

Sustaining Programs and Research Through Strong Practitioner-Scientist Collaboration: Lessons from the Nigeria Implementation Science Alliance Using a Nominal Group Technique

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Abstract

BACKGROUND: Dissemination and Implementation Science and practice requires that dedicated time and effort be invested in ensuring the effective application of proven evidence-based interventions for disease prevention, treatment and public health, by putting the best research evidence into practice. However, the slow pace of translating research into practice continues to be a significant problem. This study sought to explore stakeholders' perspectives on the challenges and opportunities of collaboration between implementation practitioners and implementation scientists.

METHODS: A Nominal Group Technique was conducted in two major sessions of the Nigeria Implementation Science Alliance conference in two 30-min phases followed by a 30-minute plenary session, giving a total of 90 minutes. We first conducted group brainstorming to encourage contributions from all participants. Next, participants worked together to come to agreement on the relative importance of issues, problems, or solutions to improving implementation in low resourced settings.

RESULTS: More than half of the participants were male (67.3%) and worked as program staff (60.2%), with 36.1% having 5 to 10 years work experience. Six key themes were identified pertaining to opportunities and challenges facing practitioner-scientist collaboration. The most highly ranked opportunities for practitioner-scientist collaboration included capacity-building, improved research infrastructure and establishment/enhancement of culture of collaboration.

CONCLUSION: The most highly ranked challenges to practitioner-scientist collaboration included lack of the culture of collaboration, knowledge gaps and research infrastructural deficits. Therefore, exploring the enhancement of mutual learning, knowledge integration, sustainable collaboration culture and a roadmap for future endeavours in improving collaboration between implementation science practitioners and scientists remains a priority. Addressing the highlighted opportunities and challenges can contribute to a more robust and effective landscape for

implementation science endeavours in Nigeria. Such collaborations hold promise to improve the implementation and sustainment of evidence-based health intervention and ultimately improved health.

KEY WORDS: Nominal Group Technique, Collaboration, Implementation Practitioners, Implementation Scientists, Challenges, Opportunities, Nigeria.

Background: Dissemination and Implementation Science is a rapidly evolving field that requires that dedicated time and effort be invested in ensuring the effective application of evidence-based interventions with wide-spread benefits for disease prevention and public health(1). While there are differences between the roles of the implementation researcher and the implementation practitioner, there seems to exist a disconnect between the two thus creating an imperative need for efficacious and consistent collaboration(2,3) In implementation research, assessments to determine the most effective methods for translating evidence into practical applications within the real world are made while with implementation practice, application and adaptation of well-established, efficacious and proven procedures or interventions occur, giving rise to desired health outcomes (4). (**Figure 1**).



Figure 1: IS-IP Relationship (culled from Ramaswamy et al. 2019)

The goal of implementation science includes putting the outcomes of the research into practice through the use of appropriate implementation frameworks and models(5). Yet the slow progress in translating research into practice has consistently plagued health research(6,7). In this sphere, a research-to-practice gap, known by other names such as “evidence-to-practice gap”, ‘know-do gap’, ‘ironic gap’ or ‘secondary’ research-to-practice gap(8,9), exists due to several reasons

including a lack of collaboration between implementation researchers (IR) and implementation practitioners (IP) and the “natural tensions” noted to exist between practitioners and scientists(10). The term "collaboration" carries diverse interpretations, but in this context, it denotes a process where individuals or groups, possessing different viewpoints on a problem, can engage constructively with their differences and strive for solutions that transcend their individual, restricted perspectives regarding attainability(3). Collaboration is thus vital for applying and sustaining research in practical settings as effective collaboration between implementation support practitioners and scientists plays a pivotal role in advancing evidence-based healthcare practices and policies(4). This synergy harnesses the knowledge and expertise of both stakeholders to bridge the gap between research and real-world implementation, ultimately leading to improved patient outcomes and efficient utilization of resources. While the importance of such collaboration is widely acknowledged, the landscape is marked by a myriad of challenges and opportunities that shape the nature and impact of these partnerships.

