

Article

Not peer-reviewed version

# Empowerment and Community Process Diagnosis to Promote Epidemiological Surveillance of Nursing Diagnoses: A MAIEC-Based Study in the Autonomous Region of the Azores, Portugal

[Pedro Melo](#)\*, [Renata Silva](#), Flávio Vieira, Susana Barbeitos, Susana Figueiredo, [Sandra Silva](#)

Posted Date: 2 March 2026

doi: 10.20944/preprints202603.0132.v1

Keywords: epidemiological surveillance of nursing diagnoses; community health nursing; public health nursing; MAIEC model; community empowerment; nursing diagnosis; primary health care; health information systems; ICNP®



Preprints.org is a free multidisciplinary platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This open access article is published under a [Creative Commons CC BY 4.0 license](#), which permit the free download, distribution, and reuse, provided that the author and preprint are cited in any reuse.

Disclaimer/Publisher's Note: The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

Article

# Empowerment and Community Process Diagnosis to Promote Epidemiological Surveillance of Nursing Diagnoses: A MAIEC-Based Study in the Autonomous Region of the Azores, Portugal

Pedro Melo <sup>1,\*</sup>, Renata Silva <sup>1,2</sup>, Flávio Vieira <sup>1,2</sup>, Susana Barbeitos <sup>2</sup>, Susana Figueiredo <sup>1,2</sup> and Sandra Silva <sup>1,2</sup>

<sup>1</sup> RISE-Health, Nursing School, University of Porto, Rua Dr. António Bernardino de Almeida 830/844/856, 4200-072, Porto, Portugal

<sup>2</sup> São Miguel Island Health Unit, Grotinha nº1, 9500-354 Ponta Delgada, Azores, Portugal

\* Correspondence: pedromelo@esenf.pt

## Highlights

- This study addresses the underrepresentation of nursing-sensitive phenomena in traditional epidemiological systems by examining the conditions needed to implement Epidemiological Surveillance of Nursing Diagnoses (ESND).
- It focuses on priority public health challenges in the Autonomous Region of the Azores—tobacco use, drug dependence, and adolescent pregnancy—linking nursing documentation to population-level health needs.

### Public health relevance—How does this work relate to a public health issue?

- This study addresses priority public health problems in the Autonomous Region of the Azores—tobacco use, drug dependence, and adolescent pregnancy—by examining how nursing surveillance can strengthen the response to these challenges.
- It highlights the gap between existing epidemiological needs and the current capacity of primary care nursing teams to document, monitor, and act upon nursing-sensitive health phenomena.

### Public health significance—Why is this work of significance to public health?

- The findings reveal critical gaps in knowledge, communication, organizational structures, and training that directly affect the capacity of primary care services to monitor and respond to community health phenomena.
- By diagnosing the community process using the MAIEC model, the study provides evidence to strengthen the integration of nursing data into local health information systems and public health decision-making.

### Public health implications—What are the key implications or messages for practitioners, policy makers and/or researchers in public health?

- The results highlight the need for targeted capacity-building, clearer leadership structures, and improved communication strategies to support the sustainable implementation of ESND.
- Strengthening ESND can enhance the visibility of nursing contributions, improve surveillance of health behaviors and vulnerabilities, and support more responsive and equitable public health planning.

## Abstract

Epidemiological Surveillance of Nursing Diagnoses (ESND) represents an emerging field within Community and Public Health Nursing, aiming to strengthen the visibility of nursing-sensitive phenomena in health information systems. This study applied the Community Assessment, Intervention and Empowerment Model (MAIEC) to evaluate the empowerment level and diagnose

the community process of a Primary Health Care Island Unit in the Autonomous Region of the Azores, Portugal, regarding the promotion of ESND. A descriptive, cross-sectional design was used, combining documental analysis, a community empowerment assessment, and a structured questionnaire administered to 172 nurses. Results revealed substantial gaps in community leadership, including low levels of knowledge about ESND, the Local Health Diagnosis, and documentation in priority ICNP® foci. Community participation indicators showed limited clarity of the ESND process, low awareness of organizational structures and partnerships, and a lack of visible formal leadership. Community coping was characterized by minimal prior ESND experience and low training levels, although more than half of participants identified contextual strengths. Overall, the findings indicate a community with developmental potential but requiring targeted interventions to strengthen leadership, participation, and coping capacities. Enhancing training, communication, and organizational structures will be essential to support the sustainable implementation of ESND and reinforce the contribution of nursing to public health surveillance.

**Keywords:** epidemiological surveillance of nursing diagnoses; community health nursing; public health nursing; MAIEC model; community empowerment; nursing diagnosis; primary health care; health information systems; ICNP®

---

## 1. Introduction

The promotion of Epidemiological Surveillance of Nursing Diagnoses (ESND) represents an emerging and increasingly relevant field within Community Health Nursing and Public Health Nursing. This study is integrated into the Major Thematic Area “MAIEC & Public Health” of the MAIEC Lab, based at RISE-Health, School of Nursing, University of Porto, where a contemporary and innovative approach to epidemiology is being developed. This approach—referred to as post-modern epidemiology—shifts the analytical focus from diseases to the firmnesses and infirmities of Human Persons, grounded in the definition of Nursing proposed by Melo (2021) [1], who conceptualizes Nursing as the science and profession that “studies, diagnoses, prescribes, and intervenes on the firmnesses and infirmities of Human Persons.”

Within this paradigm, ESND becomes a strategic tool for identifying patterns, trends, and priority health phenomena that are sensitive to nursing care. Evidence shows that nursing-sensitive phenomena—such as health behaviors, psychosocial vulnerabilities, social determinants, and decision-making processes—are often underrepresented in traditional epidemiological systems, despite their relevance for public health planning and intervention [2–5]. Integrating nursing diagnoses into surveillance systems enhances the visibility of these phenomena and strengthens the capacity of health services to respond to community needs [6–8].

