Investigation Report

Scanning resources to build an international nursing knowledge network

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ABSTRACT

This paper reports the gathered information from an international environmental scan of university-baseline information for the creation of a Nursing Knowledge Network. An online environment scan of organizational context (February to October 2021) explored the identification of research areas, existing resources, expected benefits, innovations in teaching research, barriers to knowledge dissemination, and prospective contributions of the Network. Target informants were 200 nursing faculty affiliated with 63 universities located in 13 countries, as well as nursing networks in the Ibero-American context. One informant per university was asked to respond to the questionnaire. The participation rate was nearly 70% (42/63). The informants' universities per country included Brazil ($n = 21$), Canada ($n = 4$), Portugal and Spain ($n = 3$ each), Colombia, Mexico, Peru and USA ($n = 2$ each), Chile, Italy and Paraguay ($n = 1$ each). Nursing faculty provided rich information and shared knowledge confirming a strong commitment to global co-creation of innovations and research partnership capacities through collaboration, cooperation, and knowledge exchange among nursing higher education institutions. Seldom researched areas are a potential focus for the Network to generate appropriate evidence to inform local scientific practices. The gathered information will inform further review of nursing and governmental policies and programs related to the application and dissemination of nursing evidence across local, regional, and global levels.

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What is known?

- Investing in nursing education and research leadership positions is a powerful strategy to strengthen the nursing workforce to achieve the sustainable development goals.

What is new?

- This paper provides a unique overview of existing resources to inform the set-up development and operationalization of a future nursing knowledge network.
- Gathered information indicated that nurses are increasingly open-minded to internationalization.
- The restricted latitude for a financial portfolio suggests alternative financial stakeholders to support the implementation of educational policies to boost research capacity-building and internationalization initiatives.

1. Introduction

Investing in nursing education and research leadership positions is a powerful strategy to strengthen the nursing workforce to achieve the sustainable development goals [1] related to health, gender, decent work environments, and inclusive economic growth. The World Health Organization [2] states that the shortage of qualified educators is a critical challenge to achieving quality nursing education programs. Therefore, adopting innovative education approaches, producing strong leaders, pioneering research, and increasing scientific publications and knowledge dissemination activities are strategic approaches to advancing the nursing profession globally [3].

During their research stays at a Canadian School of Nursing, four Brazilian post-doctoral scholars contributed to the inception work on the Nursing Knowledge Network (NKN) project and its inaugural environmental scan. The NKN intends to consist of a group of international educators, researchers, scholars, and students interested in envisioning and articulating the range of nursing knowledge essential to advancing nursing science and policy development foundational to a joint globalization agenda. The NKN is inspired by Nursing Now's [4] call for enhancement nursing leadership for the education and development of the workforce. The NKN can be understood as a contribution to the movement. It is an efficient strategy to operationalize Salvage and White's recommendation about nursing involvement in global health matters: Get involved in global health issues, and team up with like-minded groups and people at home and internationally [5].

The NKN will contribute to the advancement of the nursing profession by supporting and expanding nursing knowledge and practice, education leadership, innovation, and research capacity [6]. For the NKN, nursing higher education institutions are incubators for developing, renewing, and resetting how nursing critically considers and responds to the challenges facing the world's population and health care practitioners to achieve preferred/sustainable futures. Nursing knowledge, as created in research labs, classrooms, practicum placements, and a range of experiential opportunities, is a powerful asset to development, advocacy, and advancement of socially responsive public policies. The NKN aims to stimulate, disseminate, and share knowledge among its members and then to spread this knowledge to the world-wide community. NKN members will be connected in a dynamic, collaborative, inclusive, and supportive partnership centred around global nursing scholarship. The NKN can support the consolidation of internationalization plans among members,

expand nursing teaching and research practices, as well as political literacy for social leadership. Therefore, it was necessary to respond to the information gaps on existing material, financial, technological, human, and expertise-related resources that could support the NKN set-up, development, and operationalization. Another gap concerned the installed capacity and institutional policies for nursing research in different countries.

The literature indicates knowledge networks are used in other disciplines, such as education [7], medicine [8], and psychology [9]. A definition of knowledge networks informed our framework to characterize the NKN as "collection of individuals and teams that come together across organizational, spatial and disciplinary boundaries to invent and share a body of knowledge" [10, p. 79]. In this framework, learning and innovation represent the central foci and objectives of the NKN. As identified within the framework, "… learning and innovation are … objectives; the working committees … accumulate and distribute knowledge for the consumption of its members, or as general public good. Various elements of learning are … focused on the inside: the network systematically learns about itself and its processes" [10, p. 81].

