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Nursing educators' and undergraduate nursing students' beliefs and perceptions on evidence-based practice, evidence implementation, organizational readiness and culture: An exploratory cross-sectional study

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ABSTRACT

Aims: To describe the undergraduate nursing students' and nursing educators' evidence-based practice beliefs, their extent of evidence-based practice implementation and their perspectives regarding organizational culture for evidence-based practice. To identify any relationship between the mentioned variables.

Background: The integration of evidence-based practice in nursing curricula is crucial to educate nursing students to incorporate evidence-based practice in their future clinical practice. Therefore, to promote its integration within nursing education, it is important to deeply understand how prepared academic institutions are for teaching about and supporting evidence-based practice integration.

Design: Cross-sectional study.

Methods: Nursing educators and undergraduate nursing students from nine Portuguese nursing schools were invited to participate in this study through an electronic survey comprising socio-demographic questions and the scales.

Results: Sixty-eight nursing educators replied to the survey. Most were female, have PhD and have evidence-based practice training. They showed mean scores of 88.92 ± 8.18 for evidence-based practice beliefs, 40.20 ± 18.93 for evidence-based practice implementation and 80.59 ± 17.52 for evidence-based practice organizational culture and readiness. Concerning nursing educator sample, there were moderate and statistically significant relationship between: evidence-based practice beliefs and implementation; and evidence-based practice beliefs and organizational culture and readiness for school-wide integration of evidence-based practice. Between evidence-based practice implementation and organizational culture and readiness for school-wide integration of evidence-based practice, there was a small relationship.

One hundred and sixty-seven undergraduate nursing students answered the survey. Mostly, they were female and were in third or fourth year of their nursing degree. Similarly, to educators, students showed mean scores of 58.69 ± 6.92 for evidence-based practice beliefs, 32.37 ± 16.97 for evidence-based practice implementation and 84.20 ± 23.48 for evidence-based practice organizational culture and readiness. Regarding undergraduate nursing student sample, there were moderate and statistically significant relationship between the different variables.

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Conclusions: Both nursing educators and undergraduate nursing students had strong evidence-based practice beliefs, but low levels of evidence-based practice implementation. In nursing educators' and undergraduate nursing students' perspectives, there were opportunities in their schools for the development of an evidence-based practice culture. Based on results, support for development and testing of interventions, specifically tailored for promoting evidence-based practice implementation in nursing educational contexts, is recommended.

1. Background

Evidence-based Practice (EBP) is a process of clinical decision-making that considers the following three elements: the best available research evidence, clinical/professional expertise and patient preferences (International Council of Nurses, 2012; Pearson et al., 2012; Sackett et al., 2000). Due to positive impact on healthcare, as evidenced by improved patient outcomes and decreased health care costs (Melnyk et al., 2014; Melnyk, 2007; André et al., 2016), several organizations now promote EBP implementation in clinical contexts (World Health Organization, 2015; International Council of Nurses, 2012). However, actual EBP use in clinical environments remains below desired levels (Duncombe, 2018; Melnyk et al., 2012, 2014).

Education is an effective strategy to promote EBP implementation into clinical practice (Black et al., 2015; Mohsen et al., 2016; Institute of Medicine (US) Committee on the Health Professions Education Summit, 2003; Dawes et al., 2005). Academic institutions, therefore, have a key role in educating nursing students to incorporate EBP in their future clinical practice (Melnyk, 2018). Nevertheless, some studies report that a critical barrier for EBP use, in both clinical and academic contexts, is organizational culture (Duncombe, 2018; Melnyk et al., 2012; Youssef et al., 2018; Pereira et al., 2012). Evidence reports a positive relationship between organizational culture concerning EBP integration, EBP beliefs and EBP use not only in the clinical context, but also in the academic environment (Aarons et al., 2009; Milner et al., 2018; Melnyk et al., 2010). Consequently, to promote EBP use in nursing education, it is important to deeply understand how prepared academic institutions are for teaching about and supporting EBP integration (Melnyk and Fineout-Overholt, 2015).

