

**Nursing research published in Italian journals between 2002 and 2021: a comparative review**

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## **ABSTRACT**

In the development of nursing as a discipline, research plays a key role. Sharing and disseminating scientific knowledge is essential but, for non-English-speaking communities, research published in their language is more accessible to the national nursing community. Various comparative reviews of the national literature of Italian nursing research since the late 80s revealed significant methodological deficiencies.

This review aims to assess nursing research published by nurses in Italian, between 2002 and 2021 from a quantitative and qualitative point of view.

Most reviewed papers report results of non-interventional studies with simple methodology and statistics. Research is mostly focused on clinical nursing and management. The weaknesses found in this review underline a lack of progress in Italian nursing research published in Italian as already pointed out in previous reviews. Nursing research published in Italian journals still does not meet international standards. This study provides information about research in Italian never assessed so analytically and systematically.

### **Keywords**

Italy, literature, nursing, qualitative review, research

## INTRODUCTION

In the development of nursing as a profession, research plays a fundamental role. Nurses should strive to continuously develop the quality of their knowledge and practice, access international scientific literature, and participate in science production for the betterment of their practice. Being able to access pertinent publications in health care, in their social, cultural, and geographical context, is also essential to improve health care practices in their local context [1]. The literature produced in the specific professional nursing dimension must be readily available and written in the lingua franca of science, which is currently English.

English is not commonly used in the Italian nursing world which also continues to show a strong interest in distinctly local experiences and events that would be unlikely to form the object of publications for an international readership [2]. Within Italian-speaking nursing communities, there is still a strong demand for information, analysis, and opinions that can be shared and understood in their mother tongue. It is common knowledge that in many countries scientific journals are published in their national language alongside the indexed journals published in English. Despite being potential sources of indicators that are internationally recognized as useful for settings and priorities for Nursing research [3], their content still tends to go unnoticed on the international stage.

When authors decide to publish their work in national rather than international journals, this is not necessarily prompted by methodological shortcomings but may reflect factors such as language barriers, the local relevance of the content matter, the type of reader targeted, or unsuccessful attempts to publish in international journals [2, 4, 5]. A careful analysis of the articles published in the national literature (definable as papers written in languages other than English, and with a content of national rather than international interest) should reveal the specific elements typical of a given professional and cultural setting that would otherwise remain unknown to the international professional and scientific community. Such an analysis can shed light on the areas of scientific interest, and the strengths and cultural weaknesses of a given professional community. This enables to draw some comparisons between the level achieved by the international nursing culture and the specific situation of a nursing community of a given country. Such a comparison would be otherwise difficult to understand for anyone unable to read articles published in the local language [5]

In the last twenty years, several studies have been conducted around the world on the national nursing literature, including some reports on the nursing literature produced in South America [4], Asia [6-9], Africa [5, 10, 11],

Australia [12], and Ireland [13].

In Italy, seven reviews have been published on Italian nursing literature [14-19]. The analysis of these reviews shows that they are characterized by significant differences in their methodology. These differences mainly concern the criteria adopted to classify the articles as regards two fundamental aspects, i.e. whether or not the reviewed studies related exclusively to nursing research and whether or not these studies were conducted by nurses. The lack of such information, therefore, makes it difficult to compare the results about a national nursing community. Furthermore, some reviews classified simple descriptive reports as "nursing research" [12], or included descriptions of clinical outcomes without any reference to the methodology and conceptuality of the observational investigation [5, 12]. In these reviews, articles were sometimes considered to belong to the nursing community of a country by simple inference from the nationality of the authors [8], sometimes referring to the country where the journal was published [7], and sometimes considering both criteria, as well as the setting of the study involved [4-6, 11]. Finally, the methods used to select the published articles were based on a set of journals chosen ad hoc [4, 8, 9, 12], or by searching electronic databases and then contacting the authors [6, 7, 10, 11], or by searching institutional websites and nonindexed journals [5].

Among the seven reviews on the Italian national literature that have been so far published, only one was written in English and published in an international journal [20]; the others were all written in Italian and published in Italian journals [14-19].

The seven reviews except for Ausili et al. (2017) [14] searched for articles exclusively in Italian nursing journals. Three of the six reviews regarding the Italian journals concerned a period that partially overlaps the one considered in the present study (Bongiorno et al., 2005 [15], and Marucci et al., 2005, [16] focused on the years 1998-2003; while Marucci et al., 2013 [17], covering the period from 2003 to 2009).

In the previous reviews, the set of journals selected for consideration included at least one non-generalist journal focusing on a specific clinical setting. For the studies covering the years after 2002, only the review by Bongiorno et al. (2005) [15] examined the methodological quality of the research involved. Two other reviews considered the intrinsic quality in their analysis, but they referred to studies published in previous years (Zanotti, 1999 [20], relating to the years 1983-1997, and Pecile & Zanotti, 2002 [18], covering the years 1998-2001). Furthermore, in their study, Sansoni et al. (2005) [19] did not look into the methodological quality of the publications and as well they considered an earlier period (1978-1997).

None of these reviews of Italian nursing research published in the Italian language collected information on articles published since 2009.

Ausili et al. (2017) [14] published the most recent review, which is a bibliometric study that aims to describe the Italian nurses' publications in international journals and indexed in CINAHL, aiming at research objectives significantly different from previous reviews. Nothing has been published after 2017 about the Italian context.