When exploring the complexities and efficiencies of a knowledge network, one must consider the design, construction, dynamic nature, and patterns of action of a network, as well as the behaviours among members and the expected results of a network. Strategic, structural, and tactical issues must be addressed when designing a network. The theory of change shared by the leadership of a network, the definition of its objectives, purposes and results, roles of expertise and experiential learning, and principles of inclusion and participation are parts of the strategic dimension of a network's design. In the operational stage, collectively accepted infrastructure, developed/articulated social norms, and facilitation of meetings are critical to the structural dimension. The tactical dimension tackles issues such as measurements, evaluations, and incentives [10]. As these elements articulate and evolve, it is possible that a network can contribute to innovation and catalyzing of leadership, learning opportunities, knowledge translation, and professional support [10].

This article's objective is to report the gathered information about available materials, financial and human resources from an international environmental scan of the invited universities. This baseline information was instrumental to design an international study to inform the creation of a NKN.

2. Methods

Hence, an environmental scan, which is defined as the process of identifying, surveying, and interpreting appropriate data about factors from inside and outside a given organization that may jeopardize its long-term viability. The process allows the identification of prospects and pressures that can affect future decisions [11] for the NKN's prospective resources was undertaken using the following steps.

(1) Develop a 19-item online questionnaire with multiple choice responses that explored university identification, areas of research, existing resources, expected benefits, innovations in teaching research, barriers to knowledge dissemination, and forms of contribution. The exploratory questions were based on the authors' collective and global professional experiences as university faculty. Examples of questions are: What are the areas of nursing research that researchers at your institution explore most often? What are the obstacles in your institution that prevent the dissemination of scientific knowledge in nursing? What are the scientific activities used in your institution to disseminate nursing knowledge?

What technological resources are available in your university for the online/remote activities done with collaborating universities of NKN?

The multi-lingual (i.e., Spanish, French, English, and Portuguese) questionnaire was launched and located online from February to August 2021. It is done by a team of 5 Brazilian scholars who designed the questionnaire's questions based on their experience in Brazil and internationally in scientific collaboration, teaching and research at undergraduate and graduate nursing programs, as well as grounded from their knowledge about the university infrastructure and needed resources (financial, material, technological, human) to support knowledge generation, translation, transfer, and dissemination. Moreover, other insights came from features for nursing program evaluation.

(2) Establish selection criteria for the participating universities based on: a) previous professional contact with at least one coordination team member; b) an established official international institutional cooperation partnership with the university of one of the members of the coordination team; or c) existing collaboration with one of the members of the coordination team.

(3) Send invitation letters to 200 nursing faculty to inform them of the objective of the online environmental scan (i.e., its nature of not being a scientific study) and the information post-collection procedures (analysis and reports/manuscripts writing). Letters reached 63 universities located in Angola, Brazil, Canada, Chile, Colombia, Italy, Mexico, Paraguay, Peru, Portugal, Spain, the United States of America, and Uruguay, as well as Networks in the Ibero-American context. An implicit agreement regarding the use of the information collected was established. In our request, one informant per university was asked to respond to the online questionnaire.

Furthermore, the environment scan focused on the retrieval of information about the existing resources not on the informants themselves. The online environmental scan was not conceived as a research project and did not intend to collect personal information and so, it was not reviewed by a research ethics board.

3. Results

In this section, results are described as topics according to the specific set of questions (representing features of interest) as presented in the questionnaire, such as university's identification per country, underdeveloped areas in the nursing research agenda; strengthening of nursing research capacities; major obstacles to dissemination of nursing knowledge; expected benefits for participation in the NKN; and innovation in nursing research education.

Results were analyzed using descriptive statistics [12] and an inspired approach by the method of thematic analysis [13] using the questions' topics as key analytical themes. The participation rate was nearly 70% (42/63). The informants' universities per country included Brazil ($n = 21$), Canada ($n = 4$), Portugal and Spain ($n = 3$ each), Colombia, Mexico, Peru and USA ($n = 2$ each), Chile, Italy and Paraguay ($n = 1$ each).