In educational contexts, besides the importance of the organization's readiness for EBP integration, educators play a vital role in integrating EBP in nursing curricula. As mentors and role models, educators influence the clinical practice of future nurses (Melnyk and Fineout-Overholt, 2015). The World Health Organization (2016) created the "Nurse Educator Core Competencies" to allow educators to train effective, efficient and skilled nurses who are capable of meeting the population's health needs. It established that a nurse educator must "integrate evidence-based teaching and learning processes and help learners interpret and apply evidence in their clinical learning experiences." (WHO, 2016, p. 12). However, there are reported barriers to EBP integration in educational contexts, such as: faculty aging (Kaufman, 2010; PORDATA, 2019), lack of EBP knowledge, lack of confidence in teaching EBP as well as lack of time, resources and support to promote and teaching EBP (Stichler et al., 2011; Upton et al., 2015). Notwithstanding these barriers, research suggests that positive EBP beliefs have an impact on graduates' future use of EBP (Ramis et al., 2018) therefore there is a responsibility for nursing educators to not only promote positive EBP beliefs but to also integrate EBP in their teaching and curricula to prepare students for providing evidence-based nursing care.

Indeed, as future workers in health institutions, undergraduate students have a fundamental driving role for the integration of EBP in health care contexts. It is important that undergraduate nursing students start to acquire knowledge and apply EBP during their course and continue to develop this, integrating skills within their learning throughout life as well as in their delivery of nursing care (Dawes et al., 2005).

Indeed, some studies performed with nurses showed that they had moderately strong EBP beliefs, but low levels of EBP implementation which suggests that the organizational culture was moderately positive for EBP (Melnyk et al., 2010; Pereira et al., 2018). Additionally, the studies reported positive relationships between EBP beliefs, EBP implementation and organizational culture for EBP (Melnyk et al., 2010; Pereira et al., 2018; Stokke et al., 2014).

Besides, the integration of EBP in Portuguese educational contexts, especially in Nursing Degree Courses, is still low. In a brief review of the curriculum programs of Nursing Degree Courses of Portuguese educational institutions, it was notice that all curricula comprise research courses, except for one. However, only three curriculum plans have a specific EBP course. In light of these factors and to develop appropriate interventions that address the individual and organizational needs to promote EBP use in Portugal, it is important to identify both undergraduate nursing students' and nursing educators' beliefs regarding EBP, their degree of EBP implementation and the readiness for school-wide integration of EBP. Therefore, this study aims to describe and explore: (a) undergraduate nursing students' beliefs toward EBP; (b) nursing educator's EBP beliefs and their level of confidence for teaching EBP; (c) the level of EBP implementation of nursing educators and undergraduate nursing students; and (d) the organizational culture and readiness for EBP from the perspective of both nursing educators and undergraduate nursing students.

2. Methods

2.1. Design

This study was an exploratory cross-sectional study using online surveys.

2.2. Sample

The target population was nursing educators and undergraduate nursing students from nine Portuguese nursing schools. The students were enrolled across first to fourth (final) year of their degree course. The survey was conducted during 2018.

2.3. Setting

Three Portuguese nursing education institutions were selected by convenience being the largest and more representative organizations delivering nursing education in Portugal. The other six institutions were randomly selected, using the random.org program, from the remaining public nursing schools (two per region - northern, central and southern Portugal). Approximately across the nine institutions, there were a total of 6045 students and 794 educators that received the survey.

2.4. Instruments

After receiving permission from the original developers, each tool was translated and adapted for Portugal by Cardoso et al., (2019, 2020). The tools used to survey the undergraduate nursing students and the nursing educators are described in Table 1 and Table 2, respectively.

Table 1
The instruments used to survey the undergraduate nursing students.

Tool	Brief description	Variable
Demographic tool developed by authors	Nine questions	Age, Gender, Education, Degree Year, completion of any prior education in EBP (EBP training*)
EBP Beliefs Scale (EBPB) for students (Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015)	16 items. 5-point Likert Scale (1 =strongly disagree to 5 =strongly agree). The items 11 and 13 are reverse scored items.	Beliefs about EBP and confidence regarding EBP implementation
EBP Implementation Scale for Students (EBPI-S) (Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015)	18 items. 5-point Likert scale (0 =0 times to 4 = >/=8 times).	Level of EBP implementation
Organizational Culture & Readiness for School-wide Integration of EBP Survey for Students (OCRSIEP–S) (Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015)	25-items. 5-point Likert scale (1 = none at all to 5 = very much). Scores greater than 75 suggest a reasonably good culture for EBP however does not indicate constantly high EBP practices. Scores less than 75 suggest there are several areas that could be improved within the institution to support sustainable EBP activity (Fineout-Overholt, 2018; Milner et al., 2018).	Perceived readiness for school-wide EBP integration and cultural factors influencing implementation of EBP in the educational environment

*Defined as any kind and duration of EBP training, such as EBP contents in a course, a workshop, a seminar.