For the communities and populations of interest to access the benefits of the research effort, it is critical to address the multifaceted and complex opportunities and challenges that drive the efforts of the scientist and practitioner(1). Multiple reasons have been put forward as factors affecting the establishment of these functional and sustainable collaborations between implementation scientists and practitioners. Many researchers have suggested foundational reasons for these gaps as well as ways of identifying these gaps(11–15). Some of the determinants of the research-to-practice gap are related to terminology, evidence, and partnerships among scientists and practitioners and, unfortunately, effective collaboration is lacking to address these challenges(16). The results of these gaps in research-to-practice include lack of access to quality care, inequities in healthcare delivery, the inability of patients to obtain necessary treatment, as well as poor disease control and prevention at individual and population level(17,18). Numerous studies have delved into the challenges impeding collaboration between implementation scientists and

practitioners, highlighting issues like a lack of knowledge regarding successful collaboration methods, deficient skills in communication and networking crucial for initiating and sustaining relationships, and an outright absence of collaboration opportunities(19). The applicability of these factors in the Nigerian context as well as the unique challenges specific to Nigeria are unknown.

The Nigeria Implementation Science Alliance (NISA) serves as a platform for the establishment of effective collaborations amongst implementation scientists and practitioners within and outside Nigeria. The goal is to utilize these collaborations in the enhancement of a sustainable quality healthcare system. Every year since 2015, NISA hosts an annual implementation science conference attended by more than 200 participants from over 50 organizations within and outside Nigeria. Each year the conference focuses on a different theme geared towards achieving its goal of enhancing the quality of healthcare. The most recent conference held in September of 2022, was the 7th in the series, with the theme – *Sustainability of Programs and Research*. Sustainability refers to the ability of a program or intervention to continue its intended benefits over time, with individual behaviour change maintained often beyond the initial research or implementation phase(20). For programs and interventions to be sustainable, they need to be developed from a strong research foundation which will include strong collaborations between implementation scientists and practitioners. The latter can enhance the sustainability of programs by ensuring that interventions are evidence-based, well-designed, and effectively implemented. Hence, this study sought to explore stakeholders' perspectives on challenges to and opportunities of the partnership or collaboration between practitioners and scientists. It is anticipated that the outcome of this study will add to the existing body of knowledge and proffer solutions on how to establish scientist-practitioner collaborations that could lead to an increased sustainability in programs and research, thus contributing to a reduction in the research-to-practice gap.

Methods: We conducted the highly-structured face-to-face interaction commonly known as the Nominal Group Technique (NGT) during the NISA Annual Conference in September 2022. Frequently recognized as a consensus method in qualitative research(21) and first described in a landmark article in 1972 by Ven and Delbecq titled, “*The Nominal Group Technique as a Research Instrument for the Exploratory Health Studies.*”(22), the NGT decision-making process comprises the steps of idea generation, round-robin voting, ranking, discussion and decision-making(21,23). The NGT session was facilitated by three resource persons with in-depth experience in NGT who provided an overview of the steps involved in soliciting participants’ perspectives on the collaboration challenges and opportunities facing collaboration between IP and researchers. Conference participants were split into 23 cohorts of 6-8 individuals per group per table with a group leader chosen by consensus at each table. The NGT process was conducted in two 30-minute sessions followed by a 30-minute plenary session, for a total of 90 minutes. Prior to the commencement of the NGT, facilitators explained the NGT process and entertained questions from participants for clarification. The interview guide used was specifically developed for this study. It was informed by the objectives of the research and guided by the principles of the Nominal Group Technique (NGT), which was employed to explore stakeholders’ perspectives on the challenges and opportunities of collaboration between implementation practitioners and implementation scientists. The guide had not been previously published elsewhere. To ensure its relevance and comprehensiveness, the guide was reviewed by an expert panel comprising implementation scientists and practitioners familiar with the Nigerian context. It was also pilot-tested with a small subset of stakeholders, leading to minor refinements before its final use in the study (see Supplementary file). At the initial step, participants were given 7 minutes to reflect on the research question and record their responses in sheets of paper provided (stage of silent idea generation). Next, at each table, each participant listed his/her idea in a ‘round robin’ manner and ideas were captured on paper by each group leader. In the third and final stages, group brainstorming on the ideas constituting identified challenges and barriers to rank them in order of

their relative importance was conducted. Group facilitator summarized the results to establish consensus. The process ensured that stakeholders could efficiently rank their opinions and perspectives about their perceived top three challenges and top three potential opportunities. The McMillan et al. technique (21) which was used to analyze the NGT findings is an approach that considers the voting frequency (popularity of the item among all participants) and the relative importance (sum of the votes within groups) of the NGT items. Following the exercise, the items ranked by the 23 groups were gathered, compiled, and subsequently transcribed for the purpose of data analysis and interpretation.

