and Suggested Improvements*

Nurses highlighted the lack of time and resources as major weaknesses, which hindered the proper implementation of the project. The workload, including both training and practical tasks, was overwhelming at the outset, preventing efficient performance. This was further exacerbated by the absence of adequate infrastructure in schools, such as designated spaces or basic resources, which complicated their work:

'There should have been better coordination from the Regional Ministry of Education to ensure spaces were ready, so we could... set up all the resources needed for our work. Without a designated classroom, it's difficult.' (N2).

In addition, the lack of access to relevant student information, such as chronic conditions, created further challenges in certain schools:

'Access to data about the children or their chronic conditions—many schools still don't have it… Meanwhile, other nurses elsewhere had the student list from day one.' (N3).

Another key issue mentioned by nurses was the need to improve their integration and sense of belonging within the educational institutions:

'You're in a house that isn't yours.' (N3).

'It feels like they don't see the project as their own. It's a healthcare initiative from the Canary Islands Health Service, and [the Regional Ministry of] Education has provided the facilities for it, but they don't want to be involved beyond that.' (N7).

- *Time Management and The School Nurse Profile*

    Time Management and *The School Nurse Profile* were closely interlinked, highlighting the importance of effective coordination and planning to ensure the project's success. Nurses noted that increased continuity and presence in schools would facilitate their work, enabling them to build stronger relationships with students and teachers:

'If I was told that next year I'll only have one school and can come every day, then the children get to know me, the teachers get to know me, and I get to know them. That seems important to me.' (N2).

They also faced challenges related to the diverse needs of students, such as supporting children with autism spectrum disorders and adapting language and tools to different age groups:

'We have children with many issues and a lot of diversity; we have children with autism spectrum disorders, and we've had to quickly learn to use pictograms and all that.' (N7).

Additionally, the absence of a clear structure made it difficult to plan their work effectively:

'We don't have an organisational chart because we don't have a work plan. Hopefully, next year this will be better thought out, and everything will be ready from day one, so the nurse knows exactly what to do.' (N2).

- *Improving Children's Health and School Health*

    Teachers, on the other hand, highlighted the project's benefits, particularly its positive impact on children's health and the school environment. They especially appreciated the collaboration between the health and education sectors, which not only addressed a pedagogical need, but also became an educational resource to promote school health:

'I hope we can keep collaborating in the same way and even expand it, so we can have the nurse at the school every day.' (T8).

However, teachers also pointed out the need to improve coordination between the involved institutions and expressed a desire for greater participation in the project:

'We didn't know exactly what their roles would be, but we were longing for the presence of a school nurse... We also hoped for better coordination between the health and education departments.' (T2).

Overall, while the project was seen as having great potential and already delivering significant benefits for school health, adjustments in coordination, planning, and resources were suggested to maximise its impact:

'Over the course of the year, we've participated in four workshops. I think we could take part in more, but with the curricular load, special events, and other things to do, sometimes there just isn't enough time.' (T4).

4. Discussion

Schools are ideal settings for fostering health literacy from an early age, equipping students with the knowledge, motivation, and skills needed to access, understand, and apply health-related information. This empowers children to make informed decisions about health promotion and disease prevention, thereby improving their quality of life (Juvinyà-Canal et al., 2018). Against this background, adolescence may be too late to acquire and develop healthy habits, further highlighting

the value of schools as prime environments for early intervention in health education during early years and primary education (Nash et al., 2021).

Despite the strategic role of school nurses in health promotion, their integration and utilisation in schools remain suboptimal (Chabot et al., 2010). While the role of the school nurse has gained significance in recent years, the scope of their responsibilities continues to evolve in line with shifts in educational approaches (Tanner et al., 2024). However, there is still a need to expand practical experiences and deepen the understanding of the perspectives of nurses, teachers, students, families, and the wider school community (Nash et al., 2021). Such efforts are essential for advancing a legislative framework to regulate and strengthen school nursing (Tanner et al., 2024).

In our research, two main thematic areas were identified: the role of *School Nurses* and the *School Nursing Project*. Regarding the first theme, nurses prioritise employment-related aspects such as the selection process for suitable profiles and professional opportunities. School nursing combines specific skills and roles from other specialisations or fields, such as paediatric nursing, family and community nursing, emergency care, mental health, and public health (Tanner et al., 2024), making the selection of appropriate profiles a complex task. As such, it requires broad and diverse training, with its distinctive and specific feature being the focus on student health within an educational setting (Tanner et al., 2024). Additionally, the importance of school nurses possessing leadership skills is emphasised (Chabot et al., 2010). These skills are critical for fostering effective collaboration within the educational community, supporting students' growth and development through individual guidance, and promoting effective coping strategies in the school environment. This approach requires a holistic perspective and an open, cordial atmosphere based on reciprocity and respect for students' privacy (Mäenpää et al., 2007).