Table 2
The instruments used to survey the nursing educators.

Tool	Brief description	Variable
Demographic tool developed by authors	Ten questions	Age, Gender, Education, EBP training* (received and provided)
EBP Beliefs Scale for Educators (EBPB-E) (Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015)	22 items. 5-point Likert Scale (1 =strongly disagree to 5 =strongly agree) The items 12 and 14 are reverse scored items.	Beliefs about EBP and confidence in individual capability for teaching and implementing EBP in their context
EBP Implementation Scale for Educators (EBPI-E) (Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015)	18 items. 5-point Likert scale (0 =0 times to 4 = >/=8 times).	Level of EBP implementation
Organizational Culture & Readiness for School-wide Integration of EBP Survey for Educators (OCRSIEP–E) (Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015)	25-items. 5-point Likert scale (1 = none at all to 5 = very much). Scores > 75 suggest a reasonably good culture for EBP, but does not indicate constantly high EBP practices. Scores < 75 suggest there are several areas that could be improved within the institution to support sustainable EBP activity (Fineout-Overholt, 2018).	Perceived readiness for school-wide EBP integration and cultural factors influencing EBP implementation in the educational setting

*Defined as any kind and duration of EBP training, such as EBP contents in a course, a workshop, a seminar.

2.5. Procedure

All questionnaires were uploaded on a free online survey tool (Google Forms). The link to the survey was established and sent to the contact points of the selected nursing schools. Subsequently, the schools forwarded the e-mail to their nursing educators. Contact points in the nursing schools were established and they were responsible for forwarding the student surveys out to the undergraduate nursing student cohort. For both surveys, the schools were asked to send reminders to potential participants.

2.6. Data analysis

All completed questionnaires were download on an excel file and data were imported to the Statistical Package for the Social Science Software (SPSS) (version 24.0; SPSS Inc., Chicago, IL, USA). Sample characteristics and instrument responses were described using means, standard deviations and percentages. For each overall score and corresponding mean, cases were excluded where the participant selected the answer option, "*I do not have enough knowledge to allow me to answer*" in at least one item of each instrument. Therefore, different sample sizes are reported for each analysis. Variables were analyzed for normal distribution, measured by Shapiro-Wilk's test or an absolute z-score for either skewness or kurtosis smaller than 1.96 (Kim, 2013). The level of significance was set at $p < 0.05$. Associations between variables were explored within the educators' responses and within the nursing students' responses, with correlations tested using the Pearson's correlation coefficient (r).

2.7. Ethical issues

The Ethical Committee of the Faculty of Medicine of University of Coimbra approved this study (Reference: CE-037/2017). The nine institutions where the study was conducted provided written approval. The original authors of the instruments provided permissions for use. An email was sent to each participant with a link to the survey however, prior to entering the survey an introductory page clarified the study aims and assured participants that participation was voluntary, and responses would be confidential and non-identifiable. All participants provided informed consent through an online survey consent form.

3. Results

At the end of the data collection, responses were obtained from 68 nursing educators (response rate = 8.56%) and 167 undergraduate nursing students (response rate = 2.76%). Table 3 shows the socio-demographic characteristics of each sample.

The overall results showed that both educators and students showed strong beliefs in EBP and responses suggested that the educational institutions have a moderate focus on developing a culture of EBP. However, the educators and the students presented low levels of EBP implementation which indicate an opportunity for interventions to promote the EBP integration on education. Despite this, there are some signs of EBP implementation. For instance, more than 50% of the educators reported that the options 6–8 times/ or > 8 times to the items "Used evidence to change my teaching", "Generated a PICO question about my teaching/practice specialty", "Informally discussed evidence from a research study with a colleague", "Collected data on a clinical/educational issue", "Shared evidence from a research study with a student" and "Accessed to databases of systematic reviews (for example, the Cochrane database of systematic reviews)". Educators also recognized that they have access to quality computers, electronic databases and have proficient computer skills, as well as they considered that decisions are made in the school by College/University administration. Nonetheless, the students presented levels of EBP implementation lower than the educators. Only one item ("Collected data of a patient problem,

Table 3
Socio-demographic characteristics of the sample.