## METHODS

This review aims to describe Italian nursing research articles written in Italian by Italian nurses and published in Italian 'generalist' nursing journals from 2002 to 2021.

This review also aims to assess the quality of these articles regarding research methodology, to describe authors, study design, study population, statistical methodology, and to provide a formal appraisal of the published articles, i.e. on the presence of standard research papers chapters (introduction, background, methods, results, discussion, and conclusions), figures, tables, etc.

The review has been conducted assessing the conceptual and methodological approaches in Italian nursing research articles published from 2002 to 2021 with a critical comparison to previous reviews, especially to the years 1983-1997.

Italian 'generalist' nursing journals published during the years 2002 to 2021 were considered for this review. Journals focusing on a specific clinical sector, journals not specifically intended for the nursing community, and journals published in languages other than Italian were ruled out.

All articles published in Italian, and of which at least one of the authors was an Italian nurse, were considered eligible for assessment and included in the review, while editorials, letters, book reviews, anecdotal studies, and translations of studies originally published in foreign journals were all excluded.

Three criteria were adopted to classify the articles: a) authors (one or more nurses and other health care personnel; all nurses; one or more nurses and other unspecified figures; a single nurse); b) first author's occupation (clinical; academic; director/coordinator; student; other; not stated); c) last author's occupation (classified as for the previous variable, with the addition of 'absent' for studies produced by a single author).

Then the studies were assessed in terms of their methodological characteristics and type of research activity, as declared and/or deducible from the content, consistently with CONSORT, PRISMA, and STROBE statements. The

following seven variables were considered: a) study design (non-interventional; quasi-experimental; experimental; review); b) temporal approach (prospective; retrospective; cross-sectional); c) study population (patients; health care personnel; relatives/caregivers; students; documents in use; other); d) type of sample (all target population; convenience sample; randomized sample; not described); e) size of sample/population ( $n \leq 30$ ;  $31 \leq n \leq 100$ ;  $101 \leq n \leq 500$ ;  $n > 500$ ; not described); f) Data collection tools (validated; documents in use; self-made; mixed validated and self-made; not described; undergoing validation); g) data analysis (descriptive only; inferential).

Furthermore, the following ten variables were considered as quality indicators: a) study design, as defined by the authors (pertinent/appropriate; not consistent; generic or not clearly defined; not stated); b) framework, i.e. the conceptual grounds, any hypotheses to be tested, the variable in question, the rationale, and the logic behind the development of the study [21] (present; absent); c) background, i.e. contextualization of the study, definition of the state of the art on the topic forming the object of the study (present; absent); d) discussion (consistent with results; not consistent with results; no discussion); e) conclusions (consistent with discussion; not consistent with discussion; no conclusions); f) limitations (acknowledged; not acknowledged); g) language (scientific; informal); h) figures (mentioned and discussed; only mentioned; neither mentioned nor discussed; no figures); i) graphs (mentioned and discussed; only mentioned; neither mentioned nor discussed; no graphs); j) tables (mentioned and discussed; only mentioned; neither mentioned nor discussed; no tables).

The articles were classified in four areas, each divided into specific areas by topic, as follows: a) Clinical practice (critical care, medical-surgical; home care, palliative care, geriatric and psychiatric; mother-child and pediatric; quality of care assessment); b) Education (professional/academic, continuing education); c) Management (organization systems; working environment; nurses' roles and responsibilities); d) Culture (nurses' perception; society's perception). This taxonomy is similar to the one adopted in the Italian review of 1999 [20].

Articles were analyzed for each of the above-mentioned variables and data have been stored and managed in an electronic database (Microsoft Access for Windows, Microsoft Corporation). Results are reported **using descriptive statistical analysis, specifically** frequencies and percentages, stratifying by journal and area of interest.

## RESULTS

During the period considered, four 'generalist' nursing journals were being published in Italy, providing papers in Italian language: "Assistenza Infermieristica e Ricerca", "Professioni Infermieristiche", "L'Infermiere" and

“Nursing Oggi”. At the time of this review, only “Assistenza Infermieristica e Ricerca” was indexed and attributed with an official Journal Citation Report (JCR) impact factor, while “Professioni Infermieristiche” and “L’Infermiere” were only indexed in MEDLINE and/or CINAHL. “Nursing Oggi” stopped publishing in 2009. “L’Infermiere” was published monthly up until 2016, then bimonthly, while the other three journals have always been published quarterly.

Of a total of 1444 articles identified, 621 (43.0%) met the inclusion criteria and were considered in this review (detailed references can be sent by asking to the corresponding author). Of the 823 articles excluded, 54 (6.6%) were published in English (as of 2012), and the other 769 were excluded for the following reasons: not involving research (734 articles; 89.1%), no nurses among the authors (18 articles; 2.2%) and authors of a nationality other than Italian (17 articles; 2.1%) (details are shown in PRISMA flow diagram in Figure 1).

Of the 621 articles consistent with inclusion criteria, 283 (45.6%) were published in “Professioni Infermieristiche”, 162 (26.1%) in “Assistenza Infermieristica e Ricerca”, 114 (18.3%) in “L’Infermiere” and 62 (10.0%) in “Nursing Oggi”.

