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# Readiness for Interprofessional Education Among Health Profession Students at a Nigerian University: A Cross-sectional Study

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## ABSTRACT

The implementation and sustainability of interprofessional education (IPE) depends substantially on the readiness of healthcare students. This study assessed the readiness of undergraduate healthcare students in Nigeria with regard to interprofessional practice. A cross-sectional survey of a convenience sample of 300 students from a public university was conducted using a 19-item tool. Data were summarised using descriptive statistics, while differences in readiness based on students' gender, year of study and course of study were identified using inferential statistics. The majority of the students who responded to the questionnaires (55%) were from the fifth year and had a mean age of 24.5 years old. Most of them were from Faculties of Medicine and Pharmacy (33% each). The overall median score of 80 (out of 95) showed a high readiness score among the students. A significant difference was observed in the case of the gender of the respondents as to the roles and responsibilities score ($p = 0.001$). Furthermore, a significant difference was observed with regard to the course of study of the respondents and their professional identity score ($p = 0.012$). A post hoc analysis showed a $p$-value of 0.007 between medicine and pharmacy students, indicating that the respondents' professional identity had a strong influence on their readiness to practice IPE. The total score was not significantly different in all the other scenarios. Healthcare students in Nigeria are ready to undertake and showed positive attitudes towards IPE; therefore, IPE should be integrated into undergraduate healthcare professions curricula to help improve attitudes towards interprofessional practice.

**Keywords:** *Interprofessional education, Health profession, Students, Readiness*

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## INTRODUCTION

The World Health Organization (WHO) (1) has defined interprofessional education (IPE) as "occasions where two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes" (p. 13). Interprofessional practice purposely engages multiple stakeholders to improve the quality of patient care (2). These stakeholders include healthcare professionals, patients, families, and communities. The main goal of IPE is to encourage shared learning, support trust and teamwork, enhance communication skills, and improve collaboration among health professions for the sake of improving patient care (3, 4). Patient safety can be affected by insufficient interprofessional communication due to inexperience with interprofessional teamwork (5); interprofessional learning provides a means of bridging this gap.

Medical and allied health professionals' education has historically been delivered in an isolated educational environment. These isolated education methods tend to limit opportunities for collaborative learning, which is an essential element of IPE (2). It has been suggested that to prepare healthcare providers for working in interprofessional teams, they should obtain training that is integrated into their healthcare education curricula (6). Additionally, evidence has shown that students studying at institutions where teamwork and cross-professional education have been integrated into the curriculum are more likely to continue working interprofessionally after graduating (7).

IPE has gathered momentum in developed nations such as the United Kingdom, United States, and Australia in the past few years (8). It is reported that these countries make deliberate efforts to ensure and facilitate interprofessional practice by developing and implementing policies that are regularly updated (9). This, however, is not the case in many developing countries (10). Thus, in recent years, the concept of shared learning activities has been integrated into healthcare curricula so as to prepare students and inculcate in them the need to collaborate with colleagues and patients. This is due to the availability of evidence that supports the notion that teamwork and communication skills are not necessarily learnt "on the job" (11). As such, IPE expects that once healthcare professionals begin working together, there should be efficient team functioning and better multidisciplinary patient care (12).

A systematic review by pharmacy educators investigated the evidence about educational interventions in the health professions to enhance learner outcomes related to interprofessional care. Upon review of 13 IPE training programmes, positive results were seen in the knowledge domain when tested on other professions' roles and skills, interprofessional care, geriatrics and quality improvement methods. Learners demonstrated positive results when measured on attitude towards other professions and healthcare teams. This review found minimal evidence for persistent behaviour change related to group interactions, problem solving and communication skills (13). The authors suggested that more controlled trials with objective outcome criteria were necessary. In Malaysia, Ahmad et al. (14) reported that the majority of respondents in their study provided positive feedback on various aspects of IPE. There was an insignificant difference among respondents across all programmes in terms of their perception of the programmes' importance and effectiveness and with regard to their own preference for multidisciplinary lectures as a mode for conducting IPE.