3.1. Underdeveloped areas in the nursing research agenda

The exploratory questions provided informants with 18 options respecting the "most frequently researched areas". Approximately 39% ($n = 7$) of the options (or potential responses) correspond to areas of less interest, which is noteworthy given these responses predominantly reflected unique, emerging demographic priorities or sub-populations in specific countries (i.e., health of Indigenous people, immigrants and refugees, men's health etc.), and potentially highlight gaps in health and social policies at national and/or regional levels. Of particular interest for the NKN to be impactful and response will be the range in responses, which reflects directions or gaps in processes and capacities. Table 1 displays items that received less than 25% of selection.

3.2. Strengthening of nursing research capacities

In all questionnaires, there were suggestions that were assembled by areas of capacity building. All informants supported greater investment in their universities for the development of intellectual capital, the uptake of innovative research designs, new methodologies and technologies for data collection and analysis, and dissemination of knowledge to the scientific community and civil society. Responses related to strengthening nursing research addressed both institutional actions (research policy, research promotion and development and advances in research design and dissemination), and national and international interactions.

For research policy, informants suggested a) creation and strengthening of new graduate programs; b) encouragement of internationalization; c) improvement of physical infrastructures and maintenance of permanent supplies; d) increase in support to publish and participate in national and international funding competitions; e) encourage peer review journals accessibility to increase publication rates for students and faculty; f) secure more nursing research assistants; and g) promotion of exchanges of nursing faculty and students.

For research promotion, the suggestions included: a) development of a nursing research unit to provide consultation services to promote and support nursing research; b) increase the number of scientific initiation, master's and doctoral scholarships; c) increase accessibility for research training; d) organization of: 1) competitions for research project funding, and 2) competitions for innovation and creativity activities aimed at securing patents; and e) provision of financial supports and incentives for research publications and knowledge dissemination. Importantly, informants

Table 1
Less frequently research areas in the nursing research agenda.

Research areas	English responses ($n = 7$)	Portuguese responses ($n = 24$)	Spanish responses ($n = 11$)
Nursing informatics	-	6	0
Health of indigenous people	-	4	1
International mobility	0	3	0
Health of immigrants and refugees	-	2	0
Global nursing	-	-	2
Men's health	1	-	0
Occupational health	1	-	-

Note: Data reflects numbers of responses to the specific items.

from Portuguese and Spanish-speaking universities highlighted the need for additional financial support through incentives, scholarships, and competitions; and f) the need to stimulate and foster research support.

For advances in research design and dissemination, informants suggested: a) developing shared scientific projects among faculty, technical staff, and students from different universities, regions, and countries; b) conducting research on topics that are socially relevant worldwide; c) offering continuing education opportunities considering current trends in nursing research; d) encouraging multicenter research with multi-context research designs and joint knowledge exchange opportunities; e) publishing research in high impact quality journals; f) expanding dissemination of research via social and multi media channels; g) revising the notion of nurses caring and incorporating discussions of gender, ethnicity, social class, and context; h) identifying the socio-political issues underlying care; i) offering opportunities to learn about new research methodologies used in different countries or contexts as data collection culturally adapted tools; j) preparing and stimulating faculty to apply for financial resources in national and international agencies; k) promoting co-authorship, co-tutoring, training in research methods, internships, and logistical support to publish; and l) strengthening research networks with other countries.

Informants' suggestions for national and international interactions included: a) creation of networks and international collaborations with researchers and educators from national and international institutions; b) increase in inter-institutional and international partnerships encouraging faculty's and students' experiential learning through mobility; c) promotion of post-doctoral positions, as well as national and international visiting professor opportunities; d) providing research seminars for dialogue and feedback about research results for interested groups and society itself; e) participating in consolidated and productive research networks; f) promoting peer mentoring between students from different countries for mutual growth and learning about global nursing, nursing research, and theoretical orientation; and g) stimulation of the creation of research networks.

3.3. Major obstacles to dissemination of nursing knowledge

When probing informants for the obstacles to dissemination of nursing scientific knowledge, seven options were provided. Table 2 displays the top responses regarding knowledge dissemination, mainly as faced by low-income countries (LICs) and middle-income countries (MICs). Informants described the challenges from the onset of a manuscript's production due to financial challenges in comparison to the high-income countries (HICs). These challenges include a minimal or non-existent government investment in nursing research, low levels of skills and training for researchers, as well as limited access to peer review systems and research tools [14]. Some Portuguese and Spanish-speaking university representatives, which are primarily from MICs and LICs, emphasized

financial difficulties and language barriers as most impactful in their pursuit of dissemination. Informants in English, who were primarily located in HICs, cited cost of publication as an obstacle to knowledge dissemination (see Table 2). The NKN does not foresee any influence on publication cost. However, access to internal publication funds held by some MICs and HICs can benefit collaborators from LICs by sharing those funds since they could explore many financial venues.