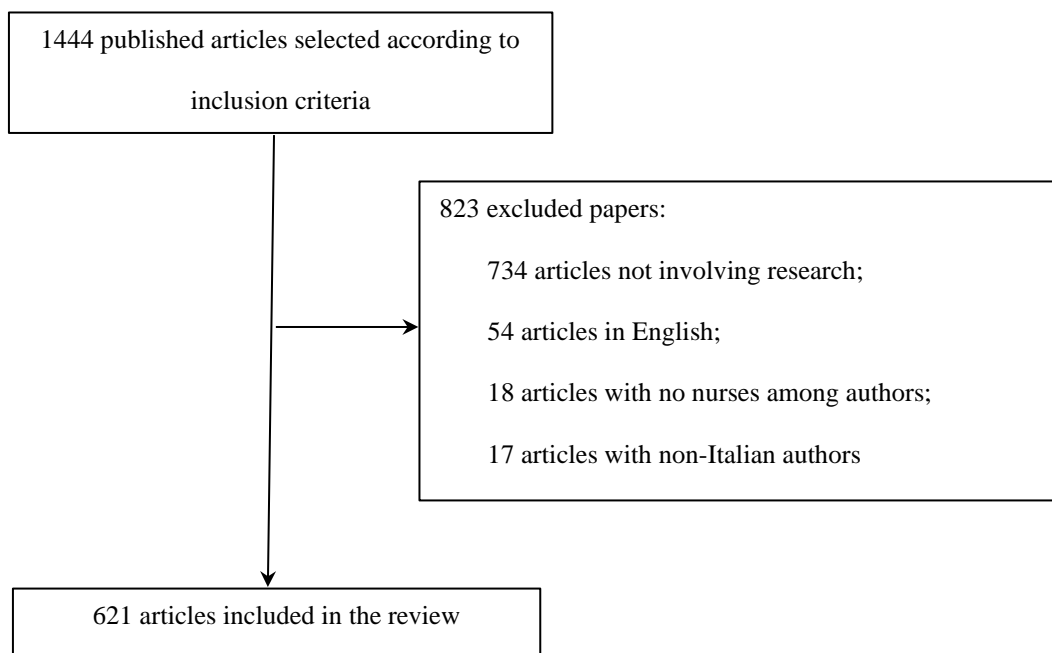


Figure 1. Flow diagram illustrating the process of literature selection for this review according to PRISMA guidelines.

### Areas of interest

The most explored area of research was Clinical practice (n= 281, 45.2%), followed by Management (n= 157, 25.3%), Culture (n= 103, 16.6%) and Education (n= 80, 12.9%). Further details including results stratified by journal and specific areas of research are shown in Table 1 and Table 2.

<b>Research area/Journal</b>	<b>AIR<sup>1</sup> n(%)</b>	<b>ProfInf<sup>2</sup> n(%)</b>	<b>L’Infermiere n(%)</b>	<b>Nursing Oggi n(%)</b>	<b>Overall n(%)</b>
Clinical practice	87 (53.7%)	112 (39.6%)	55 (48.3%)	27 (43.6%)	281 (45.2%)
Management	40 (24.7%)	82 (29.0%)	20 (17.5%)	15 (24.2%)	157 (25.3%)
Culture	21 (13.0%)	50 (17.6%)	22 (19.3%)	10 (16.1%)	103 (16.6%)
Education	14 (8.6%)	39 (13.8%)	17 (14.9%)	10 (16.1%)	80 (12.9%)

**Table 1.** *Distribution of selected papers according to research area and journal by frequency and percentage.*

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<sup>1</sup> AIR: Assistenza Infermieristica e Ricerca

<sup>2</sup> ProfInf: Professioni Infermieristiche



Research area	Specific research topics	Intra-area frequency n(%)	Overall percentage (%)
Clinical practice (n= 281)	Medical-surgical	110 (39.1%)	17.7%
	Quality of care assessment	72 (25.7%)	11.6%
	Home and palliative care, geriatric and psychiatric	56 (19.9%)	9.0%
	Critical care	22 (7.8%)	3.5%
	Mother - child and pediatric	21 (7.5%)	3.4%
Management (n= 157)	Organization systems	85 (54.2%)	13.7%
	Working environment	41 (26.1%)	6.7%
	Nurses' roles and responsibilities	31 (19.7%)	5.0%
Culture (n= 103)	Nurses' perception	73 (70.9%)	11.7%
	Society's perception	30 (29.1%)	4.8%
Education (n= 80)	Professional/academic	59 (73.7%)	9.5%
	Continuing education	21 (26.3%)	3.4%

**Table 2.** Frequency and percentage of papers according to the research area, specific research topics, and overall.

**Groups of authors**

In 50.9% of the articles (316), all authors were nurses, while in the other 49.1% the authors were groups comprising at least one nurse and other health care personnel (n= 157, 25.3%), or one nurse and other individuals whose role was not stated (n= 122, 19.6%), or a single nurse (n= 26, 4.2%). Stratifying by journal, “Assistenza Infermieristica e Ricerca” published a bit more articles whose groups of authors were both nurses and other unspecified figures, rather than all nurses (n= 64, 39.6% and n= 61, 37.6%, respectively).

The first authors of the articles were clinicians (n= 216, 34.8%), followed by academics (n= 185, 29.8%), managers or coordinators (n= 141, 22.7%), students (n= 35, 5.6%), and others (n= 9, 1.5%). In 5.6% of the articles (n= 35), the first author’s occupation was not stated. In 18.3% of cases (n= 114), the articles were produced by groups in which both the first and the last authors were academics, while in 17.5% (n= 109) the group consisted of clinicians and academics. Further details including results stratified by journal and data on the last authors are shown in Table 3.

