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Research Article

Factors Associated with Knowledge, Attitudes, and Practices of Healthcare Professionals Regarding Clinical Trials in Senegal: A Cross-Sectional Study in the Thiès Region

Malick Ngom[1*], Abdoulaye Diallo[1,2], Serigne Souhaibou Ba[3], Elhadj Daouda Diop[4], Bachir Mansour Diallo[4], Kamadore Touré[1]

[1]Laboratory of Epidemiology and Public Health, University of Thiès, Senegal.
[2]Directorate of Planning, Research and Statistics, Ministry of Health and Public Hygiene (MSHP), Senegal.
[3]Department of Psychiatry, Marne Hospital, France.
[4]Department of Internal Medicine, Faculty of Health Sciences, University of Thiès, Senegal.

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***Corresponding author:** Malick Ngom, Laboratory of Epidemiology and Public Health, University of Thiès, Senegal.

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Abstract

Background: Clinical trials (CTs) are an essential pillar of evidence-based medicine and the strengthening of health systems. Their quality and acceptability largely depend on the knowledge, attitudes, and practices (KAP) of healthcare professionals (HPs). In sub-Saharan Africa, and particularly in Senegal, empirical data on these aspects remain limited. **Objective:** Assess the CAP of healthcare professionals regarding clinical trials and identify factors associated with best practices in the Thiès region. **Methods:** Descriptive and analytical cross-sectional study conducted from March to June 2025 among 420 health professionals working in public and semi-public health facilities in the Thiès region. CAPs were assessed using a standardized questionnaire. Multivariate logistic regression analysis was used to identify determinants of good practices, expressed as adjusted odds ratios (AOR) with 95% confidence intervals. **Results:** The average age of the participants was 36.8 ± 7.4 years, and 56.2% were women. Less than half (38.5%) had received formal training in clinical research. A good level of knowledge was observed in 45.7% of participants. The overall attitude towards clinical trials was favorable in 68%, although 42% expressed ethical concerns related to the potential exploitation of populations. Practical participation in clinical trials remained limited (24%). Factors significantly associated with good practices were clinical research training (aOR = 3.2; 95% CI [1.9–5.5]; p-value < 0.001) and belonging to the physician or pharmacist categories (aOR = 2.5; 95% CI [1.6–3.8]; p-value < 0.001). **Conclusion:** Despite a generally positive attitude, significant gaps remain in knowledge and practices. Strengthening capacity in clinical research, particularly through targeted and institutionalized training, appears essential. This will enable the development of ethical, high-quality, structured clinical research that meets international standards in Senegal.

Keywords: Clinical Trials; Health Professionnel; Knowledge; Attitude; Research Ethics; Good Clinical Practice; Senegal.

Introduction

Clinical trials are the gold standard for the scientific evaluation of the safety, effectiveness, and tolerability of medical interventions, whether they involve drugs, medical devices, or public health strategies. They are a key driver of evidence-based medicine and the continuous improvement of care quality [1,2].

Globally, clinical research is experiencing steady growth, with a significant increase in the number of trials conducted in low- and middle-income countries. This trend is largely explained by the need to have context-specific data tailored to the epidemiological, genetic, and socio-environmental profiles of local populations [3,4].

In sub-Saharan Africa, conducting clinical trials has become a strategic issue of scientific sovereignty and health system strengthening [5].

However, the implementation of clinical trials in low-resource countries poses specific challenges, particularly regarding human capacity, governance, regulatory framework, and ethical acceptability [6,7].

Healthcare professionals play a central role in this process. They are involved at every stage of clinical trials, from identifying and informing participants to ensuring compliance with Good Clinical Practice (GCP) and monitoring safety [8].

Insufficient knowledge, negative perceptions, or inadequate practices of healthcare professionals can compromise the scientific quality of trials, the protection of participants, and the trust of communities [9,10].

Several studies conducted in West Africa have highlighted significant gaps in clinical research training, as well as ongoing ethical concerns related to the risk of exploiting vulnerable populations [11–13].

In Senegal, the number of clinical trials has increased over the past decade, particularly in the areas of infectious diseases, vaccination, and more recently, non-communicable diseases. However, empirical data on the knowledge, attitudes, and practices of healthcare professionals remain scarce and are often limited to specific institutional contexts [14].