3.4. Expected benefits for participation in the NKN

Twenty-two options were provided for informants' consideration, respecting expected benefits of participating in the NKN, as displayed in Table 3. Common benefits addressed research partnerships, professional development and post-doctoral partnerships, organization of scientific events, and strengthening teams for international and national calls for research. Unique expected benefits by non-English speaking countries included consolidating international activities, promoting Ibero-American nursing within global nursing, and increasing student mobility. Informants from Spanish-speaking countries indicating innovation in areas of nursing research is an anticipated benefit (see Table 3).

3.5. Innovation in nursing research education

The environmental scan addressed innovation and internationalization within contemporary and global understandings of nursing education. Inspired by the Organization for Economic Cooperation and Development/Eurostat's [15] definition, innovation refers to the implementation of technologically new products and/or processes in relation to the commonly or previously available ones and the achievement of significant technological improvements in products and processes. Throughout the responses, one might infer some indication of innovation in production, application, and transfer of nursing knowledge within the academic environment as an incubator for reengineering of teaching to support new collaborative, international actions in research.

The critical reading of all responses to the two questions addressing innovation in nursing research education reflected a disjoint understanding of the concept of innovation. As a result, there may be no significant innovative actions for informants to comment on. Some informants stated that they were "unsure" on this topic or that they did not teach at the undergraduate level, so could not comment on this level of education. Similar difficulty was found when informants reported examples of innovation in teaching nursing research in the graduate programs. Another respondent commented on the curriculum "plastering" (metaphorically speaking) resulting from generic programming rather than agile graduate programs which enable students to build their own learning paths. Curriculum flexibility could be a way to allow students to search for innovative strategies in planning their work.

Table 2
Main obstacles to the dissemination of nursing knowledge.

Obstacles	English responses ($n = 7$)	Portuguese responses ($n = 4$)	Spanish responses ($n = 11$)
Cost of publication in a scientific journal	5	23	10
Translation cost	1	22	6
Submission cost	2	19	2
Language revision cost	1	16	6
Difficulty establishing a partnership with an experienced author	2	8	1
Mastery of scientific writing	1	7	4
Inexperience in scientific publication	4	0	4

Note: Data reflects numbers of responses to the specific items.

Table 3
Most expected benefits for participation in the Nursing Knowledge Network.

Benefits	English responses ($n = 7$)	Portuguese responses ($n = 24$)	Spanish responses ($n = 11$)
Consolidate internationalization activities in nursing	4	22	10
Establish national and international research partnerships	5	22	8
Advance the insertion of Ibero-American nursing in the context of global nursing	4	21	9
Expand possibilities for student mobility in undergraduate and graduate courses	2	19	9
Participate in networking and expanding contacts	4	19	4
Enable partnerships for publishing articles	5	19	7
Expand possibilities for professional development for teachers and researchers	6	18	10
Expand possibilities for post-doctoral partnerships	5	18	7
Strengthen the submission of projects for the calls for national and international research	6	18	7
Implement knowledge exchange activities	5	17	5
Operationalize the training of a new generation of researchers in nursing	2	17	3
Organize international scientific events in nursing	6	17	8
Enable partnerships for publishing books and book chapters	2	16	7
Improve knowledge in research methodologies	2	13	6
Increase the institutional visibility of nursing	4	21	6
Demonstrate the level of excellence and expertise achieved in specific areas of knowledge in nursing	4	15	6
Establish multiple inter-institutional partnerships	4	21	6
Innovate in areas of nursing research	5	13	9
Link foreign researchers to the graduate programs	1	14	6
Participate in international nursing events	5	12	9
Strengthen the submission of projects for national and international calls for social development	4	15	5
Increase knowledge exchange activities	4	14	3

Note: Data reflects numbers of responses to the specific items.