This post-modern epidemiology does not represent a rupture with classical epidemiology, but rather an epistemological expansion grounded in nursing science, as operationalized through the analysis of documentation enhanced by Nursing Classifications integrated into Information Systems, such as International Classification for Nursing Practice (ICNP™) or NANDA-I™ Classification, and the Community Assessment, Intervention and Empowerment Model (MAIEC) [9]. While traditional epidemiology has been predominantly disease-centered, nursing epistemology introduces the systematic observation of nursing-sensitive phenomena, expressed through nursing foci and diagnoses, such as health behaviors, decision-making processes, and community responses to health challenges. These phenomena, standardized by Nursing Classifications and analyzed within MAIEC as community processes of leadership, participation, and coping, capture dimensions of health that remain largely invisible in conventional surveillance systems. In this sense, nursing diagnoses are positioned as legitimate epidemiological units for public health surveillance and informed decision-making [9].

The Community Assessment, Intervention and Empowerment Model (MAIEC) provide the theoretical and operational framework for this study. MAIEC conceptualizes the community as a unit

of care and organizes community nursing diagnosis around the focus Community Management, assessed through three diagnostic dimensions: community leadership, community participation, and community coping [9]. This model supports the identification of community nursing diagnoses and the selection of interventions aimed at strengthening empowerment and community development.

In the context of this study, the MAIEC protocol was applied to support the promotion of ESND in a Primary Health Care Island Unit in the Autonomous Region of the Azores. The protocol includes an analysis of the local epidemiological context, the identification of priority nursing foci according to the International Classification for Nursing Practice (ICNP®, 2019) [10], the assessment of community empowerment using the Portuguese version of the Empowerment Assessment Rating Scale [11], and the diagnostic evaluation of the community process.

This article presents the results of this application, describing empowerment assessment, the diagnostic findings, and their implications for strengthening surveillance processes and local health information systems.

## 2. Materials and Methods

This study employed a descriptive, cross-sectional, and community-based design, guided by the Model of Community Assessment, Intervention and Empowerment (MAIEC) (Melo, 2020). The MAIEC protocol structures community nursing diagnosis around the focus Community Management, assessed through three diagnostic dimensions: community leadership, community participation, and community coping. The study aimed to evaluate the empowerment level of the nursing community of an Island Health Unit in the Autonomous Region of the Azores and to diagnose the community process related to the promotion of Epidemiological Surveillance of Nursing Diagnoses (ESND).

The study followed the methodological steps recommended by the MAIEC protocol:

- (1) analysis of the state of the art and local epidemiological context.
- (2) identification of priority nursing foci epidemiological surveillance.
- (3) assessment of community empowerment.
- (4) diagnostic analysis of the community process.

### 2.2. Setting

The study was conducted in a Primary Health Care Island Unit comprising eight primary care extensions, located in the Autonomous Region of the Azores, Portugal. The island presents specific demographic, geographic, and epidemiological characteristics, including high prevalence of tobacco-related morbidity, increasing drug dependence, and elevated adolescent pregnancy rates, which informed the selection of priority foci for ESND.

### 2.3. Participants

The target population consisted of 328 nurses working in the Island Health Unit. A total of 172 nurses completed the questionnaire, corresponding to a response rate of 52.4%. The sample included nurses from all eight primary care extensions and represented different professional categories (generalist nurses, specialist nurses, and nurse managers).

For the empowerment assessment, a focus group session was conducted on 18 September 2025, involving eight nurses, each representing one primary care extension. This group was selected to ensure representation of the entire nursing community and to enable collective reflection on empowerment domains.

### 2.4. Instruments

#### 2.4.1. Documental Analyses of the Local Health Diagnosis

As the first step of the MAIEC protocol, an in-depth analysis of the Local Health Diagnosis of the island under study was conducted, followed by expert consultation with the local Public Health Unit. Based on this analysis, and in accordance with the International Classification for Nursing Practice (ICNP®, 2019), three priority foci for epidemiological surveillance were identified:

Tobacco Use — due to the high prevalence of lung cancer and tobacco-related addictive behaviors;

Drug Dependence — considering the growing burden of substance dependence on the island;

Decision-Making Process (sexuality and life project) — given the persistently high rates of adolescent pregnancy.

Following this stage, the MAIEC protocol requires the assessment of community empowerment, conducted using the Community Empowerment Assessment Scale (Melo et al., 2020), the Portuguese version of the Empowerment Assessment Rating Scale originally developed by Laverack (2008). This assessment was carried out through a focus group session with nurses from the eight primary care extensions of the Island Health Unit on 18 September 2025, resulting in the empowerment profile presented in the accompanying dataset.

Based on this assessment, the diagnostic focus Community Process was analyzed through the three dimensions of Community Management:

(1) Community leadership, related to knowledge, beliefs, and volition of the nursing community;

(2) Community participation, associated with perceptions of organizational structures, communication, partnerships, and leadership supporting ESND;

(3) Community coping, referring to experiences, training, and strengths identified within the community to promote ESND.

#### 2.4.2. Community Empowerment Assessment Scale

Community empowerment was assessed using the Community Empowerment Assessment Scale (Melo et al., 2020), the Portuguese adaptation of the Empowerment Assessment Rating Scale developed by Laverack (2008).

The scale evaluates nine empowerment domains: 1. Community participation; 2. Ability to assess the problem; 3. Local leadership; 4. Organizational structures; 5. Resource mobilization; 6. Links to others; 7. Ability to “ask why”; 8. Program management; 9. Relationship with external agents

Each domain is scored on a continuum from 1 (low empowerment) to 5 (high empowerment). The scale has demonstrated conceptual validity and applicability in community health nursing contexts.

#### 2.4.3. Community Process Assessment Questionnaire

The “Community Process” Assessment Questionnaire, was structured with a sociodemographic and Professional part to collect data on gender, age, years of professional experience, area of practice, professional category, and previous experience in primary health care.