In Nigeria, there is no institutional framework for interprofessional practice (9). There is also a paucity of data as regards attitudes towards interprofessional practice (9). Considering that an individual's attitude is considered a reflection of their beliefs, feelings and intended

behaviour towards a subject (15), understanding the attitudes towards and readiness for interprofessional practice among people in training to become healthcare professionals, such as university students, is important in facilitating interprofessional teamwork. Therefore, this study aimed to evaluate the attitudes and readiness of healthcare students with regard to IPE and teamwork at Bayero University Kano (BUK).

## METHODS

A cross-sectional study was used to evaluate the readiness of healthcare students for IPE and teamwork at BUK in its Faculties of Clinical Sciences, Pharmaceutical Sciences and Allied Health Sciences. The inclusion criterion was students who have started hospital postings as part of their programme. The cohort consisted of: fourth-, fifth- and sixth-year medical students; fourth- and fifth-year allied health sciences students; and fourth-, fifth- and sixth-year pharmacy students. All were willing to participate.

### Data Collection

Participants were selected through convenient sampling. Data were collected from September 2022 to November 2022. The sample size—calculated using a Raosoft sample size calculator with a 5% margin of error, 95% confidence interval (CI), 50% response distribution and a population size of 850—was 265. Data were collected through the use of the Readiness for Interprofessional Learning Scale (RIPLS) (16). This is a 19-item Likert-scale tool containing close-ended statements about the readiness of students for IPE and practice. The questionnaire contained an information sheet that described the study in a precise and concise manner, as well as an informed consent form to which those who agreed to participate could append their signatures. Questionnaires were distributed with the help of a class representative from each programme. The questionnaire was written in English. The students were given time to respond and then returned their questionnaires to the class representative. Respondents were asked to score between 1–5 (1 = strongly disagree with the statement, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree) based on their degree of agreement. The minimum and maximum possible scores were 19 and 95, respectively. Any score equal to or higher than the median score was considered to indicate high readiness for IPE and those below the median score would indicate low readiness for IPE.

### Data Analysis

Statistical Package for the Social Sciences (SPSS) version 23.0 (IBM Corp., Armonk, NY, US) was used for data management and statistical analysis. Quantitative data were analysed using descriptive statistics. Frequencies and percentages were reported for categorical data, while means and medians were reported for continuous data. Ordinal data obtained from individual items of the RIPLS scale were summarised using frequencies, percentages, and medians. The internal consistency reliability of the RIPLS scale was measured using Cronbach's alpha (0.83). All negatively worded items of the RIPLS were reverse coded before analysis. The non-parametric Mann-Whitney U and Kruskal Wallis tests were used when the assumptions were not met statistically.

## RESULTS

Three hundred students responded to the questionnaire. The majority of the students who responded to the questionnaire (55%) were from the fifth year and the mean age was 24.5 years old, with most of them being from the Faculties of Medicine and Pharmacy, which accounted for 33% each. Table 1 lists the demographic characteristics of the respondents.

The frequency of distribution of the RIPLS statements, scored 1 to 5, for the students are shown in Table 2. The overall median score was 80 (Table 3), showing high readiness among the students. The highest frequency of 211 (representing 70.3%) was recorded for statement two, "Patients would ultimately benefit if health and social care students/professionals worked together", where students strongly agreed that the patient would benefit most from interprofessional collaboration. Meanwhile, 136 students, accounting for 45% of respondents, and another 108, accounting for 36% of respondents, strongly disagreed and disagreed, respectively, with the tenth statement, "I don't want to waste time learning with other health and social care students/professionals".

**Table 1:** Demographic characteristics of the respondents (n = 300)

| Variable | Frequency (n) | Percentage (%) | Mean (SD) |
|---|---|---|---|
| Age | | | 24.5 (2.2) |
| Gender | | | |
| Male | 188 | 62.7 | |
| Female | 112 | 37.3 | |
| Course of study | | | |
| Medicine | 100 | 33.3 | |
| Pharmacy | 100 | 33.3 | |
| Nursing | 34 | 11.3 | |
| Medical laboratory science | 21 | 7.0 | |
| Radiography | 45 | 15.0 | |
| Year of study | | | |
| Fourth | 117 | 39.0 | |
| Fifth | 166 | 55.3 | |
| Sixth | 17 | 5.7 | |

Note: SD = standard deviation.