4. Discussion

The NKN's philosophical underpinnings include collaboration, mutual aid, knowledge exchange, and resource sharing (including intellectual property, scientific and technological products, and clinical practice models) as the foundation upon which to grow and nurture emerging talents. The information gathered clearly indicates that strengthening global innovation capacity requires collaboration, cooperation, and knowledge flow among nursing in higher education institutions. Furthermore, this information can guide subsequent development of the NKN by considering matters of capacity building, mobilization of talents and potential for creativity, partnerships, and collaborations, such as the emerging collaboration for research and leadership initiatives with the Society of Nurse Scientists, Innovators, Entrepreneurs & Leaders (SONSIEL –https://www.sonsiel.org/). The synergies created by collaboration through nursing research will potentiate significant social impact. The NKN may catalyze an inclusive and dynamic environment, facilitating multifaceted scholarly work that calls upon the sharing of knowledge, expertise, talents, and resources. For example, through the NKN, publication costs could be reduced for non-English speaking members with bilingual members assisting with translation and English-speaking members assisting with language revision.

The NKN's three priorities concern: a) implementation of new initiatives to identify future nursing scientists through undergraduate research education, and service-learning to enhance knowledge application to real world situations [16]; b) advocacy for financial sponsorship by partnering universities with the private sector to fund research, publications, training, scholarships/grants, journal subscriptions, and build/furnish nursing research laboratories. Partnerships with healthcare organizations may bridge the gap between academic/clinical nursing [17]; c) inclusive, equitable dissemination of announcements of international mobility opportunities for faculty and students. Focus on students will develop their professional identities, improve thinking and decision-making processes, foster positive attitudes towards nursing research and researchers through participation in immersive experiences and exposure to projects and journals [17]. Less researched topics potentially stimulate investment in nursing leadership- and research-capacity building to intervene in the vulnerable populations' social inequities.

Additionally, with health disparities becoming an increasing concern and focus of current health policy in HICs, the development and implementation of nursing innovations will have no borders. Global social and political changes, as well as advances in technology, require nurses to become globally intelligent, informed, and engaged [18]. A recent review on nursing innovation highlighted the definitional complexity and the lack of clarity about what and how to not qualify an initiative as an innovative one [19]. Nurses do not tend to see themselves as innovators, although they naturally solve problems daily [20]. The environmental scan indirectly highlighted global needs regarding nursing innovation. Avenues for addressing these needs is the development of a curriculum integrating nursing innovation skills and thinking [20]. An international network such as the NKN can globally contribute to the enrichment of global nursing innovation experiences in nursing curricula and exchange of ideas and skills, and the generation of research-driven innovation leading to the implementation of nursing innovation [21]. It can also promote knowledge and actions for securing intellectual property and patent registration.

Through the NKN the possibilities are elevated when it comes to the generation and dissemination of knowledge beyond the geographic boundaries and major urban centres; and transform the work context to overcome poor academic environments with researchers working in isolation. NKN provides opportunities for students and faculties across an individual country, particularly in small or rural universities, to move nursing scholarship, education, and research forward together. In Canada, isolation also relates to access to research expertise in global health held by large urban universities regarding research inputs, activities, and outputs [22]. Those individuals from LICs and MICs will benefit from mentoring on using nursing knowledge as an advocacy tool.

Gathered information indicates that the NKN could be a channel for sharing professional- and research-capacity-building experiences on research and teaching methodologies. The creation of

enabling spaces strengthen the researchers' and educators' soft-skills, such as mastery of software and foreign languages could enhance innovation in nursing research teaching-learning and its practice. Knowledge exchange among NKN members can lead to cross pollination and creative ways to renew the science/practice of nursing. Reflecting on the less researched areas informed on the paucity of local/national evidence contextually grounded. The NKN can have a critical role in advancing these emerging priorities and the relevant policy gaps.

The less researched areas unveiled the lack of appropriate evidence to inform local scientific practices at the level of academia, administration, and frontline care. The gathered information has implications for education of a future-oriented, sustainable, and qualified diverse nursing workforce by igniting a bold, transformative reimagining of how nursing education might be approached. Since international networking in nursing tends to be competitive, promising, interactive, and socially relevant, its sustainability and generation of expressive outcomes/deliverables require a sense-making context. Policies in nursing education can connect nursing college and university programs, focusing on collaboration and innovation that would not otherwise be available locally.