<b>Authors' characteristics / Journal</b>	<b>AIR n(%)</b>	<b>ProfInf n(%)</b>	<b>L'Infermiere n(%)</b>	<b>Nursing Oggi n(%)</b>	<b>Overall n(%)</b>
<b>Composition of the group of authors</b>					
All nurses	61 (37.6%)	166 (58.7%)	59 (51.7%)	30 (48.4%)	316 (50.9%)
One or more nurses and other health care professionals	35 (21.6%)	72 (25.4%)	32 (28.1%)	18 (29%)	157 (25.3%)
One or more nurses and others unspecified figures	64 (39.6%)	33 (12.0%)	16 (14.0%)	8 (12.9%)	122 (19.6%)
A single nurse	2 (1.2%)	11 (3.9%)	7 (6.2%)	6 (9.7%)	26 (4.2%)
<b>First author's occupation</b>					
Clinical	62 (38.3%)	81 (28.6%)	57 (50%)	16 (25.8%)	216 (34.8%)
Academic	45 (27.8%)	95 (33.6%)	24 (21.0%)	21 (33.9%)	185 (29.8%)
Director/coordinator	31 (19.1%)	75 (26.5%)	19 (16.7%)	16 (25.8%)	141 (22.7%)
Student	11 (6.9%)	14 (4.9%)	5 (4.4%)	5 (8.1%)	35 (5.6%)
Not stated	9 (5.5%)	13 (4.6%)	9 (7.9%)	4 (6.4%)	35 (5.6%)
Other	4 (2.4%)	5 (1.8%)	0 (0%)	0 (0%)	9 (1.5%)
<b>Last author's occupation</b>					
Academic	62 (38.3%)	140 (49.5%)	51 (44.7%)	15 (24.2%)	268 (43.2%)
Clinical	46 (28.5%)	39 (13.8%)	21 (18.4%)	26 (41.9%)	132 (21.2%)
Director/coordinator	30 (18.5%)	69 (24.4%)	18 (15.8%)	7 (11.3%)	124 (20.0%)
Absent (one single author)	2 (1.2%)	12 (4.2%)	11 (9.6%)	6 (9.7%)	31 (5.0%)
Not stated	14 (8.6%)	13 (4.6%)	5 (4.4%)	4 (6.5%)	36 (5.8%)
Other	7 (4.3%)	7 (2.4%)	7 (6.2%)	3 (4.8%)	24 (3.9%)
Student	1 (0.6%)	3 (1.1%)	1 (0.9%)	1 (1.6%)	6 (0.9%)

**Table 3.** *Distribution of articles within each journal based on characteristics of authors by frequency and percentage.*

### **Methodological aspects**

The methodological variables considered regard the choices made by the authors during the development of the studies that are the fundamentals on which the papers were then created.

The study design most often used was non-interventional (n= 489, 78.7%), followed by literature reviews (n= 83, 13.4%), and a few quasi-experimental (n= 26, 4.2%) and experimental (n= 23, 3.7%) study designs. Stratifying by area, the most frequent design used was non-interventional, followed by reviews in all areas except for Education, in which the second most often used was the quasi-experimental design (n= 7, 8.7%). Quasi-experimental and experimental designs were used in different proportions, depending on the research area considered.

Among the non-interventional studies, the temporal approach most often adopted was cross-sectional (n= 358, 73.2%), followed by prospective (n= 73, 14.9%), and retrospective (n= 58, 11.9%). Stratifying by journal, the cross-sectional study remained the most often used in all the four journals analyzed, even after stratifying by area.

About population, most of the articles concerned health care personnel (n= 221, 41.1%), or patients (n= 204, 37.9%), while others focused on various populations (n= 113, 21.0%). Stratifying by journal, “Assistenza Infermieristica e Ricerca” and “Nursing Oggi” published more studies about patients (with n= 80, 52.7% and n= 27, 45.0%, respectively) than about health care personnel (n= 51, 33.6% and n= 24, 40.0%). Stratifying by research area, studies concerning patients prevailed in Clinical practice (n= 148, 63.2%), while students as well as health care personnel in Education (for both n= 33, 44.6%). Stratifying by journal, no differences emerged concerning Management and Culture areas.

The sampling method was non-randomized in 57.6% of the considered articles (n= 310), followed by sampling all target population (n= 88, 16.4%) and randomization (n= 41, 7.6%). In a significant percentage, there was no explanation of the adopted sampling method (n= 99, 18.4%). Stratifying by journal, only “Nursing Oggi” has the same proportions. When all the target population was selected, subjects were patients (n= 38, 43.2%), health care personnel (n= 32, 36.4%) and other groups (n= 18, 20.4%).

The size of the sample/population enrolled was mainly between 101 and 500 (n= 205, 38.1%), from 31 to 100

(n= 150, 27.9%), less than 30 (n= 88, 16.4%), > 500 (n= 81, 15.0%), and sometimes not stated (n= 14, 2.6%). Stratifying by journal, “Professioni Infermieristiche”, “L’Infermiere”, and “Nursing Oggi” have the same proportions; while “Assistenza Infermieristica e Ricerca” has more studies with sample size > 500 than < 30. Only three articles (n= 0.6%) stated the criteria used to establish the sample size: two adopted data saturation, while one calculated the statistical power. None of the other articles (n= 535, 99.4%) provided details on how the sample size had been calculated.