Nursing Educators (n = 68)	
Age in years, mean±SD (Min–Max)	52.87 ± 7.45 (29–64)
Female, n (%)	52 (76.5)
Male, n (%)	16 (23.5)
Education	
Degree, n (%)	2 (2.9%)
Master, n (%)	19 (27.9%)
Ph.D., n (%)	46 (67.6%)
Aggregation* , n (%)	1 (1.5%)
EBP training* *	
Yes, n (%)	44 (64.7%)
No, n (%)	24 (35.3%)
Undergraduate Nursing Students (n = 167)	
Age in years, mean±SD (Min–Max)	22.13 ± 4.20 (18–45)
Female, n (%)	140 (83.8)
Male, n (%)	27(16.2)
Education	
12th grade, n (%)	159 (95.2%)
Degree, n (%)	6 (3.6%)
Master, n (%)	2 (1.2%)
Degree Year	
1st year	39 (23.4%)
2nd year	20 (12.0%)
3rd year	54 (32.3%)
4th year	54 (32.3%)
EBP training* *	
Yes, n (%)	88 (52.7%)
No, n (%)	79 (47.3%)

SD = Standard deviation; Min = Minimum; Max = Maximum
*Qualification to which doctorates can apply and which is a prerequisite for becoming a full professor (the highest academic title in Portugal).
* * Defined as any kind and duration of EBP training, such as EBP contents in a course, a workshop, a seminar.

clinical issue or clinical scenario (simulation)") achieved almost 50% of the students that answered 6–8 times/ > 8 times.

3.1. Nurse educator scale responses

The overall mean score for the EBP beliefs scale (EBPB-E; Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015) was 88.92 ± 8.18 (minimum=65; maximum=106), which indicated high levels of belief in the value of EBP among the nurse educators, as well as high confidence in teaching ability and EBP implementation. All mean scores were > 3.5, indicating that most educators answered that they agree or strongly agree with the items. The items 12 ("I believe that EBP takes too much time") and 14 ("I believe EBP is difficult") had mean scores of 3.40 and 3.22, respectively. This means that approximately 50% of educators believed that EBP was not difficult and did not take too much time.

From a sample of 55 educators, the overall mean score for evidence implementation (EBPI-E; Fineout-Overholt, 2018; Melnyk and Fineout-Overholt, 2015) was 40.20 ± 18.93 (minimum=6; maximum=72), suggesting that nursing educators are not implementing EBP within the educational learning environment. All items presented mean scores below 3, except for item 12 ("Accessed to databases of systematic reviews (for example, the Cochrane database of systematic reviews"). This is an indication that the educators are not sufficiently engaged in the EBP implementation activities, answering that they performed the expected behaviors of evidence-based educators *0 times* to *4–5 times* within the last year, with searching for systematic reviews was performed more frequently. These results show that there is a need to plan interventions to support and guide nursing educators to promote the use of EBP in daily educational practice.

The overall OCRSIEP-E mean score for educators (n = 34) was 80.59 ± 17.52 (minimum=42; maximum=107), which means that there is an opportunity to promote an EBP culture in educational settings. All items presented a mean score below 3.5, except for items 10, 11, 22 and 23 (access to computers and databases by educators, educators' computer skills, to what extent are decisions generated from college administration and from university administration), meaning that organizations did not have an EBP culture and, consequently, a set of interventions should be design to improve that culture. Table 1 of the Supplement 1 presents descriptive statistics for each item of the educators' responses.

3.2. Nurse educators - associations between variables

To calculate the associations between the variables, cases, where the participant selected the answer option "I do not have enough knowledge to allow me to answer" in at least one item of each instrument, were excluded.

Associations between the variables of EBP Beliefs and EBP Implementation were analyzed in a sample of 43 nursing educators (25 cases excluded). Pearson's correlation showed a statistically significant positive moderate linear relationship between the EBP beliefs and implementation (EBPI-E) ($r = 0.414$, $p = 0.006$). The association between beliefs in EBP and organizational culture and readiness for integrating EBP (OCRSIEP-E scale) was explored in a sample of 30 nursing educators (38 cases excluded). Results again identified a moderate but statistically significant positive linear relationship between the two variables ($r = 0.381$, $p = 0.038$). Finally, associations between EBP implementation and organizational culture and readiness for EBP integration (OCRSIEP-E scale) were calculated in a sample of 30 nursing educators (38 cases excluded) with a small but positive relationship identified ($r = 0.319$, $p = 0.086$).