Results: A total of one hundred and thirteen (113) NISA conference participants (76 males and 37 females) participated in the NGT including sixty-eight (68) program staff, thirteen (13) academicians/researchers, five (5) administrators, one (1) policy maker, and twenty-six (26) direct healthcare providers. The term, ‘Program staff’ describes participants who are practitioners and who work with the implementing partners on the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR)-funded agencies and other donor-funded projects in Nigeria. **Table 1** shows the socio-demographic characteristics of participants in the Nominal Group Technique (NGT). Variables of interest were gender, primary role and years of experience in the role they occupy. Majority of participants were male and largely program staff, who had 5-10 years of work experience.

Table 1: Socio-demographic Characteristics of NGT participants

PARTICIPANT TYPE	FREQUENCY (N = 113)	PERCENTAGE (%)
Gender		
Male	76	67.3
Female	37	32.7
Primary Role		
Administrator	5	4.4
Academician/Researcher/Scientist	13	11.5
Policy maker	1	0.9
Program staff/Practitioner	68	60.2

Clinicians	7	6.2
Role Experience		
Less than 5 years	39	34.5
5-10 years	41	36.3
Greater than 10 years	33	29.2

Table 2 shows the demographic distribution of participants and their opinions of perceived opportunities from the practitioner-scientist collaboration and perceived challenges facing the collaboration.

Table 2: Demographic distribution of respondents by individual opinions of perceived opportunities and challenges

PERCEIVED OPPORTUNITIES						
	Capacity-Building (%)	Infrastructure(%)	Enhanced Collaboration (%)	Improved Funding (%)	Knowledge Enhancement (%)	Other (%)
GENDER						
Male	17(15.0)	60(53.1)	53(46.9)	34(30.1)	9 (8.0)	9(8.0)
Female	9(8.0)	32(28.3)	23(20.4)	23(20.4)	3 (2.7)	6 (5.3)
PRIMARY ROLE						
Administrator	0 (0.0)	2(1.8)	2(1.8)	2(1.8)	0 (0.0)	0 (0.0)
Academic/Researcher	6 (5.3)	13 (11.5)	9(8.0)	4 (3.5)	1 (0.9)	2 (1.8)
Policymaker	0 (0.0)	1 (0.9)	1 (0.9)	0 (0.0)	0 (0.0)	0 (0.0)
Clinician	9(8.0)	20 (17.7)	19 (16.8)	11(9.8)	6 (5.3)	1(0.9)
Project Manager	11 (9.7)	56 (49.6)	46(40.7)	25 (22.1)	5(4.4)	12(10.6)
WORK EXPERIENCE						
Less than 5 years	8 (7.1)	30 (26.5)	27 (23.9)	12 (10.6)	2 (1.8)	3 (2.7)
5years – 10 years	10(8.8)	36 (31.9)	27 (23.9)	18 (15.9)	7 (6.2)	8 (7.1)
Greater than 10 years	8 (7.1)	26 (23.0)	22 (19.5)	12 (10.6)	3 (2.7)	3 (2.7)
PERCEIVED CHALLENGES						

	Lack of Culture of Collaboration (%)	Knowledge Gap (%)	Poor infrastructure (%)	Poor Communication (%)	Inadequate Funding (%)	Other (%)
GENDER						
Male	75(66.4)	68(60.2)	73(64.6)	66(58.4)	47 (41.6)	8(7.1)
Female	37(32.7)	35(31.01)	35(31.0)	33(29.22)	20 (17.7)	5 (4.4)
PRIMARY ROLE						
Administrator	5 (4.4)	4(3.5)	4 (3.5)	4 (3.5)	4 (3.5)	4 (3.5)
Academic/Researcher	13 (11.5)	13 (11.5)	12 (10.6)	13 (11.5)	9 (8.0)	9 (8.0)
Policymaker	1 (0.9)	1 (0.9)	1 (0.9)	1 (0.9)	1 (0.9)	1 (0.9)
Clinician	26 (23.0)	22 (19.4)	25 (22.1)	21 (18.6)	18 (15.9)	18 (15.9)
Project Manager	67 (59.3)	73 (55.8)	66(58.4)	60 (53.1)	35 (31.0)	35 (31.0)
WORK EXPERIENCE						
Less than 5 years	39 (34.5)	35 (31.0)	33 (29.2)	39 (34.5)	19 (16.8)	3 (2.7)
5years – 10 years	41 (36.3)	39 (34.5)	40 (35.4)	41 (36.3)	28 (24.8)	7 (6.2)
Greater than 10 years	31 (27.4)	29 (25.7)	25 (22.1)	31 (27.4)	20 (17.7)	2 (1.8)