Recording and data-collection tools were described in 425 articles (79.0%); out of them, these tools were self-made in 221 articles (41.1%), validated in 141 (26.2%), non-interventional grids for document analysis in 32 (5.9%), validating the adopted scales as a specific aim in 17 (3.2%) and mixed self-made and validated tools in 14 (2.6%) studies. Finally, 113 articles (21.0%) provided no information about the tool used for data collection. Stratifying by journal, “L’Infermiere” and “Nursing Oggi” published the majority of studies with undescribed data collection tools (with n= 41, 41.8% and n= 18, 30.0%, respectively).

In 365 articles (67.8%) statistical analysis was limited to a simple descriptive analysis of single variables. Inferential statistics were performed only in 173 articles (32.2%) (details are shown in Table 4).

<b>Methodologic characteristics/Journal</b>	<b>AIR n(%)</b>	<b>ProfInf n(%)</b>	<b>L’Infermiere n(%)</b>	<b>Nursing Oggi n(%)</b>	<b>Overall n(%)</b>
<b>Study design</b>					
Observational	139 (85.8%)	208 (73.5%)	95 (83.3%)	47 (75.8%)	489 (78.7%)
Review	10 (6.2%)	55 (19.5%)	16 (14.0%)	2 (3.2%)	83 (13.4%)
Quasi-experimental	5 (3.1%)	10 (3.5%)	1 (0.9%)	10 (16.1%)	26 (4.2%)
Experimental	8 (4.9%)	10 (3.5%)	2 (1.8%)	3 (4.9%)	23 (3.7%)
<b>Temporal approach (observational studies only)</b>					
Cross-sectional	84 (60.4%)	159 (76.4%)	72 (75.8%)	43 (91.5%)	358 (73.2%)
Prospective	27 (19.4%)	28 (13.5%)	15 (15.8%)	3 (6.4%)	73 (14.9%)
Retrospective	28 (20.2%)	21 (10.1%)	8 (8.4%)	1 (2.1%)	58 (11.9%)
<b>Study population</b>					
Public health operators	51 (33.6%)	105 (46.1%)	41 (41.8%)	24 (40.0%)	221 (41.1%)
Patients	80 (52.7%)	63 (27.6%)	34 (34.7%)	27 (45.0%)	204 (37.9%)
Students	6 (3.9%)	24 (10.5%)	6 (6.1%)	6 (10.0%)	42 (7.8%)
Other	6 (3.9%)	17 (7.5%)	8 (8.2%)	0 (0%)	31 (5.8%)
Documents in use	6 (3.9%)	11 (4.8%)	4 (4.1%)	2 (3.3%)	23 (4.3%)

Relatives/caregivers	3 (2.0%)	8 (3.5%)	5 (5.1%)	1 (1.7%)	17 (3.1%)
Type of sample					
Convenience sample	90 (59.2%)	141 (61.8%)	42 (42.9%)	37 (61.7%)	310 (57.6%)
Not described	16 (10.5%)	29 (12.8%)	40 (40.8%)	14 (23.3%)	99 (18.4%)
All target population	31 (20.4%)	40 (17.5%)	12 (12.2%)	5 (8.3%)	88 (16.4%)
Randomised sample	15 (9.9%)	18 (7.9%)	4 (4.1%)	4 (6.7%)	41 (7.6%)
Size of sample/population					
101≤n≤500	58 (38.1%)	89 (39.0%)	34 (34.7%)	24 (40.0%)	205 (38.1%)
31≤n≤100	35 (23.0%)	66 (28.9%)	27 (27.5%)	22 (36.7%)	150 (27.9%)
n≤30	22 (14.5%)	42 (18.5%)	15 (15.3%)	9 (15.0%)	88 (16.4%)
n>500	36 (23.7%)	26 (11.4%)	14 (14.3%)	5 (8.3%)	81 (15.0%)
Not described	1 (0.7%)	5 (2.2%)	8 (8.2%)	0 (0.0%)	14 (2.6%)
Tools used					
Self-made	66 (43.4%)	106 (46.5%)	23 (23.5%)	26 (43.4%)	221 (41.1%)
Validated	45 (29.6%)	65 (28.5%)	23 (23.5%)	8 (13.3%)	141 (26.2%)
Not described	23 (15.1%)	31 (13.6%)	41 (41.8%)	18 (30.0%)	113 (21.0%)
Documents in use	13 (8.5%)	11 (4.8%)	2 (2.0%)	6 (10.0%)	32 (5.9%)
Undergoing validation	3 (2.0%)	5 (2.2%)	9 (9.2%)	0 (0.0%)	17 (3.2%)
Mixed validated and self-made	2 (1.4%)	10 (4.4%)	0 (0.0%)	2 (3.3%)	14 (2.6%)
Data analysis					
Descriptive only	89 (58.5%)	158 (69.3%)	64 (65.3%)	54 (90%)	365 (67.8%)
Inferential	63 (41.5%)	70 (30.7%)	34 (34.7%)	6 (10%)	173 (32.2%)

**Table 4.** Distribution of selected papers according to methodological aspects, type of research performed, and journal by frequency and percentage

Regarding the papers' internal quality, the variables analyzed consider the single parts that compose the papers themselves.