To diagnose the focus Community Process, the second part of the questionnaire collected data to answer the three diagnostic dimensions of the MAIEC: Community leadership (knowledges, beliefs, and volition regarding ESND); Community participation (perceptions of organizational structures, communication, partnerships, and leadership supporting ESND) and Community coping (experiences, training, and strengths related to ESND).

All data were assessed using a set of structured items, analyzed through descriptive statistics.

### 2.5. Procedures

#### 2.5.1. Identification of Priority Nursing Foci

Following the analysis of the Local Health Diagnosis and consultation with experts from the local Public Health Unit, three priority foci were selected according to the International Classification

for Nursing Practice (ICNP®, 2019): Tobacco Use; Drug Dependence and Decision-Making Process (sexuality and life project).

These foci were selected due to their epidemiological relevance and alignment with local health priorities.

2.5.2. Data Collection

Data collection occurred in two phases:

Online questionnaire distributed to all nurses of the Island Health Unit, between September 1 2025 and November 30 2025.

Focus group session for empowerment assessment, facilitated by the research team and following the MAIEC protocol, at September 2025.

The empowerment scores were recorded in a structured matrix and validated collectively by participants.

2.6. Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, cumulative percentages, and measures of central tendency. The margin of error for the sample was calculated at 5.4% for a 95% confidence level. All statistical analyses were performed using IBM SPSS Statistics for Windows, Version 29.0 [12].

Empowerment domain scores were analyzed individually and collectively to determine the empowerment profile of the nursing community. The diagnostic dimensions of Community Management were analyzed according to the distribution of responses across the items corresponding to community leadership, community participation, and community coping, following the operational definitions of the MAIEC model

2.7. Ethical Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and followed all applicable national and institutional guidelines for research involving human participants. Ethical approval was granted by the Comissão de Ética da Unidade de Saúde da Ilha, under approval number USISMG/2024/14057.

Participation was voluntary, and all participants were informed about the study objectives, procedures, confidentiality safeguards, and their right to withdraw at any time without consequences. Written informed consent was obtained prior to data collection. No personal identifiers were collected, and all data were anonymized and stored securely, accessible only to the research team.

3. Results

3.1. Sample Characteristics

A total of 172 nurses participated in the study, corresponding to a 52.4% response rate from the 328 professionals working in the Island Health Unit. In the table 1 is presented the sociodemographic and professional characteristics.

Table 1. Sociodemographic and professional characteristics of the sample (N = 172).

| Variable | Category             | Frequency | Percentage (%) |
|----------|----------------------|-----------|----------------|
| Gender   | Female               | 154       | 89.5           |
|          | Male                 | 17        | 9.9            |
|          | Prefer not to answer | 1         | 0.6            |
| Age      | 20–30                | 7         | 4.1            |
|          | 31–40                | 43        | 25.0           |

|                                |                  |     |      |
|--------------------------------|------------------|-----|------|
| Years of Service (Island Unit) | 41–50            | 90  | 52.3 |
|                                | >51              | 32  | 18.6 |
|                                |                  | 3   | 1.7  |
|                                | 1–5 years        | 30  | 17.4 |
|                                | 6–10 years       | 17  | 9.9  |
|                                | >10 years        | 122 | 70.9 |
| Area of Practice               | Direct Care      | 145 | 84.3 |
|                                | Management       | 27  | 15.7 |
| Professional Category          | Generalist Nurse | 92  | 53.5 |
|                                | Specialist Nurse | 74  | 43.0 |
|                                | Nurse Manager    | 6   | 3.5  |
| Previous PHC Experience        | Yes              | 93  | 54.1 |
|                                | No               | 79  | 45.9 |

The sample was predominantly female (89.5%), with ages ranging mainly between 41 and 50 years (52.3%), followed by 31–40 years (25.0%). Most participants had more than 10 years of professional experience (70.9%), and the majority worked in direct care provision (84.3%), while 15.7% worked in management roles.

Regarding professional categories, 53.5% were generalist nurses, 43.0% were specialist nurses, and 3.5% were nurse managers. More than half of the participants (54.1%) reported previous experience in primary health care settings.

These characteristics indicate a mature and experienced nursing workforce, with substantial clinical exposure and professional specialization.

3.2. Community Process Diagnosis

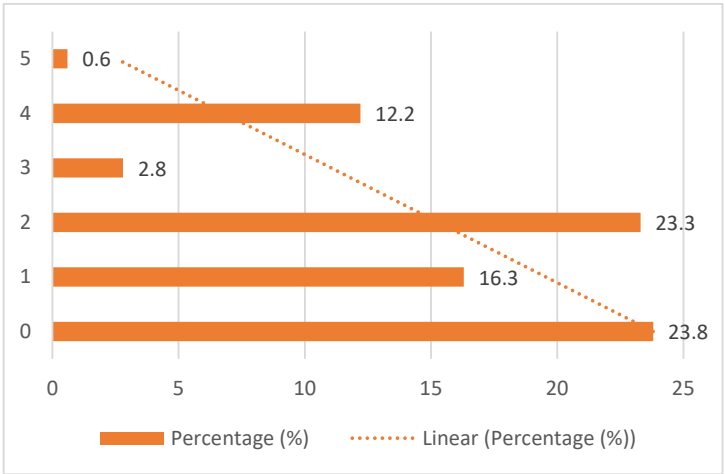
The community process Diagnosis, as major MAIEC clinical decision-matrix domain has the results of the research organized in the three diagnostic dimensions of its major foci “Community management”: “Community Leadership”, “Community Participation” and Community Coping”.

3.2.1. Community Leadership

Community leadership was assessed through indicators related to knowledge, beliefs, and volition regarding the Epidemiological Surveillance of Nursing Diagnoses (ESND). Results will be presented organized in points regarding the dimensions of Knowledge, Beliefs and Volition:

3.2.1.1. Knowledge

Knowledge about ESND-related components, according to the graphic presented in Figure 1, revealed significant gaps. In Figure 1 is presented the distribution of Knowledge regarding ESND:



**Figure 1.** Distribution of Knowledge Levels Regarding ESND (N=172).

23.8% of nurses reported no knowledge (score 0) about epidemiological surveillance of nursing care and 39,6% had knowledge identified above score 3.