The Thiès region, located in the west of Senegal, is of particular interest for the study of clinical trials. It combines healthcare facilities of various levels (regional hospitals, health centers, peripheral structures), a diverse population, and proximity to the university and research hubs of Dakar. These characteristics make it a relevant setting for analyzing the CPAs of healthcare professionals and identifying levers for improvement at the national level.

This study aims to comprehensively assess the knowledge, attitudes, and practices of healthcare professionals regarding clinical trials in the Thiès region, and to identify the factors associated with good practices, in order to guide training, governance, and capacity-building policies in clinical research in Senegal.

Méthodology

Type and framework of the study

This was a descriptive and analytical cross-sectional study conducted between March and June 2025 in the Thiès medical region. The study was carried out in five public and semipublic health facilities, including a regional hospital, two departmental-level hospitals, and two health centers.

Study population and sampling

The target population consisted of all healthcare professionals working in the selected facilities, including doctors, pharmacists, nurses, midwives, and health technicians who agreed to participate in the study.

Healthcare professionals working in the facility and who gave their informed consent were included. Trainees and administrative staff were excluded.

420 healthcare professionals were recruited through stratified convenience sampling according to professional category.

Recruitment was done on a voluntary basis, thanks to:

- A structured questionnaire, self-administered online via a link created on KoboToolbox, shared with healthcare professionals in WhatsApp groups, LinkedIn, …
- Individual interviews with certain healthcare professionals recorded directly using the KoboCollect mobile app version 2025.2.3.

Data collection tool and procedure

The data were collected using a structured, self-administered CAP questionnaire, developed based on literature and international recommendations. The questionnaire included four sections: sociodemographic characteristics, knowledge (10 items), attitudes (10 items on a Likert scale), and practices (8 items). A pretest was conducted with 30 healthcare professionals to assess the clarity and consistency of the tool.

Variables and operational definitions

A good level of knowledge was defined by a score of ≥ 7/10. A favorable attitude corresponded to an average score of ≥ 4 on the Likert scale. Good practices were defined by participation in at least one activity related to clinical trials (research, monitoring, or training).

Statistical analysis

The data were analyzed using **R software version 4.4.0.** Descriptive analyses were performed in the form of means, standard deviations, and proportions. Associations were explored through bivariate analyses, followed by multivariate logistic regression to identify factors independently associated with good practices. The results are presented as adjusted Odds Ratios (aOR) with their 95% confidence intervals. The level of statistical significance was set at p-value < 0.05.

Ethical considérations

The study received approval from the National Health Research Ethics Committee of Senegal (CNERS). Participation was voluntary, and informed consent was obtained from all participants. Anonymity and data confidentiality were strictly maintained.

Results

Sociodemographic characteristics of the participants

Among the 420 healthcare professionals surveyed, 383, or 91.19%, responded directly to the online questionnaire, and 37 (8.81%) were interviewed individually, with data collected using the KoboCollect application.

The majority of participants were women, with a sex ratio (M/F) of 0.78. Figure 1 shows the distribution by gender**.**