Most of the authors did not explain the study design (n= 266, 42.8%), or defined it as an “investigation”, a “study” or a “work”. As for the remaining 57.2% (n= 355), the definition provided was consistent in 30.3% (n= 188), but inconsistent in 8.5% of studies (n= 53), mainly due to confusion between types of non-interventional designs (i.e. one article defined as "experimental" a non-interventional descriptive design), 18.4% (n= 114) generically defined as “non-interventional”. Stratifying by journal, the proportions remained the same except for

“Professioni Infermieristiche”, which published more studies properly defined (n= 104, 36.7%) than studies with design not stated (n= 101, 35.7%).

In the selected articles, the study framework was not defined in 91.1% of cases (n= 566); none in the articles published by “Nursing Oggi”.

The background was not sufficiently described in 90.5% of the studies (n= 562), and absent in the other 9.5% (n=59). Stratifying by journal, the proportions remained the same, although “Nursing Oggi” contained a smaller number of studies with the background (n= 35, 56.5%) than the other journals (all greater than 93%).

The discussion was included in 84.4% of cases (n= 524), but only in 64.9% (n= 403) was consistent with the results, while in the other 19.5% (n= 121) it was anecdotal or unrelated to the results. In 15.6% (n= 97) discussion was either lacking entirely or unidentifiable within the article. Stratifying by journal, “Assistenza Infermieristica e Ricerca” had published a much smaller percentage of studies without a discussion (n= 8, 4.9%), whereas in “Nursing Oggi” only 51.6% (n= 32) of the studies had included a discussion, and it was relevant in 24.2% of cases (n= 15).

Conclusions were consistently provided in 71.3% of the articles considered (n= 443), while there were none in 14.7% (n= 91), and they were inconsistent with the discussion in 14.0% of papers (n= 87).

Stratifying by journal, the proportions do not change, except for “L’Infermiere”, which published more articles containing conclusions inconsistent with the discussion (21 articles; 18.4%) than papers without any conclusions at all (5 articles; 4.4%). Cross-referencing the data cited in discussions with those cited in the conclusions, it emerged that only 296 articles (47.7%) had a good internal coherence between results, discussion, and conclusion. To be noted, discussion and conclusions were missing in 10 papers (1.6%).

In 51.8% of the articles (n= 322), there was no mention of the limitations of the study, and this proportion remained the same after stratifying by journal, except for “Nursing Oggi” and “Professioni Infermieristiche” in which the tendency was reversed (53.2%, 33 articles, stated the studies limitations, while 46.8%, 29 articles, did not and 59.7%, 169 articles, did and 40.3%, 114 articles, did not, respectively). The informal language was used in 72.6% of the reviewed papers (n= 451), and only in 27.4% (n= 170), the language appeared appropriate for a scientific publication.

Figures, meaning graphical representations of concepts and theories, were not included in 85.2% of the studies (n= 529). Stratifying by research area, the use of figures resulted associated with Clinical practice in 50.0% (46

studies), followed by Management (26.1%, 24 studies), Culture (14.1%, 13 studies), and Education (9.8%, 9 studies).

Graphs about statistics or results were not included in 59.4% of cases (n= 369). Stratifying by area, 42.5% (n= 107) of the studies that included graphs concerned Clinical practice, 28.2% (71 studies) related to the Management area, 19.0% (48 studies) to Culture, and the remaining 10.3% (26 studies) to Education.

Tables were provided and mentioned and discussed in 62.3% of the articles (n= 387), only mentioned in 19.8% (n= 123), not provided in 14.8% (n= 92), and neither mentioned nor discussed in 3.1% (n= 19) (data are shown in Table 5).

<b>Papers' internal quality/Journal</b>	<b>AIR n(%)</b>	<b>ProfInf n(%)</b>	<b>L'Infermiere n(%)</b>	<b>Nursing Oggi n(%)</b>	<b>Overall n(%)</b>
<b>Study design as defined by the authors</b>					
Not stated	76 (46.9%)	101 (35.7%)	41 (35.9%)	48 (77.4%)	266 (42.8%)
Pertinent/appropriate	39 (24.1%)	104 (36.7%)	37 (32.5%)	8 (12.9%)	188 (30.3%)
Generic or not clearly defined	35 (21.6%)	48 (17.0%)	31 (27.2%)	0 (0%)	114 (18.4%)
Not consistent	12 (7.4%)	30 (10.6%)	5 (4.4%)	6 (9.7%)	53 (8.5%)
<b>Framework</b>					
Absent	139 (85.8%)	258 (91.2%)	107 (93.9%)	62 (100.0%)	566 (91.1%)
Present	23 (14.2%)	25 (8.8%)	7 (6.1%)	0 (0.0%)	55 (8.9%)
<b>Background</b>					
Present	151 (93.2%)	267 (94.3%)	109 (95.6%)	35 (56.5%)	562 (90.5%)
Absent	11 (6.8%)	16 (5.7%)	5 (4.4%)	27 (43.5%)	59 (9.5%)
<b>Discussion</b>					
Consistent with results	119 (73.5%)	189 (66.8%)	80 (66.0%)	15 (24.2%)	403 (64.9%)
Not consistent with results	35 (21.6%)	54 (19.1%)	15 (13.1%)	17 (27.4%)	121 (19.5%)
No discussion	8 (4.9%)	40 (14.1%)	19 (16.7%)	30 (48.4%)	97 (15.6%)
<b>Conclusions</b>					
Consistent with discussion	84 (51.8%)	223 (78.8%)	88 (77.2%)	48 (77.4%)	443 (71.3%)
No conclusions	40 (24.7%)	36 (12.7%)	5 (4.4%)	10 (16.1%)	91 (14.7%)
Not consistent with discussion	38 (23.5%)	24 (8.5%)	21 (18.4%)	4 (6.5%)	87 (14.0%)
<b>Limitations</b>					
Not acknowledged	111 (68.5%)	114 (40.3%)	68 (59.6%)	29 (46.8%)	322 (51.8%)
Acknowledged	51 (31.5%)	169 (59.7%)	46 (40.4%)	33 (53.2%)	299 (48.2%)