Regarding knowledge about Local Health Diagnosis and Local Health Plan, results are presented in table 2:

**Table 2.** Sociodemographic and professional characteristics of the sample (N = 172).

| Dimension                         | Category / Score        | Frequency | Percentage (%) |
|-----------------------------------|-------------------------|-----------|----------------|
| Knowledge: Local Health Diagnosis | No                      | 106       | 61.6           |
|                                   | Heard of it, never read | 51        | 29.7           |
|                                   | Yes                     | 15        | 8.7            |
| Knowledge: Local Health Plan      | No                      | 90        | 52.3           |
|                                   | Heard of it, never read | 61        | 35.5           |
|                                   | Yes                     | 21        | 12.2           |

Knowledge about the Local Health Diagnosis was limited: 61.6% reported not knowing the document; 29.7% had heard of it but never read it and only 8.7% had read it.

Knowledge of the Local Health Plan was similarly low, with 52.3% reporting no knowledge and only 12.2% reporting familiarity.

Regarding knowledge about documentation in the priority ICNP® foci also showed low level, as presented in table 3

**Table 3.** Sociodemographic and professional characteristics of the sample (N = 172).

|                                                                                                          | N   | Minimum | Maximum | Mean | Standard deviation |
|----------------------------------------------------------------------------------------------------------|-----|---------|---------|------|--------------------|
| Knowledge about documentation in the foci “use of tobacco”                                               | 172 | 0       | 5       | 1,86 | 1,374              |
| Knowledge about documentation in the foci “Drug dependence”                                              | 172 | 0       | 4       | 1,98 | 1,408              |
| Knowledge about documentation in the foci “Decision-Makin Process (regarding sexuality and life project” | 172 | 0       | 4       | 1,88 | 1,337              |

|                                                            |     |   |   |      |       |
|------------------------------------------------------------|-----|---|---|------|-------|
| Knowledge about documentation in the foci “use of tobacco” | 172 | 0 | 4 | 1,81 | 1,399 |
|------------------------------------------------------------|-----|---|---|------|-------|

Descriptive statistics for the level of knowledge regarding documentation in the three priority ICNP® foci—Tobacco Use, Drug Dependence, and Decision-Making Process (sexuality and life project)—are presented in Table X. Overall, the results reveal low to moderate levels of knowledge across all foci.

For the focus “Tobacco Use”, scores ranged from 0 to 5, with a mean of 1.86 (SD = 1.37), indicating limited familiarity with documentation requirements in this area. Knowledge about documentation in the focus “Drug Dependence” showed a similar pattern, with values ranging from 0 to 4 and a mean of 1.98 (SD = 1.41), suggesting slightly higher—but still modest—levels of knowledge.

Regarding the focus “Decision-Making Process (regarding sexuality and life project)”, scores also ranged from 0 to 4, with a mean of 1.88 (SD = 1.34), reflecting low overall knowledge about documentation related to sexuality and life-project decision-making.

These findings indicate that, across all three priority foci, nurses reported insufficient knowledge, reinforcing the need for targeted training and capacity-building interventions to support the implementation of Epidemiological Surveillance of Nursing Diagnoses (ESND).3.2.2. Beliefs

Beliefs about the importance of an ESND-related project were mixed:  
38.4% scored 0 (no perceived importance).  
Only 34.3% scored 4 (high perceived importance).

3.2.1.2. Beliefs

The distribution of beliefs regarding the importance of developing a project related to Epidemiological Surveillance of Nursing Diagnoses (ESND) is shown in Figure 2.:

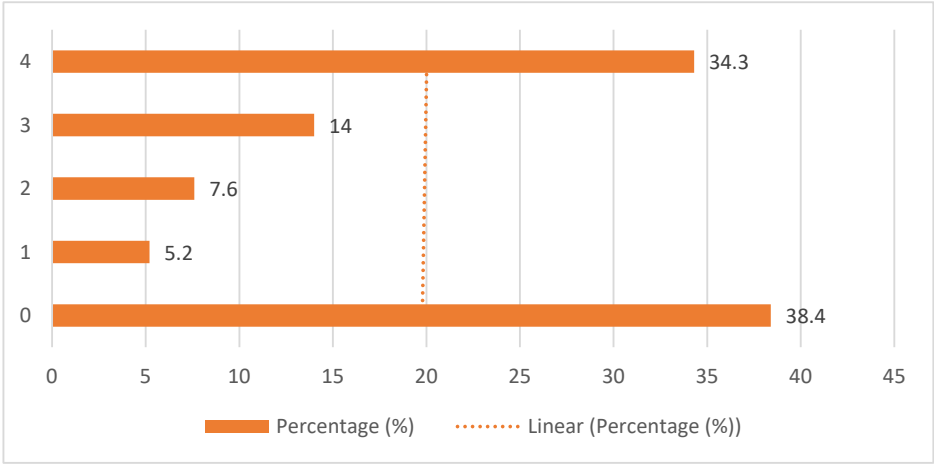


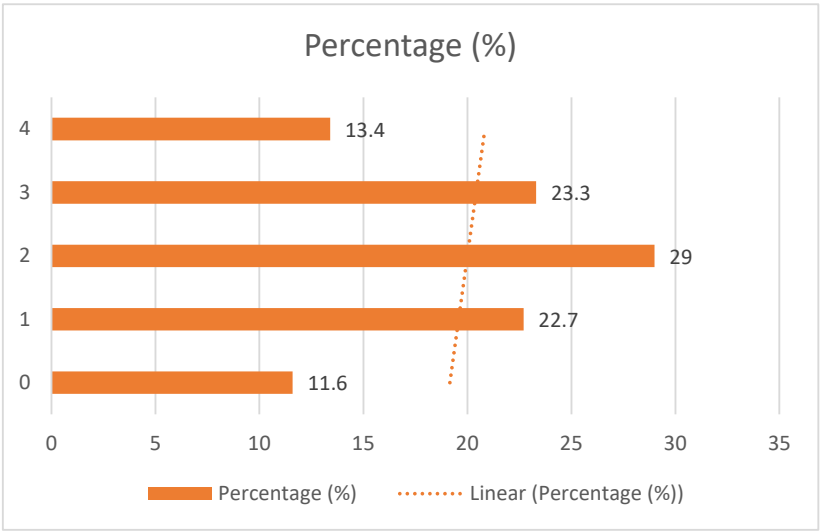
Figure 2. Distribution of Beliefs Levels Regarding the importance of a project ESND-related (N=172).