Males (53.1%), project managers (49.6%), and participants with 5-10yrs of work experience prioritized improved infrastructure as a resultant opportunity from collaborations between implementers and scientists. Most participants (81.4%) believed collaboration could bring about improved research infrastructure, while seventy-six participants (67.3%) felt that collaborative efforts could enhance already existing collaborations. Forty-two participants (37.1%) mentioned that improved research funding could result from collaborations between practitioners and scientists and twenty-six participants (23%) indicated that collaborations could help build capacity. In addition, twelve participants (10.6%) mentioned knowledge enhancement as an opportunity that could result from practitioner-scientist collaborations. Majority (66.4%) of the participants that prioritized lack of a culture of collaboration as a major challenge to collaborative efforts between implementers and scientists were males. Inadequate funding was the least challenge for both males and females. Despite their roles in their organizations, most participants still chose lack of the culture of collaboration as a major perceived challenge while the majority of those that saw lack of a culture of collaboration as a major challenge had 5-10yrs of work experience.

On analysing the group responses, five converging themes each indicative of perceived opportunities and perceived challenges emerged. When the groups were asked to choose the top

three opportunities, capacity-building was mentioned as the most important opportunity that could develop as a result of collaborations between implementers and scientists. In second place was improved research infrastructure, followed by the establishment of a culture of collaboration. Improved research funding and knowledge enhancement were seen as the least perceived opportunities. Lack of a culture of collaboration topped the groups' list of top three challenges to the practitioner-scientist collaboration while knowledge gaps and research infrastructural deficits were in second and third place respectively. Groups of participants expressed their views on both the opportunities and the challenges in several ways, as can be seen in **Table 3**.

Table 3: Expressed Perceived Views of Groups

OPINION	VIEWS
Opportunities resulting from practitioner-scientist collaboration	"The capacity of researchers and implementers could be built from establishing a culture of collaborations" <i>{Group 7; NISA Nominal Group Data}</i>. "Large databases could be built and made available for research, skills and technical capacity could improve and knowledge gaps bridged" <i>{Group 14; NISA Nominal Group Data}</i>. "Help align the goals and interest of scientists and implementers for effective outcomes, as a way of integrating implementation as a key output of research and continuous advocacy for sustained political buy-in." <i>{Group 3; NISA Nominal Group Data}</i>. "Collaborations could improve supervision and help track changes in research and project implementation, increase knowledge of current practices and ensure proper utilization of funds or grants" <i>{Participants; Group 20, NISA Nominal Data}</i>. "Collaborations can help bridge the gap between theory and practice, improve stakeholder's involvement for effective outcomes" <i>{Participants; Group 6, NISA Nominal Data}</i>. "It is an opportunity to transfer knowledge and skills, create more networking and capacity building opportunities, better research, and improved outcomes. It could provide a platform for enabling policies and government involvement in research. It is also an opportunity to find mentors and share research best practices." <i>{Participants; Group 23, NISA Nominal Data}</i>
Challenges facing practitioner-scientist collaboration	"Researchers and implementers have varying interests that may not align; Poor dissemination of research findings; lack of government structure and policies; No set goals and objectives; Poor funding of research." <i>{Participants; Group 18, NISA Nominal Group Data}</i>.
	"Pre-research engagement occasionally lacking between implementation scientist and practitioners; there is incomplete information sharing, lack of good knowledge of implementation science, organizational complexity, difficulty in deciding appropriate topic for collaboration and insufficient funds for implementation." <i>{Participants; Group 9, NISA Nominal Group Data}</i>.
	"Non-involvement of implementation partners at the beginning of the research; cultural barriers; inadequate knowledge of roles of implementers and researchers; mass exodus of trained implementers; attitude of implementers towards researchers hinders collaboration; and time lapses between publication of findings and implementation." <i>{Participants; Group 4, NISA Nominal Group Data}</i>.