Language					
Informal	101 (62.4%)	210 (74.2%)	84 (73.7%)	56 (90.3%)	451 (72.6%)
Scientific	61 (37.6%)	73 (25.8%)	30 (26.3%)	6 (9.7%)	170 (27.4%)
Figures					
No figures	144 (88.9%)	227 (80.2%)	104 (91.3%)	54 (87.1%)	529 (85.2%)
Mentioned and discussed	15 (9.3%)	52 (18.4%)	8 (7.0%)	7 (11.3%)	82 (13.2%)
Only mentioned	3 (1.8%)	2 (0.7%)	2 (1.7%)	0 (0%)	7 (1.1%)
Neither mentioned nor discussed	0 (0.0%)	2 (0.7%)	0 (0%)	1 (1.6%)	3 (0.5%)
Graphs					
No graphs	111 (68.5%)	148 (52.3%)	76 (66.7%)	34 (54.9%)	369 (59.4%)
Mentioned and discussed	44 (27.2%)	116 (41.0%)	30 (26.3%)	24 (38.7%)	214 (34.5%)
Only mentioned	5 (3.1%)	11 (3.9%)	6 (5.3%)	2 (3.2%)	24 (3.9%)
Neither mentioned nor discussed	2 (1.2%)	8 (2.8%)	2 (1.7%)	2 (3.2%)	14 (2.2%)
Tables					
Mentioned and discussed	107 (66.1%)	191 (67.5%)	61 (53.5%)	28 (45.2%)	387 (62.3%)
Only mentioned	42 (25.9%)	39 (13.8%)	38 (33.4%)	4 (6.4%)	123 (19.8%)
No tables	8 (4.9%)	45 (15.9%)	13 (11.4%)	26 (42.0%)	92 (14.8%)
Neither mentioned nor discussed	5 (3.1%)	8 (2.8%)	2 (1.7%)	4 (6.4%)	19 (3.1%)

**Table 5.** Distribution of selected papers according to quality indicators and journals, in frequency and percentage.

## DISCUSSION

The most adopted study design was non-interventional, with a cross-sectional temporal approach, convenience sample, and descriptive-only data analyses. Such frequent use of cross-sectional non-interventional design and convenience sample may be explained by the lower requirements of resources but could also indicate shortcomings in the scientific and technical expertise needed for more appropriate research designs. The few experimental studies identified were related to the therapeutic effects of drugs. Any graphical modeling of relationships between concepts was either derived or merely transposed from theories found in other research areas, with the occasional inclusion of schematic representations that might be correlated with middle-range theories developed in nursing (i.e. Kolcaba, Leininger). The almost total absence of the study framework, even as a model of variables and relationships, prevented the analysis of the conceptual dimension of the articles considered. Such articles did not provide details

enough to enable an assessment of their logical grounds, the observed variables, and their relationships. Also, there was a prevalent use of data collection tools self-developed by authors, across all the areas of research. This could stem from several factors, including the persistently limited diffusion of the English language in the Italian professional nursing community, the limited use of international literature, and the cost of royalties for scales subject to copyright. It was therefore somewhat difficult to assess the overall consistency of the selected articles and the appropriateness of designs to the research questions and study aims. The use of self-made data collection tools together with the lack of frameworks probably indicates a weak scientific awareness that may explain such methodologically naive publications.

The findings of previous reviews on nursing research produced in Italy were not homogeneous in terms of investigated aspects. This may be partly attributable to the different periods investigated and to the use of not entirely comparable taxonomies. On the other hand, although Marucci et al. (2005) [16] and Bongiorno et al. (2005) [15] investigated the same period (1998-2003) and used the same taxonomic framework, the first review found that studies focused mainly on the areas of research and the nursing, followed by clinical practice, while the latest described clinical care and then vocational training as the main areas of inquiry. The reviews more comparable by the model of classification with the purposes of the present review were those by Zanotti (1999) [20], and by Pecile & Zanotti (2002) [18], though they considered a different time frame. Such reviews were very similar referring to the two periods, with most of the reviewed studies focusing on Clinical Practice and Management. Studies that reportedly referred to major nursing theories were the fewest among the articles considered, consistently with the reports from Marucci et al. (2005) [16] and Sansoni et al. (2005) [19].