The results reveal a polarized pattern: 38.4% of participants attributed no importance (score 0) to such a project, representing the largest single group. Lower-level scores (1 and 2) were selected by 5.2% and 7.6% of respondents, respectively, while intermediate values (score 3) accounted for 14%.

Conversely, 34.3% of nurses rated the importance of an ESND-related project at the highest level (score 4), indicating that a substantial proportion of the community recognizes its relevance. The overall distribution suggests a bimodal trend, with concentrations at both extremes of the scale, reflecting divergent perceptions within the nursing community about the value and priority of implementing ESND.

3.2.1.4. Volition

The distribution of volition levels to participate in an ESND-related project is presented in Figure 3.



**Figure 3.** Distribution of Volition Levels to participate in a project ESND-related (N=:172).

The results show a heterogeneous pattern, with responses spanning the full range of the scale. The highest proportion of participants selected level 2 (29%), indicating a moderate inclination to engage in such a project. This was followed by level 3 (23.3%), and level 1 had 13.4% of nurses having the higher level of volition, suggesting that a relevant subset of nurses (65,7%) expressed a higher degree of willingness to participate.

Lower levels of volition were less frequently selected, although 22,7% selected level 1 of volition and 11.6% the lowest level of volition. Overall distribution suggests that, although a segment of the nursing community demonstrates strong motivation, a substantial proportion remains positioned at intermediate levels. These findings indicate that volition is present but not uniformly distributed, reinforcing the need for strategies that enhance motivation and engagement across the entire nursing community.

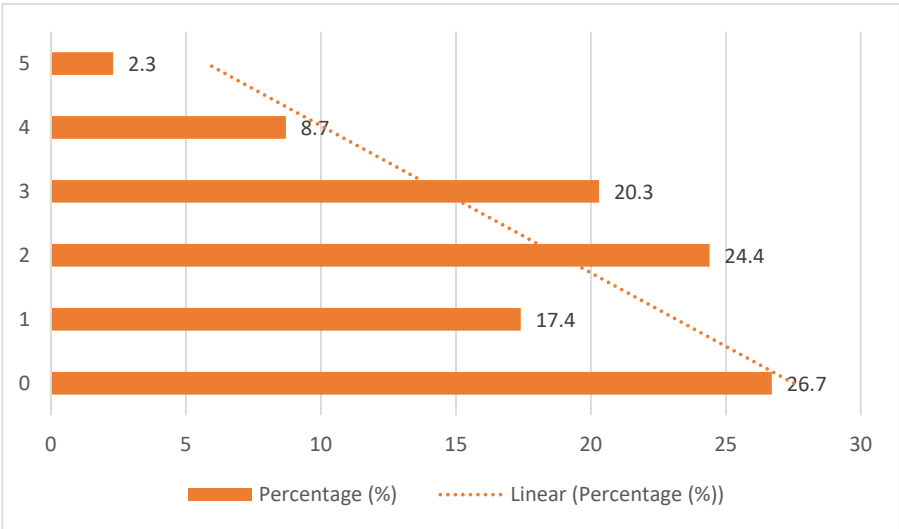
In a general analysis of the diagnostic dimension of community leadership, it was characterized by low knowledge, moderate beliefs, and high volition, indicating a leadership profile with potential for development but requiring targeted interventions.

3.3. Community Participation

Community participation was assessed through perceptions of the clarity of ESND Process (related to communication about ESND), the existence of community partnerships, the existence organizational structures, and leadership supporting ESND.

3.3.1. Clarity of the ESND Process (Communication About ESND in the Community)

The distribution of perceptions regarding the clarity of the ESND process is presented in Figure 4:



**Figure 4.** Distribution of Perception of clarity of ESND Process (communication-related) Levels (N=172).

The results reveal predominantly low levels of perceived clarity: 26.7% of participants selected level 0, indicating no perceived clarity, followed by 17.4% at level 1 and 24.4% at level 2. Intermediate clarity (level 3) was reported by 20.3% of respondents, while higher levels of clarity were less frequent, with 8.7% selecting level 4 and only 2.3% selecting level 5.

Overall, the distribution suggests that most nurses perceive the ESND process as unclear or only minimally clear, highlighting significant communication gaps within the organizational context. These findings reinforce the need to strengthen communication strategies and improve the dissemination of information related to ESND procedures

3.3.2. Existence of Community Partnerships to Promote ESND

The perception of the existence of community partnerships to support the implementation of ESND is presented in Table 4

**Table 4.** Community participation indicators related to the existence of community partnerships to promote ESND.

| Dimension                 | Category | Frequency | Percentage (%) |
|---------------------------|----------|-----------|----------------|
| Existence of Partnerships | Unknown  | 119       | 69.2           |
|                           | No       | 24        | 14.0           |
|                           | Yes      | 29        | 16.9           |

The results reveal a marked lack of awareness among participants: 69.2% reported not knowing whether such partnerships exist, indicating limited visibility or communication regarding collaborative structures within the community. Additionally, 14.0% stated that no partnerships were in place, while only 16.9% affirmed their existence.

Overall, these findings suggest that community partnerships—if present—are not widely recognized or effectively communicated among nursing professionals, highlighting a potential barrier to coordinated action and intersectoral collaboration in the context of ESND.

3.3.3. Existence of Organizational Structures to Promote ESND

Perceptions regarding the existence of organizational structures to support the implementation of ESND are presented in Table 5.