**Table 2:** Frequency of distribution of responses to RIPLS statements (n = 300)

| Statement no. | Statement | Strongly agree | Agree | Undecided | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| 1 | Learning with other students/professionals will make me a more effective member of a health and social care team. | 206 | 82 | 5 | 4 | 3 |
| 2 | Patients would ultimately benefit if health and social care students/professionals worked together. | 211 | 82 | 6 | 0 | 1 |
| 3 | Shared learning with other health and social care students/professionals will increase my ability to understand clinical problems. | 191 | 92 | 11 | 4 | 1 |
| 4 | Communications skills should be learned with other health and social care students/professionals. | 185 | 88 | 19 | 5 | 2 |
| 5 | Team-working skills are vital for all health and social care students/professionals to learn. | 205 | 83 | 5 | 0 | 0 |
| 6 | Shared learning will help me to understand my own professional limitations. | 164 | 105 | 16 | 0 | 12 |
| 7 | Learning between health and social care students before qualification and for professionals after qualification would improve working relationships after qualification/collaborative practice. | 146 | 110 | 29 | 10 | 0 |
| 8 | Shared learning will help me think positively about other health and social care professionals. | 158 | 121 | 7 | 11 | 0 |
| 9 | For small-group learning to work, students/professionals need to respect and trust each other. | 202 | 90 | 4 | 3 | 0 |
| 10 | I don't want to waste time learning with other health and social care students/professionals. | 10 | 16 | 29 | 108 | 136 |
| 11 | It is not necessary for undergraduate/postgraduate health and social care students/professionals to learn together. | 20 | 41 | 45 | 94 | 100 |

(*Continued on next page*)

**Table 2:** (*Continued*)

| Statement no. | Statement | Strongly agree | Agree | Undecided | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| 12 | Clinical problem solving can only be learnt effectively with students/professionals from my own school/ organisation. | 22 | 59 | 45 | 96 | 78 |
| 13 | Shared learning with other health and social care professionals will help me to communicate better with patients and other professionals. | 148 | 120 | 23 | 5 | 4 |
| 14 | I would welcome the opportunity to work on small group projects with other health and social care students/professionals. | 150 | 132 | 15 | 2 | 0 |
| 15 | I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health and social care students/ professionals. | 142 | 143 | 13 | 0 | 0 |
| 16 | Shared learning and practice will help me clarify the nature of patients' or clients' problems. | 128 | 129 | 34 | 13 | 5 |
| 17 | Shared learning before and after qualification will help me become a better team worker. | 160 | 113 | 8 | 10 | 5 |
| 18 | I am not sure what my professional role will be/is. | 19 | 20 | 64 | 88 | 103 |
| 19 | I have to acquire much more knowledge and skill than other students/professionals in my own faculty/ organisation. | 40 | 60 | 62 | 77 | 58 |

## Comparison of Respondents' Total Scores with Demographic Characteristics

The study compared total scores and domain-specific scores for teamwork and collaboration, professional identity, and roles and responsibilities, with respondents' demography. A significant difference was observed in the case of the gender of the respondents with regard to the roles and responsibility score ($p$ = 0.001). Furthermore, a significant difference was observed regarding the course of study of the respondents and their professional identity ($p$ = 0.012). A post hoc analysis using the Dunn–Bonferroni test showed a $p$-value of 0.007 between medicine and pharmacy students, indicating that respondents' professional identity has a strong influence on readiness to practise IPE. The total score was not significantly different in all the other scenarios.