On the other hand, teachers expressed greater concern about the importance of school nurses' presence and perspectives within schools, advocating for a child-centred approach that extends beyond addressing immediate health needs. Achieving this requires increasing the number of school nurses and expanding their competencies (Chabot et al., 2010), moving beyond the assessment of healthcare needs to meet the demands of policymakers (Croghan et al., 2004). Additionally, nurses must feel comfortable and confident in these work environments (Croghan et al., 2004), which necessitates structural and organisational changes within schools. These include improvements in communication and coordination among the various stakeholders involved (Chabot et al., 2010). It remains essential to develop a specific paradigmatic framework to propose general theoretical models that can guide the practice of school nurses (Reuterswärd & Lagerström, 2010).

Regarding the *School Nursing Project*, nurses identified weaknesses and improvement needs, particularly in time management and resource allocation. The literature highlights a general lack of robust research in this area, underscoring the need to implement quality standards to effectively evaluate the impact of school nurses (Pawils et al., 2023). For instance, the cost-effectiveness of school nurses has been found to be limited in managing students with chronic conditions and reducing school absenteeism (Leach et al., 2023). According to Rankine et al., insufficient communication among professionals is the primary barrier to addressing absenteeism (Rankine et al., 2023). Leach et al. (2023) suggest this issue stems from an ongoing paradigm shift in the care provided by school nurses moving into environments that are markedly different from those shaped by traditional approaches to care and teaching. Chabot et al. argue that increasing the number of school nurses could enhance their sense of value and, consequently, their job satisfaction in the school setting (Chabot et al., 2010).

Teachers, on the other hand, focused on more pragmatic aspects of the project, directing their comments towards their expectations and experiences with the pilot programme and emphasising the importance of interprofessional collaboration. Lam et al. (2013) highlight the advantages of such collaboration, including the early identification of children's complex health needs, promoting health, and ensuring rapid referral when necessary. According to Lam et al. (2013), this requires comprehensive planning and implementation of an increased number of school health services. Through these collaborative experiences, policymakers can better understand how interprofessional

collaboration within the educational setting can promote child health, underscoring the need for regional and national policy development (Lam et al., 2013). For Herath et al. (2017), interprofessional collaboration in education represents an innovative strategy that plays a significant role in addressing global shortages of healthcare workers and professionals. However, its implementation varies significantly across countries, with slower progress in developing nations and in rural areas of developed countries (Walker et al., 2018; Walker et al., 2019). Moreover, health programmes are currently more prevalent in higher education settings, making it necessary to strengthen their presence in early years and primary education. According to Herath et al. (2017), nursing is the discipline most actively involved in these programmes on an international scale.

The findings of this research are expected to provide a foundation for identifying potential weaknesses, needs, and areas for improvement in developing the profile of school nurses in the Canary Islands. This will help establish strategies to efficiently address the health needs of the school population, the educational community, and the wider public. These strategies should aim to promote healthy habits, foster self-management of chronic diseases, and provide appropriate assistance in emergency situations within educational centres (Lam et al., 2013). However, these interventions must be carefully designed and implemented to ensure meaningful outcomes.

Limitations of this research include the temporary nature of the project and the discontinuous presence of nurses in individual schools, as they are shared across multiple educational institutions simultaneously. This situation necessitates prioritising schools with greater health and social care challenges to achieve better cost-benefit ratios.

Other limitations stem from the exploratory nature of the research, characteristic of a qualitative methodology, which does not provide generalisable evidence. Additionally, transferability is influenced by the sociocultural uniqueness of the educational processes studied. Despite these limitations, we believe that our study offers valuable clinical implications by identifying analytical categories that support the development, implementation, and improvement of new health education strategies through the enhanced competencies of school nurses in early years and primary school settings.

5. Conclusions

The experiences reported by school nurses and teaching staff regarding the implementation of the school nursing pilot programme in early years and primary education in the Canary Islands were positive. Both groups emphasised the critical role of school nurses in executing the project.

The identified analytical categories provide an initial framework for exploring and deepening the integration of this professional role into the Canary Islands' educational system. The findings highlight the need to optimise the working conditions of school nurses and underscore their fundamental role in addressing health needs and promoting children's well-being within the school environment.

All authors have read and agreed to the published version of the manuscript." Please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of LAS PALMAS–DR. NEGRÍN UNIVERSITY HOSPITAL IN GRAN CANARIA (protocol code 2023-216-1 and date of approval 2023-04-27).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Written informed consent has been obtained from the patient(s) to publish this paper.

Data Availability Statement: Suggested Data Availability Statements are available in section "MDPI Research Data Policies" at https://www.mdpi.com/ethics.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

MDPI	Multidisciplinary Digital Publishing Institute
DOAJ	Directory of open access journals
TLA	Three letter acronym
LD	Linear dichroism
NASN	National Association of School Nurses
AI	Artificial Intelligence
UM	units of meaning
COREQ	Consolidated Criteria for Reporting Qualitative Research
ECRmp	Ethics Committee for Research with medicinal products

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