**Table 5.** Community participation indicators related to the existence of Organiztional Structures to promote ESND.

| Dimension                                                                 | Category | Frequency | Percentage (%) |
|---------------------------------------------------------------------------|----------|-----------|----------------|
| Perceptions on the existence of Organizational Structures to promote ESND | Unknown  | 102       | 59.3           |
|                                                                           | No       | 19        | 11.0           |
|                                                                           | Yes      | 51        | 29.7           |

The results reveal that a majority of participants (59.3%) reported not knowing whether such structures exist, indicating limited visibility or communication about organizational mechanisms related to ESND within the institution. Additionally, 11.0% stated that no organizational structures were in place, while 29.7% affirmed their existence.

Overall, these findings suggest that organizational structures—when present—are not widely recognized by nursing professionals, highlighting potential gaps in internal communication and governance processes that may hinder the effective operationalization of ESND.

3.3.4. Formal Leadership

Perceptions regarding the existence of formal leadership to support the implementation of ESND are presented in Table 6.

**Table 6.** Community participation indicators related to the existence of formal Leadership to promote ESND.

| Dimension                                      | Category | Frequency | Percentage (%) |
|------------------------------------------------|----------|-----------|----------------|
| Existence of formal Leadership to promote ESND | No       | 94        | 54.7           |
|                                                | Yes      | 78        | 45.3           |

The results show a relatively balanced distribution, although with a slight predominance of negative responses. More than half of the participants (54.7%) reported that no formal leader exists to promote ESND within the organization, while 45.3% indicated that such leadership is present.

This suggests that, although a considerable proportion of nurses recognize the existence of formal leadership, the absence or lack of visibility of designated leadership roles remains a concern. These findings highlight the importance of strengthening leadership structures and ensuring that roles related to ESND coordination are clearly defined and communicated across the nursing team.

In a general analysis of the diagnostic dimension of community participation, the results reveal a community with limited clarity about ESND processes, low visibility of partnerships and organizational structures, and insufficiently recognized formal leadership, indicating a fragile participatory environment that constrains coordinated action and weakens the collective capacity to support the implementation of ESND.

3.4. Community Coping

Community coping was assessed through experiences, training, and perceived strengths related to ESND. Results regarding community coping are presented in table 7:

**Table 7.** Community coping indicators related to experience, training, and perceived strengths.

| Dimension                                       | Category | Frequency | Percentage (%) |
|-------------------------------------------------|----------|-----------|----------------|
| Previous ESND Experience                        | No       | 147       | 85.5           |
|                                                 | Yes      | 25        | 14.5           |
| Training: Tobacco Use Documentation             | No       | 140       | 81.4           |
|                                                 | Yes      | 32        | 18.6           |
| Training: Drug Dependence Documentation         | No       | 146       | 84.9           |
|                                                 | Yes      | 26        | 15.1           |
| Training: Decision-Making Process Documentation | No       | 152       | 88.4           |
|                                                 | Yes      | 20        | 11.6           |
|                                                 | No       | 74        | 43.0           |

|                                      |     |    |      |
|--------------------------------------|-----|----|------|
| Training: ICNP® Nursing Diagnosis    | Yes | 98 | 57.0 |
| Perceived Strengths for ESND Project | No  | 80 | 46.5 |
|                                      | Yes | 92 | 53.5 |

3.4.1. Previous Experience with ESND

The results show that most participants (85.5%) reported having no prior experience with ESND-related activities. Only 14.5% indicated previous involvement in processes or initiatives associated with ESND.

This pattern highlights a substantial experiential gap within the nursing community, suggesting that most professionals have not yet been exposed to ESND practices. The limited prior experience may influence levels of confidence, familiarity, and engagement with ESND implementation, reinforcing the need for introductory training and structured capacity-building initiatives.

3.4.2. Training and Skills

Training indicators across the four assessed areas are presented in Table 7. Overall, the results reveal consistently low levels of prior training in the three priority ICNP® foci. For Tobacco Use Documentation, 81.4% of participants reported not having received training, while only 18.6% indicated previous training. A similar pattern was observed for Drug Dependence Documentation, with 84.9% reporting no training and 15.1% reporting having received training. The lowest levels of training were found in Decision-Making Process Documentation, where 88.4% of participants indicated no prior training, and only 11.6% reported having been trained.

In contrast, training related to ICNP® Nursing Diagnosis showed a more favorable distribution: 57.0% of participants reported having received training, while 43.0% indicated no prior training in this area.

Taken together, these findings highlight a substantial training gap in the three priority foci, contrasted with comparatively higher—but still not universal—training in ICNP® Nursing Diagnosis. This pattern suggests that while foundational diagnostic training is more widespread, specific competencies required for ESND implementation remain insufficiently developed, underscoring the need for targeted educational interventions.

3.4.3. Perceived Strengths

The results show a balanced but slightly positive distribution, with 53.5% of participants identifying strengths within their context that could facilitate the implementation of ESND. In contrast, 46.5% reported not perceiving any strengths that might support such a project.

These findings suggest that while more than half of the nursing community recognizes enabling factors, a substantial proportion does not identify existing strengths, indicating variability in how organizational and professional capacities are perceived across the group.

Overall, the indicators of community coping reveal a context marked by limited prior exposure to ESND, insufficient training, and heterogeneous perceptions of organizational readiness. Most participants reported no previous ESND experience, and training levels were consistently low across the three priority ICNP® foci—Tobacco Use, Drug Dependence, and Decision-Making Process—with fewer than one in five nurses having received training in any of these areas. Although training in ICNP® Nursing Diagnosis was more widespread, it remained far from universal. Perceptions of enabling conditions were mixed: while just over half of the participants identified strengths that could support an ESND project, substantial proportions reported not knowing whether partnerships or organizational structures exist, suggesting limited visibility of collaborative and structural resources. Taken together, these findings indicate that community coping capacity is fragile and uneven, characterized by gaps in experience, training, and awareness of institutional supports—factors that

may constrain the effective implementation of ESND unless targeted capacity-building and organizational strengthening strategies are developed.