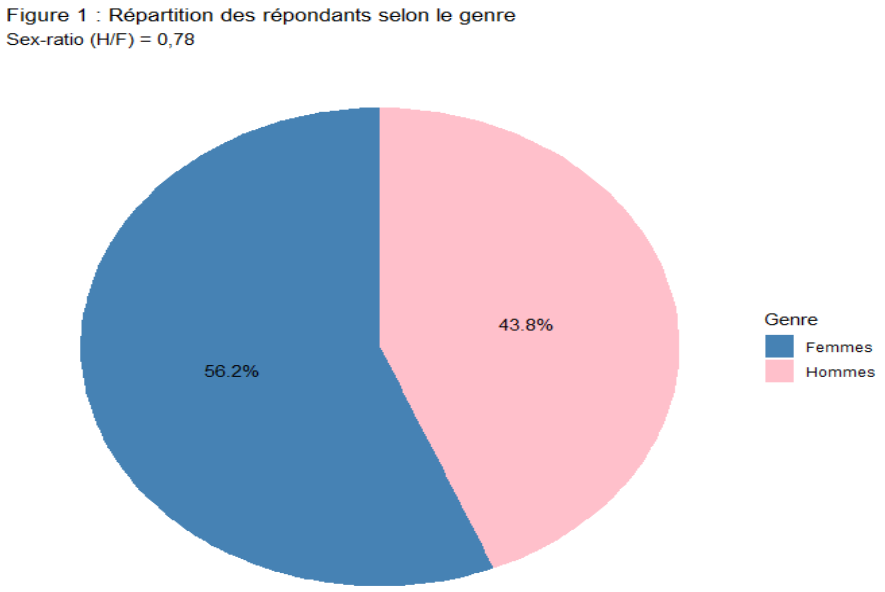

Figure 1: Distribution of respondents by gender

Table I presents the distribution of profession of the participants. The majority were women (56.2%) and the average age was 36.8 ± 7.4 years. Physicians accounted for 40% of the sample.

Table I: distribution of profession of the participants **(n = 420).**

Profession	Partial counts (**n**)	Percentages (**%**)
Physicians	168	40,0
Niurses	147	35,0
State midwives	63	15,0
Pharmacists	21	5,0
Technicians	21	5,0

Level of knowledge about clinical trials

Overall, less than half of the participants had a good level of knowledge. Concepts related to the objectives of clinical trials were better understood than those concerning the regulatory framework (**table II**).

Table II: Level of knowledge about clinical trials.

Assessed item	**% of correct responses**
Objectifs of clinical trials	71,0
Clinical trials phases	61,5
Rôles of ethic committees	52,0
National regulatory framework	42,7
Overall score ≥ 7/10	45,7

Attitudes toward clinical trials

Overall attitudes were favorable, although ethical concerns persist, particularly regarding the risk of exploiting vulnerable populations (**table III**).

Table III: Healthcare professionals' attitudes towards clinical trials.

Assessed attitude	Percentages %
Clinical trials deemed essential	78,0
Fear of exploitation of populations	42,0
Overall positive attitude	68,0

Practices and associated factors

Practical participation in clinical trials remained limited. Training in clinical research and professional category were the main determinants of good practices (**table IV**).

Table IV: Factors associated with good practices in clinical trials.

Factor	ORa	IC95 %	p-value
Training in clinical research	3,2	1,9–5,5	<0,001
Physician or pharmacist	2,5	1,6–3,8	<0,001
Good level of knowledge	1,8	1,1–3,0	0,02

Discussion

This multicenter study conducted in the Thiès region highlights contrasting results regarding the knowledge, attitudes, and practices of healthcare professionals toward clinical trials. Although the overall attitude is favorable, significant gaps remain in terms of knowledge and, above all, actual practices.

The level of knowledge observed is comparable to that reported in other African studies, which highlight an insufficient understanding of the regulatory and ethical frameworks of clinical trials. This situation may limit the active involvement of healthcare professionals and weaken the quality of the research conducted [11,12,15].

The ethical concerns expressed by a significant proportion of participants align with findings in the literature, which highlight a persistent distrust linked to the history of clinical research in Africa. These results emphasize the importance of transparent communication and strengthening the role of ethics committees [9,16].

Training in clinical research appears to be the factor most strongly associated with good practices, confirming the results of previous studies. The systematic integration of clinical research and ethics modules into the initial and ongoing training of healthcare professionals therefore represents a key lever [13,17].

This study has certain limitations, including the use of a convenience sample and the self-reported nature of the data. However, the diversity of structures and professional categories strengthens the relevance of the findings.

Conclusion

The results of this study show that, despite an overall positive attitude, healthcare professionals in the Thiès region have significant gaps in knowledge and practices related to clinical trials. Strengthening human capacity is a key issue for the development of ethical, credible, and sustainable clinical research in Senegal.

In the short term, it appears necessary to institutionalize training in Good Clinical Practices and research ethics, tailored to the different professional categories. In the medium and long term, integrating clinical research into national health policies and health human resources development plans will help strengthen scientific sovereignty and public trust.

Future research could explore community perceptions and assess the impact of training programs on the effective participation of healthcare professionals in clinical trials.

Declarations

Clinical trial number: not applicable.

Funding : this study received no external funding.

Ethics approval and consent to participate

Ethical approval for this study was obtained from Ethical Committee. Written informed consent was obtained from all participants (or their legal guardians).

Consent for publication : written informed consent for publication was obtained from the participants.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests : the authors declare that they have no competing interests.

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