Comparing the present findings with previous reviews that examined the methodological quality of the studies [18, 20], no significant improvement emerged. The composition of the groups of authors might also indicate an effort to fill gaps in the methodology or specific know-how of individual authors. The methodological shortcomings could be a sign of inadequacies in the quality and level of the authors' scientific and methodological expertise, which would fail to provide the background needed to produce studies of scientific value. The limited presence of nurses bearing high academic qualifications supports this hypothesis. Marucci et al. (2013) [17] provided very different conclusions concerning the years 2003-2009, after finding that most of the reviewed papers were conducted by groups of nurses. Although Marucci et al. (2013) [17] analyzed a period (2003-2009) overlapping the one considered in this review (2002-2021), almost all of their findings were considerably different from the ones

presented in this review. This may be due to the timeframe adopted in this review being much broader (20 years as opposed to 7 in Marucci's review), and partly to different sources of information being used (Marucci et al also included a journal dedicated to a clinical specialty).

Healthcare professionals were studied more than patients; this is consistent with the findings of Marucci et al. (2005) [16] in Italy and with the report from Polit & Beck (2009) [22] on the international scenarios. This recalls Henderson's comment [23] that nurses have spent more time studying the worker [nurse] than the work [clinical practice] and rarely have initiated studies on cultural regions. This way of proceeding would seem to apply to the Italian nursing world, and its literature production appears to belong largely to the first phase of Henderson's model. Knowing that, makes it possible for scholars to focus more on each specific phase of the national cultural development, supporting and improving it. Furthermore, the definition of the specific phase of national nursing research development allows to compare it with other countries and to identify specific weaknesses and interventions to put in place. It must be said that investigating patients is more complicated and costly than investigating health care personnel or students.

From a methodological point of view, it is worth mentioning the presence of errors in the definition of study populations (target population and accessible samples were often confused, for instance), as well as the virtually constant recourse to convenience samples, almost always without any criteria of inclusion. The same issues were identified in the reviews conducted by Zanotti (1999) [20], Pecile & Zanotti (2002) [18], and Bongiorno et al. (2005) [15]. Bongiorno et al. (2005) [15] investigated only the samples size, but it is impossible to draw any comparisons between their findings and this review because of the different stratification models used in the two reviews.

Several of the reviewed articles concerned local experiences, often written by nurses who were in the research setting as a member of the hospital management team. Such participation of hospital nurses, though potentially useful for disseminating the outcomes and implementing in local innovations, usually provide little or no explanation at all for the adopted methods, so their results cannot be exported or reproduced elsewhere.

Finally, the editors of the four reviewed journals declare that any article published underwent peer review. However, the significant number of publications that revealed severe methodological errors poses a serious question regarding the quality of this peer-review process. The element that raises the most concern is the considerable internal variance, within a given journal, in the scientific and overall quality of the published studies. It is hard to

assign any of the four journals to a distinct quality level. There are probably several factors contributing to this variability, including the quality of the papers submitted (and produced in Italy, in the Italian language).

### **Limits of the study**

The main limitation of the present review lies in considering only ‘generalist’ nursing journals, which led to the exclusion of articles produced in specific Italian nursing research sectors, potentially providing an unreliable picture of the most-investigated areas of interest and topics. This decision was prompted by the assumption that sector-specific publications tend to focus on very particular clinical or organizational settings and cannot provide further information on the general scientific production identifiable from the ‘generalist’ journals.

There is also the possibility that Italian authors more confident in writing English papers, might prefer to publish in international journals, avoiding local journals and their smaller audience. By doing so, Italian journals would receive only weak studies. This may explain the findings of Ausili et al.’s study (2017) [14], even if this paper didn’t explore any methodological aspect; accordingly, the statement on the alleged Italian nursing improvement cannot be fully shared nor deeply investigated.

## **CONCLUSIONS**

Although some selection criteria of the journals are different, this review provides an interesting comparison with the paper published by Zanotti in 1999. Such comparison, which embraces the last 20 years of research published in Italian journals, provides new insights on how and what are the current orientations of nursing research published in Italian. Based on the results of this comparison, there are critical issues already present before 1999 that still characterize the Italian nursing research published in Italian even in the last two decades. Italian research published in Italian journals remains characterized by severe methodological weaknesses even though there has been an increase in the proportion of more robust studies. However, it should be considered that nursing research published in Italian is probably a secondary part of Italian scientific production as academic researchers publish almost exclusively in English and in international journals. Consequently, what emerges from the national literature in Italian offers an insight not on its scientific production tout-court but rather on the consolidated level of use of the research methodology in the professional community. The methodological weaknesses noted in the published articles, therefore, raise some questions about the potential effect of such publications on the critical reading

education of Italian nurses. Indeed, it emerges that Italian journals, including indexed ones, adopt very flexible criteria for accepting research articles for publication. This flexibility can, on the one hand, help in the development of research as a professional activity but, on the other hand, it does not stimulate to maintain consistency with methodological rigor even if the study is done locally without any pretense of generalization. In light of the above-mentioned results, reviewers and editors should make further efforts to push for an overall improvement in the quality of the manuscripts being evaluated. Such efforts should consider a better definition of acceptance criteria for publication along with a process of accompanying authors with requests for review along with the provision of guidelines and reference models for scientific methodology and language.

In summary, this review highlights the gaps between Italian nursing publications and nursing research published in international journals, also providing information on the average quality of nursing research in its strictly national dimension. The results of this review also underline the importance of evaluating the quality of a country's national literature because the local professional community often takes it as the main reference for its updating. This review covers an adequately extensive period to detect the current trends and cultural dynamics that are associated with the development of the Italian nursing profession, providing the possibility to compare with the cultural dynamics of nursing in other countries in order to frame local trends in a more international context.

The authors declare that they have no conflict of interest.

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