3.3. Undergraduate nursing student's scale results

For 104 undergraduate students, the overall mean score for EBP beliefs was 58.69 ± 6.92, (minimum=38; maximum=72), indicating that students had strong beliefs about the benefit and value of EBP. Individual item mean scores were > 3.0, except for item 13 ("I believe EBP is difficult"), which had a mean score of 2.70. Despite the overall positive EBP belief scores, 28.7% (n = 48) of students reported that EBP does not take too much time and 15.6% (n = 26) responded that EBP is not difficult.

Results from 94 students identified an overall mean score for the EBP implementation scale of 32.37 ± 16.97 (minimum=0; maximum=71), which suggests that few students were engaged in EBP implementation activities. All items presented mean scores below 3, meaning that the students performed the behaviors less than 6–8 times in the last year.

For a sample of 46 undergraduate students, the mean score for organizational culture and readiness to integrate EBP was 84.20 ± 23.48 (minimum=41; maximum=121). This shows an opportunity for growth in the educational setting to move toward a culture of EBP. All items presented a mean score > 3.0, exception made for items 12 ("To what extent do librarians within your educational organization have EBP knowledge and skills"), 13 ("To what extent are librarians used to search for evidence?"), 14 ("To what extent are fiscal resources used to support EBP (e.g. education-attending EBP conferences/workshops, computers, paid time for the EBP process, mentors") and 23 ("To what extent are decisions generated from students?"). This means that most students answered Somewhat, Moderately and Very Much to 21 of the 25 items. Table 2 of the Supplement 1 presents the descriptive statistics for each item of the EBPB-S, EBPI-S and OCRSIEP-ES.

3.4. Undergraduate nursing students - Associations between variables

To calculate the associations between the variables, cases, where the participant selected the answer option "I do not have enough knowledge to allow me to answer" in at least one item of each instrument, were excluded.

The association between variables of EBP Beliefs and EBP Implementation was calculated in a sample of 77 students. Pearson's correlation showed a moderate, positive and statistically significant

relationship between the two variables ($r = 0.458$, $p < 0.01$) among undergraduate nursing students. The association between EBP beliefs and organizational EBP culture/readiness was calculated in a sample of 39 students. Again, a significant and positive, moderate relationship was identified ($r = 0.497$, $p < 0.01$) among students. The association between EBP implementation and organizational culture and readiness for EBP integration was calculated in a sample of 38 students. A moderate, significant positive relationship was identified between the variables ($r = 0.481$, $p = 0.002$).

4. Discussion

Both educators and students showed strong beliefs in EBP and responses suggested that the educational institutions have a moderate focus on developing a culture of EBP, but opportunities still exist for growth within the educational settings for improving and sustaining this culture. However, the educators and the students presented low levels of EBP implementation which indicate an opportunity for interventions to promote the EBP integration on education. The reported barriers to EBP integration in educational contexts, such as lack of EBP knowledge, lack of confidence in teaching EBP as well as lack of time to promote and teaching EBP (Stichler et al., 2011; Upton et al., 2015) could be the explanation for such low levels of EBP implementation.

Our results are in line with the results of the study of Milner et al. (2018). Also using the Advancing Research and Clinical Practice through Close Collaboration in Education (ARCC-E) questionnaires for educators, the authors reported health professions educators had strong EBP beliefs, but low EBP implementation, as well as, an organizational context that indicated urgent attention was needed to develop an organizational wide culture of EBP. As discussed further in their study, staff who teach EBP must be supported in their beliefs on the value and importance of EBP (Milner et al., 2018). Regarding associations between the variables our results are also aligned with the study of Milner et al. (2018), with significant positive moderate linear relationships between EBP beliefs and EBP implementation as well as between EBP beliefs and EBP organizational context, but small relationship between EBP implementation and EBP organizational context.

Undergraduate nursing students revealed similar results, except for the relationship between EBP implementation and the overall EBP culture of the school, which showed a moderate positive relationship. To the best of our knowledge, there are no other studies with undergraduate nursing students using the ARCC-E instruments, but some studies with nurses showed similar results (Cruz et al., 2016; Melnyk et al., 2010). Indeed, despite the ARCC-E instruments are well known and disseminated across the world, there are very few studies using them. Maybe this happens because there were not appropriate studies conducted on measurement properties of the ARCC-E instruments.

Even though the relationship between EBP implementation and EBP organizational context is only small in educators and moderate in students in our samples, Fineout-Overholt et al. (2015) have been discussed the impact of a positive EBP culture on implementation practices. They suggested that the support provided, and the resources allocated by the institutions to promote EBP as well as the commitment and engagement in EBP by both educators and students are key to a positive EBP culture (Fineout-Overholt et al., 2015). As a matter of fact, the results of both students and educators are consistent with the EBP model proposed by Fineout-Overholt et al. (2015) – the ARCC-E – which suggested that the organizational culture, the EBP beliefs and the EBP implementation are associated with each other.