Gathered information will inform further review of nursing and governmental policies and programs related to the application of nursing evidence for the health services' organization, nursing leadership, interventions, and professional development. Application of new knowledge will enhance decisions in nursing policies through research on professional advances; nursing effectiveness; and research on nursing models of organization and functioning in health services [23]. Additionally, prospective impacts of scientific evidence and experiential knowledge demanding political literacy and education for advocacy by nurses may arise and lead to new nursing educational/practice policies. Nurses will become aware of their potential as agents of change with refined skills to address multidimensional obstacles to enhance a population's health.

The interpretation of the gathered information also considered the various regional and cultural contexts that impede cohesive international nursing policies. The main cultural differential factor is the social context of the nursing profession as a matter of a collective plan of accomplishments or an individual career of a successful researcher. In MICs and LICs collaboration is vital for advancing the academic and professional career trajectory; in HICs, the priority may be focused on the achievement of a researcher's rank of excellence as a grant and award holder. Moreover, the difficulties faced by nursing scholars in LICs and MICs regarding research funding are disproportionately superior to those faced in HICs countries. Therefore, cohesive nursing policies to address the high production, dissemination, sharing and use of nursing knowledge may face the challenges to recreate a new culture of intellectual alliance and recognition of nursing talents. The NKN acknowledges that there is much to be discovered within the global north and south nursing communities, mainly for those who never had the opportunity to encounter nursing practice, education, research, and administration in a foreign country. Unquestionably, nursing knowledge is required to be politically, financially, culturally, ethnically, morally responsive to have a respected voice to contribute to the populations' wellbeing while being uncomfortable with violation of human rights and lack of peace for health. Cohesive international nursing policies would result from the mobilization of experiential knowledge of those producers equally placed in front-line settings.

The environment scan was limited to its geographical extent as described. There was no intention to conduct a global scan of certain regions due to our limited expertise, and professional network as researchers and educators in these regions. The high representation of Portuguese-speaking countries (Portugal and Brazil) is due to the NKN mobilization of existing professional contact and the solid participation of both countries in internationalization actions with many partners around the globe. The high interest and enthusiasm for novel opportunities to access new avenues may explain their large representation. For some Spanish-speaking respondents from LICs, the NKN's idea would be less appealing due to the fact that there are more than 16 nursing networks mostly in the Portuguese and Spanish-speaking countries (www.aladefe.org; https://www.paho.org/en/topics/nursing). On the other hand, many English-speaking invited faculty justified their non-response because the programs' administration did not authorize their participation; the administration was not interested in collaborations with the global south nursing organizations.

5. Conclusion

The key contribution of this environment scan is the authentication of preliminary information about regional particularities, inner potentialities, and contextual macro-issues. Given the intent of this initial phase, it was the scientific curiosity of the co-authors that guided this collective exercise of disclosure and discovery about revealing and renewing relevant issues for nursing knowledge development. The gathered information corroborated the NKN's intentions to co-produce the design/development of future international activities/interventions and inform the creation of synergistic opportunities for members. Actions that potentially will reinforce members' motivation to function more effectively, and connect nursing researchers and practitioners through prospective, intersectoral educational, nursing, and social policies. Information indicated that nurses are increasingly open-minded to internationalization. The NKN future actions may be one of the windows of opportunity for the conception of solutions for public health issues due to nursing leadership that could redefine nurses' influence in health care systems due to their understanding and experience as hands-on practitioners into all their subsequent roles, as clinicians, managers, teachers, researchers, scholars, policymakers, and leaders.

The restricted latitude for a financial portfolio suggests alternative financial stakeholders to support the implementation of educational policies to boost research capacity-building and internationalization initiatives. New educational policies could increase faculty and student positions for national and international exchanges. Such mobility enhances the exchange of local and global knowledge which may be influential to update or develop social policies. Countries that are virtuous in terms of improving living and working conditions, social protection, dialogue with social partners, human resource development and the fight against exclusion, poverty and discrimination can inspire other countries to do so. The NKN's future research can target the analysis of evidence related to the social context of its international members' practice necessary to guide local and national policy- and decision-makers.

The information informed a NKN international participatory action research in 55 countries located in 5 continents already in progress. Future evidence will allow the creation of a 5-year research agenda and professional development plans. So far, the reported environment scan does not represent the future composition of the NKN.

Data availability statement

Not applicable.

CRediT authorship contribution statement

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Declaration of competing interest

The authors have declared no conflict of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijnss.2024.03.001.

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