	"There is unhealthy competition among implementers and scientists, no platform for knowledge sharing and bottleneck policies facing implementers and researchers" {Group 13; NISA Nominal Group Data}.
	"Non-involvement of implementation practitioners in research, non-adoption of research findings into practice, restrictions from donors and non-supportive research policies." {Group 5; NISA Nominal Group Data}
	"Poorly defined roles, weak government policy and supervision to support implementation of scientific research, limited human resource to drive implementation, limited funding, divergent goals of implementation practitioners and scientists, poor feedback mechanism, there is limited path for growth, poor incentives to practitioners, limited knowledge of implementation science and limited infrastructure." {Group 18; NISA Nominal Group Data}.

Discussion: Using the Nominal Group Technique methodology, 6 key themes were unveiled pertaining to opportunities and challenges facing practitioner-scientist collaboration. Initiatives focusing on capacity-building should be prioritized, as this was identified as the most significant opportunity. Exploring the enhancement of mutual learning, knowledge integration, and sustainable implementation to aid collaboration between implementation practitioners (IP) and implementation scientists (researchers) is crucial, as practice-based evidence from the IS leverages the insights of the IP to expand scientific knowledge(24). IPs bring their experience of implementing strategies in the real world thus creating avenues for improved knowledge and improved outcomes. However, IP training curricula have been known to be focused on interpretation and dissemination of research evidence with little or no content on organizational capacity (knowledge and skills)(25). Courses like the Practicing Knowledge Translation (PKT) course(26), are designed to increase the knowledge and use of theories, models and frameworks (TMFs), knowledge, skills, and self-efficacy in research dissemination and implementation among IPs. Likewise, the Society for Implementation Research Collaboration (SIRC) is an organization dedicated to facilitating communication and collaboration between implementation research teams, researchers, and community providers(27) is one platform for mutual learning and

capacity-building between the two disciplines. Co-creation by IP and IS of interventions, a program commonly known as Community-based Participatory Research (CBPR), also has the propensity to build capacity between both parties(28). Therefore, training programs, skill development, and knowledge enhancement activities can contribute to building a robust collaborative framework. Regarding the second choice of perceived opportunity for IS-IP collaboration, participants with between five and ten years of work experience prioritize improved research and program infrastructure as a significant prospect of these collaborations.

The role of shared learning and subsequent expertise development is highlighted in the belief by a smaller group of twelve participants that knowledge enhancement as an opportunity that can result from the IP-IS. Similar to Nurius and Kemp (2019)(29), this study found that knowledge-based competencies are a crucial driver of collaborative implementation efforts, including mentoring and collaborative networks(30). First, this will expand the pool of competent implementation scientists and practitioners available for collaboration. Second, there will be a better understanding of the benefits of collaborations and improved skills for engaging IP and IS. Simultaneous training of both practitioners and scientists can also foster partnerships(31). In addition, organizations like the Society for Implementation Research Collaboration (SIRC)(32), dedicated to facilitating communication and collaboration between implementation research teams, researchers, and community providers, have their primary focus on bridging the gap between research and practice by facilitating the translation of evidence-based interventions into real-world settings. SIRC and similar organizations like the Global Implementation Society (GIS), European Implementation Collaborative (EIC) and National Implementation Research Network (NIRN) do this by conducting conferences, workshops, and other events to provide opportunities for networking, sharing knowledge, and developing best practices in implementation science. NISA, through its annual scientific meetings in Nigeria, provides a platform for implementation practitioners and scientists to network and establish long-term partnerships.