3.5. Community Empowerment Assessment

The community empowerment assessment conducted on 18 September 2025 produced a multidimensional profile across the nine domains of the Community Empowerment Assessment Scale. Figure 5 presents the radar chart summarizing the empowerment scores.



**Figure 5.** Community Empowerment Profile Across the Nine Domains of the Community Empowerment Assessment Scale.

Scores ranged from 1.5 to 2.5, indicating an overall low to moderate level of empowerment within the nursing community of the Island Health Unit.

Higher scores were observed in Resource Mobilization (2.5), Relationship with External Agents (2.5), and Community Participation (2.5).

Moderate scores were found in Local Leadership (2.0) and Links to Others (2.0).

Lower scores were identified in Ability to Assess the Problem (1.5), Organizational Structures (1.5), Ability to Ask Why (1.5), and Program Management (1.5).

These results indicate that while the community demonstrates some capacity to mobilize resources and engage with external stakeholders, it presents significant limitations in organizational structuring, critical questioning, and program management—domains essential for sustaining Epidemiological Surveillance of Nursing Diagnoses (ESND).

The empowerment profile indicates: Low empowerment in participation, organizational structures, critical questioning, and program management; Moderate empowerment in leadership and external relations; Higher empowerment in resource mobilization.

This profile reflects a community with potential but requiring structured interventions to strengthen ESND implementation.

4. Discussion

This study applied the MAIEC protocol to assess the empowerment level and community process of a nursing community in the context of promoting Epidemiological Surveillance of Nursing Diagnoses (ESND). The findings reveal a community with significant developmental needs, particularly in the diagnostic dimensions of community leadership, community participation, and community coping. These results align with previous research showing that the integration of nursing-sensitive phenomena into epidemiological systems remains limited and often dependent on organizational readiness, leadership engagement, and professional competencies [2–5].

In the dimension of community leadership, the results showed low levels of knowledge about ESND, the Local Health Diagnosis, and the Local Health Plan, as well as limited familiarity with documentation in the priority ICNP® foci. These findings are consistent with studies indicating that

knowledge gaps constitute a major barrier to the implementation of nursing-driven surveillance systems [6–8]. Although beliefs and volition showed more favorable distributions, the polarization observed in beliefs suggests divergent perceptions about the relevance of ESND, which may reflect differences in professional experience, exposure to epidemiological tools, or perceived organizational support.

Regarding community participation, the results highlight substantial weaknesses in communication, organizational structures, partnerships, and leadership. Most participants reported not knowing whether partnerships or organizational structures existed, and more than half perceived the absence of formal leadership for ESND. These findings echo the literature emphasizing that effective surveillance systems require clear governance structures, intersectoral collaboration, and transparent communication channels [9–11]. The low perceived clarity of the ESND process further reinforces the need for structured communication strategies and organizational alignment.

The dimension of community coping revealed the most critical gaps. The overwhelming majority of nurses reported no previous ESND experience, and training levels were consistently low across the three priority foci. Although training in ICNP® Nursing Diagnosis was more widespread, it was still insufficient to compensate for the lack of specific competencies required for ESND. These results are consistent with evidence showing that training and experiential learning are essential for strengthening community empowerment and enabling the adoption of innovative surveillance practices [12–14]. The fact that more than half of participants identified strengths within their context suggests that, despite the gaps, the community possesses internal resources that can be mobilized to support ESND implementation.

Taken together, the findings indicate that the nursing community is positioned at an intermediate level of empowerment, with clear potential for development but requiring targeted interventions. According to the MAIEC model, strengthening community management involves enhancing leadership, participation, and coping capacities through structured training, improved communication, organizational reinforcement, and the establishment of formal leadership roles [9]. The results of this study provide a concrete diagnostic basis for designing such interventions and advancing the integration of ESND into local health information systems.

#### Limitations of the Study

This study presents some limitations that should be considered when interpreting the findings. First, the cross-sectional design does not allow causal inferences regarding the relationships between empowerment, community process indicators, and readiness to implement ESND. Second, data were collected through self-reported measures, which may be subject to recall bias or social desirability bias. Third, although the response rate was acceptable, non-response bias cannot be excluded, particularly regarding nurses who may have lower engagement with organizational processes. Additionally, the study was conducted in a single Island Health Unit in the Autonomous Region of the Azores, which may limit the generalizability of the findings to other regions with different organizational structures or epidemiological profiles. Finally, the empowerment assessment relied on a focus group with representatives from each primary care center, which, although methodologically aligned with the MAIEC protocol, may not fully capture the diversity of perspectives within the broader nursing community.

#### Contributions to Clinical Practice

The study provides actionable insights for strengthening clinical practice in primary health care. The identification of knowledge and training gaps highlights the need for structured educational programs on ESND and ICNP® documentation, which can enhance diagnostic accuracy and improve the visibility of nursing-sensitive phenomena. Strengthening communication processes and clarifying leadership roles may also support more consistent documentation practices and foster a culture of shared responsibility for epidemiological surveillance.

#### Contributions to Research

This work contributes to advancing research in community health nursing by operationalizing the MAIEC model in the context of ESND promotion. The diagnostic findings offer a baseline for

future intervention studies aimed at strengthening community empowerment and evaluating the impact of ESND implementation on health outcomes. The study also opens avenues for research on the integration of nursing diagnoses into health information systems and the development of digital tools to support real-time surveillance.

#### Contributions to Society

At a societal level, the study reinforces the importance of recognizing nursing as a key agent in public health surveillance. By identifying barriers and strengths within the nursing community, the findings support the development of more responsive, equitable, and community-centered health systems. Strengthening ESND can enhance the monitoring of health behaviors, vulnerabilities, and decision-making processes, ultimately contributing to more informed public health policies and improved population health in the Autonomous Region of the Azores.