Moreover, considering that the results from both samples are similar, we hypothesized that educators are probably seen as role models by students. Therefore, strategies addressed to educators to promote EBP knowledge and skills, to promote informatics and computer literacy and to develop EBP champions (Fineout-Overholt et al., 2015) might be useful to improve the EBP organizational culture of the academic contexts as well as the students' EBP beliefs and implementation and, consequently, to promote the EBP use in the clinical practice of future nurses.

Other issues to discuss are the higher percentage of students that use the answer option *I do not have enough knowledge to answer* and that believe EBP takes too much time, and it is difficult. Regardless of the fact that there may be differences between students due to the year of their degree, those results indicate that generally undergraduate nursing students had poor EBP knowledge and limited understanding of EBP principles, which can be a result of the low level of EBP integration in Portuguese educational contexts, especially in Nursing Degree Courses. Further studies with greater rate responses are crucial to deeply understand the Portuguese reality of nursing educational institutions regarding the EBP integration, specially to provide insights about EBP beliefs and level of implementation by, for example, the degree year of students and the impact of previous EBP training. This could inform us to prepare and design a more effective educational plan, in particular, to outline the contents more appropriate for each different level of learning and maturity of the students. Despite this limitation, our findings suggested that there is an urgent need to promote an EBP culture in the nursing schools in Portugal, as well as, to improve the level of EBP implementation by educators and students. Each individual educational institution, with a particular organizational culture, plays a crucial role in the promotion of strategies to address that issue. Bearing this in mind, we suggested conducting a SWOT Analysis, involving all the stakeholders, to identify the strengths, weaknesses, opportunities and threats, within the educational institution related to the EBP integration. This analysis will guide the institutions about the areas that need more intervention and to define the best way of moving forward to an EBP culture. However, we anticipate that some strategies could contribute to further integrate EBP in Portuguese nursing educational institutions, such as: training in EBP knowledge and skills of educators (including the clinical educators); establishing a group of EBP mentors within the institutions to help educators to use EBP in their daily teaching; promoting the use of educational strategies to improve the spirit of clinical inquiry in students (as journal clubs).

5. Limitations

Despite all the reminders send to potential participants, the response rate was very low (8.56% for educators and 2.76% for undergraduate nursing students) which leads to a small sample size. Indeed, online surveys present lower response rates than paper surveys (Yetter and Capaccioli, 2010) as do long questionnaires (Rolstad et al., 2011). Those very low response rates did not allow us to complete a more detail statistical analysis, such as subgroups analysis considering for example the different degree years of students and the impact of previous EBP training. Additionally, since the data were self-reported there is risk of social desirability response bias. The responses pertain to one context therefore generalizability of results may be limited; however, they do support similar studies (e.g. Milner et al., 2018) on this topic.

6. Conclusions

This study revealed that both the nursing educators and the undergraduate nursing students in the sample, had strong EBP beliefs, but they presented low levels of EBP implementation. In nursing educators' and undergraduate nursing students' perspectives, there were opportunities in their schools for the development of an EBP culture.

Considering the low levels of EBP implementation reported by both educators and students, support for development and testing of interventions, specifically tailored for promoting EBP implementation in nursing educational contexts, is recommended. Additionally, undertaking studies about barriers and facilitators for EBP implementation in educational contexts in this particular context would be beneficial to guide development and implementation of these interventions.

CRediT authorship contribution statement

Daniela Cardoso: conceived and designed the experiments, performed the experiments, analyzed and interpreted the data, contributed reagents, materials, analysis tools or data, wrote the paper. Manuel Rodrigues: conceived and designed the experiments, analyzed and interpreted the data. Rui Pereira: conceived and designed the experiments, analyzed and interpreted the data, wrote the paper. Vítor Parola: conceived and designed the experiments, analyzed and interpreted the data, wrote the paper. Adriana Coelho: conceived and designed the experiments, analyzed and interpreted the data, wrote the paper. Lucimare Ferraz: conceived and designed the experiments, analyzed and interpreted the data; Maria Lucília Cardoso: analyzed and interpreted the data, wrote the paper. João Apóstolo: conceived and designed the experiments, analyzed and interpreted the data, wrote the paper.

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