The majority of participants in this study showed a strong focus on prioritizing research infrastructure, including facilities, resources, and services. These have been known to significantly contribute to the promotion of high-quality and innovative implementation research(33). Research infrastructure in the context of implementation science refers to the tools, resources, and support systems that facilitate and enhance the conduct of research in this field. The belief by many that collaboration between implementers and scientists could lead to improved research infrastructure is an indication of the common perception that such partnerships could bolster the physical and technological resources necessary for research and implementation work. The various elements constituting the infrastructure include databases and repositories, collaborative platforms, mentorship programs, professional organizations and communities of practice. Organizations like the SIRC also provide resources, tools, and support for individuals and organizations engaged in implementation research and practice. Its mission is to promote the systematic uptake of research findings and other evidence-based practices in the fields of behavioral health and more. It plays a pivotal role in advancing the science and application of implementation in various domains. Recognizing the gap in research infrastructure in Nigeria, the Center for Translation and Implementation Research (CTAIR), University of Nigeria Nsukka in conjunction with Nigeria Implementation Science Alliance (NISA) and the Healthy Sunrise Foundation (a non-governmental organization), established a research network of 21 high-volume health facilities known as implementation laboratories which are selected from the 6 geopolitical zones in Nigeria(34) and which are connected to six tertiary health institutions. This structure is collectively known as the ICON-3 Practice-Based Research Network (ICON-3 PBRN)(35), providing a nationally representative infrastructure for multicenter clinical trials or implementation research. The strengthening of this research infrastructure will contribute to developing and expanding implementation science and research-to-practice activities.

Additionally, the groups' choice of establishing a culture of collaboration between IP and IS as a third perceived opportunity rhymes with the appreciable interest in the former which was also found

particularly among male participants, with almost half of participants who were project managers indicating the relevance of such cultures in managing and improving projects. The creation of networks between practitioners and scientists have been deemed necessary as team planning is one of three key factors implicated in sustainability of programs(10). The fact that the vast majority of participants ranked the establishment of a culture of collaboration as a key factor to promote new collaborations and strengthen existing ones suggests that partnerships, like that between IP and IS, could have a synergistic effect, further advancing established networks and relationships. Several recommendations for facilitating collaborative researcher-practitioner research have been proposed. An example is the use of an iterative feedback mechanism between researchers and practitioners to facilitate collaboration and shared decision-making in research projects(36). A one-stop centralized public health knowledge exchange portal that meets the needs of implementation practitioners has also been recommended(37). Collaboration between IP and IS is necessary as it helps in the reduction of assumptions about best fits for interventions and in the promotion of the adoption of the most suitable strategies to enhance best practices in the real world.

Regarding the perceived challenges to the IP-IS collaboration, it's worthy to note that despite the various roles held by participants within their respective organizations, most of them still identified the lack of collaboration culture as a significant challenge in their efforts. In more advanced climes, precursors to the lack of collaboration culture have been identified to include differing priorities, limited resources to adopt evidence-based approaches, poor communication and mistrust between the two groups(38). One of the many approaches suggested to mitigate this problem is the inclusion of IPs in research evaluation which is termed "practice-based evidence"(19). Practice-based evidence in implementation science refers to the use of real-world, practical experiences and data generated through the actual implementation of interventions or programs to inform decision-making and improve the delivery of services. Unlike traditional randomized controlled trials, which are often conducted in controlled and artificial settings, practice-based evidence draws on the knowledge and observations of those working "on the ground" to

understand the effectiveness and impact of interventions in real-life situations. This approach values the insights and feedback of implementation practitioners, stakeholders, and service providers who are directly involved in the delivery of programs or interventions. It recognizes the importance of context and the diverse factors that can influence the success or challenges of implementation efforts. In essence, practice-based evidence complements more traditional research methods by offering a deeper understanding of how evidence-based practices work in real-world settings and how they can be adapted to fit the unique needs and challenges of specific contexts. Additionally, it is interesting to observe that the majority of those who considered the lack of a culture of collaboration a major challenge, had between 5 to 10 years of work experience. This suggests that more experienced professionals may still face the same collaboration challenges as their less experienced counterparts. These findings emphasize the importance of addressing and improving collaboration between implementers and scientists, especially in light of its prevalence as a major challenge, irrespective of the participants' roles or experience levels. The concept of “engaged scholarship”, proposed by Van de Ven and Johnson is another approach to narrow the IP-IS gap and involves interaction between IPs and IS each utilizing their strengths, practice-driven research agendas and a unified approach to problem-solving to co-create knowledge about a phenomenon that is vague(9,39). An example of this is partnership between academic institutions where the experts are domiciled, research findings are produced and the communities where the individuals from diverse backgrounds, lacking in the expertise but utilizing these research findings, are found. The formation of strategic planning teams by IP and IS usually results in mutually beneficial relationships where skills are enhanced, knowledge and capacity increased among community leaders(38). This underscores the findings of this study where participants believed that the IP-IS collaboration would help to build capacity. This is important as capacity-building is an essential aspect of strengthening the ability of both practitioners and scientists to carry out their respective roles more effectively. Presently, D&I research training programs have been found to be bereft of requisite content for and limited input by practitioners,