## 5. Conclusions

This study applied the MAIEC protocol to diagnose the community process related to the promotion of Epidemiological Surveillance of Nursing Diagnoses (ESND) in a Primary Health Care Island Unit. The results reveal a nursing community with low knowledge, limited participation, and insufficient coping capacity to support ESND implementation. Knowledge gaps, unclear communication processes, limited awareness of organizational structures and partnerships, and low levels of training emerged as key barriers.

Despite these challenges, the presence of perceived strengths and moderate levels of volition indicate that the community has developmental potential. Strengthening ESND will require coordinated strategies focused on capacity-building, leadership development, organizational communication, and the reinforcement of structural and collaborative mechanisms.

The diagnostic findings provide a robust foundation for designing targeted interventions aligned with the MAIEC model, supporting the empowerment of the nursing community and contributing to the integration of nursing-sensitive phenomena into local epidemiological systems. Future work should focus on implementing and evaluating these interventions, ensuring that ESND becomes a sustainable and visible component of public health surveillance.

Furthermore, the results underscore the need to strengthen local health information systems, ensuring that nursing diagnoses are systematically recorded, monitored, and analyzed. Enhancing these systems will be essential for the long-term sustainability of ESND and for consolidating the contribution of nursing-sensitive phenomena to public health decision-making.

Overall, this study advances a post-modern epidemiological perspective grounded in nursing science and aligned with the mission of the MAIEC Lab, by focusing on the firmnesses and infirmities of Human Persons. By diagnosing the community process and identifying areas requiring development, this work provides a solid foundation for future interventions aimed at increasing the visibility, relevance, and impact of nursing within public health surveillance.

**Author Contributions:** Conceptualization, P.M.; R.S. and F.V.; methodology, P.M.; R.S.; FV; .SB.;S.F. and S.S.; software, P.M.; validation, P.M., R.S. and S.S.; formal analysis, P.M.; investigation, P.M.; R.S.; FV; .SB.;S.F. and S.S.; resources, P.M.; R.S.; FV; .SB.;S.F. and S.S.; data curation, P.M.; writing—original draft preparation, P.M. ; writing—review and editing, P.M.; R.S.; FV; .SB.;S.F. and S.S.; visualization, P.M.; R.S.; FV; .SB.;S.F. and S.S.; supervision, P.M.; project administration, P.M.; All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Local Health Unit (Approval No. USISMG/2024/14057). [13–15].

**Informed Consent Statement:** Written informed consent was obtained from all participants in the Focus Group for Community Empowerment Assessment and to Answer the Questionnaire do Assess Community Process and to publish this paper.

**Acknowledgments:** We acknowledge all the nurses from the Primary Health Care in the Azores context where the study was developed, for all the availability and kindness in participating in our study. All of them will be so relevant to make History in the Local Epidemiological Development regarding Nursing Diagnosis.

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

## References

1. Melo, P. Consultas de Enfermagem nos Cuidados de Saúde Primários: Guia de Decisão Clínica; LIDEL: Lisboa, Portugal, 2021. p.7.
2. Moorhead, S.; Johnson, M.; Maas, M.; Swanson, E. Nursing Outcomes Classification (NOC), 6th ed.; Elsevier: St. Louis, MO, USA, 2018.
3. Herdman, T.; Kamitsuru, S.; Lopes, C. NANDA International Nursing Diagnoses: Definitions and Classification 2021–2023; Thieme: New York, NY, USA, 2021.
4. Linsley, P.; Kane, R.; Owen, S. Nursing for Public Health: Promotion, Principles and Practice; Oxford University Press: Oxford, UK, 2011.
5. Fawcett, J.; DeSanto-Madeya, S. Contemporary Nursing Knowledge: Analysis and Evaluation of Nursing Models and Theories, 4th ed.; F.A. Davis: Philadelphia, PA, USA, 2017.
6. Lunney, M. Critical Thinking and Nursing Diagnosis: Case Studies and Analyses; NANDA International: Philadelphia, PA, USA, 2010.
7. Paans, W.; Sermeus, W.; Nieweg, R.; van der Schans, C. Prevalence of accurate nursing documentation in patient records. *J. Adv. Nurs.* 2010, 66, 2481–2489.
8. Jefferies, D.; Johnson, M.; Griffiths, R. A meta-study of the essentials of quality nursing documentation. *Int. J. Nurs. Pract.* 2010, 16, 112–124.
9. Melo, P. *Enfermagem de Saúde Comunitária e de Saúde Pública: Modelo de Avaliação, Intervenção e Empoderamento Comunitário (MAIEC)*; LIDEL: Lisboa, Portugal, 2020.
10. International Council of Nurses. *ICNP® Browser* (2019 release). Available online: <https://www.icn.ch/what-we-do/projects/ehealth-icnp> (icn.ch in Bing) (accessed on 25 september 2025).
11. Laverack, G. *Health Promotion Practice: Power and Empowerment*; Palgrave Macmillan: London, UK, 2008.
12. IBM Corp. *IBM SPSS Statistics for Windows, Version 29.0*; IBM Corp.: Armonk, NY, USA, 2022.
13. European Union. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data (General Data Protection Regulation). *Off. J. Eur. Union* **2016**, L 119, 1–88.
14. Portuguese Republic. Lei n.º 58/2019, de 8 de Agosto. Assegura a Execução, na Ordem Jurídica Nacional, do Regulamento (UE) 2016/679. *Diário da República*, 8 August 2019; 1.a Série, n.º 151. Available online: <https://diariodarepublica.pt/dr/detalhe/lei/58-2019-123815982> (accessed on 29 December 2025).
15. Portuguese Republic. Lei n.º 59/2019, de 8 de Agosto. Aprova as Regras Relativas ao Tratamento de Dados Pessoais para Efeitos de Prevenção, Detecção, Investigação ou Repressão de Infrações Penais. *Diário da República*, 8 August 2019; 1.a Série, n.º 151. Available online: <https://diariodarepublica.pt/dr/analise-juridica/lei/59-2019-123815983> (accessed on 29 December 2025).

**Disclaimer/Publisher’s Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.