leading to key gaps in IP competencies(19). Thus, capturing practitioner viewpoints in the development of D & I Science training curriculum is crucial. This will involve pinpointing the essential skills and capabilities that implementation practitioners require to perform and communicate research that is contextually grounded, significant, and applicable. Elements considered vital to sustain the IP-IS relationship include sharing of meaningful, beneficial common interests and concerns, engaging in projects which are jointly funded, having regular scheduled meetings through the creation of communities of practice, inviting and involving IPs in publishing and paper presentation at implementation science conferences, valuing and utilizing one another's strengths and ensuring that challenges and barriers to effective partnership are addressed and nipped in the bud(9,40).

Limitations: The perspectives presented are limited to conference attendees who were not necessarily drawn from the six geopolitical regions in Nigeria. Although the conference was on implementation science and attracted some diversity of roles, a few of the participants were not implementation scientists or practitioners. The heterogeneity within the groups could have affected the team dynamics. Also, there is a likelihood that some participants may not have expressed their views due to their lower educational level, experiences, or positions. Additionally, the 15 minutes allotted to each session of the NGT may not have been sufficient for a robust discussion as participants were encouraged to make their contributions succinct within the limited time.

Conclusion: This diversity in participants' perspectives underscores the complexity and multifaceted nature of such partnerships, and it may be essential to consider these various expectations and priorities when planning and promoting collaboration in this context. Exploring the enhancement of mutual learning, knowledge integration, and sustainable collaboration culture between implementation practitioners (IP) and implementation scientists (researchers) is crucial, as practice-based evidence leverages the insights of IP to expand scientific knowledge. Creating

a roadmap for future endeavors in improving collaboration between implementation science practitioners and scientists remains a priority. Addressing the highlighted opportunities and challenges can contribute to a more robust and effective landscape for implementation science endeavors in Nigeria Finally, the combination of evidence-based practice and practice-based evidence occurring as a continuous loop and feedback mechanism has the potential to ensure that D & I remains adaptive and responsive to the ever-evolving needs of real-world settings, fostering more effective, sustainable, and contextually relevant implementation of evidence-based interventions.

List of Abbreviations

	<i>Abbreviation</i>	<i>Full Meaning</i>
	CTAIR	Center for Translation and Implementation Research
	CBPR	Community-based Participatory Research
	D & I	Dissemination and Implementation
	EIC	European Implementation Collaborative
	GIS	Global Implementation Society
	ICON-3 PBRN	ICON-3 Practice-Based Research Network
	IP	Implementation Practitioner
	IR	Implementation Researcher
	IS	Implementation Science
	NGT	Nominal Group Technique
	NIRN	National Implementation Research Network
	NISA	Nigeria Implementation Science Alliance
	PEPFAR	President's Emergency Plan for AIDS Relief
	PKT	Practicing Knowledge Translation
	SIRC	Society for Implementation Research Collaboration

	TMF	Theories, Models and Frameworks
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DECLARATION

Ethics approval and consent to participate: This study involving human participants was conducted in accordance with the relevant principles outlined in the Declaration of Helsinki. The need for ethics approval was waived by the institutional ethics committee, the College of Medicine Research and Ethics Committee (COMREC), University of Nigeria as the study posed minimal risk to participants. In addition, all participants provided full verbal consent prior to participation.

Consent for publication: Not applicable.

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Authors' contributions:

TO, BOO, II, GA and EE contributed to the conception and design of the work.

TO, BOO, JBC and GA were responsible for data collection.

TO, BOO, II, AO, NA, JBC, RM, DE, JO, GA and EE conducted data analysis and interpretation.

TO, BOO, II, AO, NA, JBC, RM, DE, JO, CD, GA and EE drafted the article.

DE, JO, CD, PO, JOO, BO, MO, MA, DP, DOO, GA and EE critically revised the article for important intellectual content. All authors gave final approval for the version to be submitted.

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