**Table 3:** Difference in attitudes of students from various professions towards IPE and teamwork (n = 300)

| Characteristic | Teamwork and collaboration | | Professional identity | | Roles and responsibility | | Total scores | |
|---|---|---|---|---|---|---|---|---|
| | Frequency (n) | Percentage (%) | Median (IQR) | *p*-value | Median (IQR) | *p*-value | Median (IQR) | *p*-value |
| Gender* | | | | | | | | |
| Male | 42.0 (6.00) | 0.386 | 26 (5.0) | 0.772 | 10 (2.0) | 0.001 | 78 (8.00) | 0.993 |
| Female | 43.0 (7.00) | | 27 (5.0) | | 9 (3.0) | | 80 (11.75) | |
| Course of study** | | | | | | | | |
| Medicine | 40.0 (7.00) | 0.236 | 25 (5.0) | 0.012 | 10 (2.0) | 0.832 | 75 (10.75) | 0.214 |
| Pharmacy | 43.0 (5.75) | | 27 (4.0) | | 10 (3.0) | | 79 (7.75) | |
| Nursing | 42.5 (6.25) | | 27 (4.0) | | 9 (3.0) | | 79 (8.50) | |
| Medical laboratory science | 42.0 (6.00) | | 27 (3.0) | | 10 (2.5) | | 79 (7.50) | |
| Radiography | 40.0 (7.50) | 0.178 | 26 (5.5) | | 10 (2.5) | | 78 (11.50) | |
| Year of study | | | | | | | | |
| Fourth | 42.0 (7.00) | | 27 (4.0) | 0.845 | 10 (2.0) | 0.621 | 79 (9.00) | 0.108 |
| Fifth | 41.0 (7.00) | | 26 (4.0) | | 10 (2.0) | | 77 (11.00) | |
| Sixth | 43.0 (2.50) | | 27 (5.0) | | 10 (3.0) | | 80 (6.00) | |
| Post hoc analysis using Bonferroni correction for multiple tests | | | | Medicine-Pharmacy: $p = 0.007$ | | | | |

Note: *students *t*-test; **Kruskal Wallis test; IQR = interquartile range. There is no significant difference of mean rank level in all the groups; $p < 0.05$ = statistically significant.

## DISCUSSION

The outcomes of this study provide support for integrating interprofessional learning and teamwork activities into undergraduate health curricula. The majority of students demonstrated a clear receptiveness to working within interprofessional teams and participating in collaborative learning activities with peers from other healthcare disciplines. Moreover, they exhibited awareness of the benefits associated with such practices. This is evidenced by the overall median score and their response to the statement "Patients would ultimately benefit if health and social care students/professionals worked together". These findings align with previous research conducted on healthcare students (17, 18), which also indicated a heightened understanding of teamwork and collaboration, as well as increased knowledge of the varied roles and skills of other healthcare professionals following interprofessional learning interventions (4).

The strongest agreement was recorded for statement two, "Patients would ultimately benefit if health and social care students/professionals worked together". This finding is consistent with previous research findings (19, 20). Teamwork and collaboration offer numerous advantages for enhancing patient care. While delivering IPE sessions presents several challenges, a recent study from the UAE reported that students are enthusiastic about IPE and noted positive outcomes regarding students' willingness to engage in interdisciplinary learning and collaboration (20).

In the present study, females, overall, had higher scores for teamwork and collaboration and professional identity, but lower scores for roles and responsibilities (statistically significant) compared to males. Similar studies conducted in Saudi Arabia and Switzerland on multiple undergraduate health programmes reported higher total scores and teamwork and collaboration scores among females (21, 22). Thus, females can be considered more willing to engage in teamwork and collaboration.

Additionally, pharmacy students exhibited higher scores, and a significant difference was observed based on the respondents' course of study regarding their professional identity score. Post hoc analysis revealed a significant difference between medicine and pharmacy students, indicating that respondents' professional identity strongly influences their readiness to engage in IPE. It is noteworthy that medical doctors are often perceived as the leaders of healthcare teams, and they may not fully recognise the importance of IPE (19).

In the present study, fourth-year students exhibited higher scores for teamwork and collaboration and professional identity compared to fifth-year students, although this difference was not statistically significant. There are reports suggesting that as students' progress in age and year of study, they become more exposed to hierarchies in the healthcare system, which can impact their readiness to engage in and practice IPE. A study conducted in Saudi Arabia found that junior students had a better score compared to senior students (21). Similar observations were also noted in a Swiss study, wherein preclinical medical students demonstrated more positive attitudes towards IPE (22).

The study had a limitation concerning the varying degrees of exposure that students had to interprofessional collaborative practice during clinical placements, which could have influenced the results. While it is challenging to ensure uniform experiences for all students, future research could explore experimental designs to minimise these confounding factors. Additionally, future studies might benefit from employing a mixed methodological approach to provide a deeper understanding of students' perceptions and attitudes. Utilising qualitative methods could uncover additional factors impacting students' views on IPE.

Another limitation was the use of convenience sampling to recruit participants, which may not represent the entire student population accurately. Those who volunteered to participate might introduce bias into the results. However, mandating participation could raise ethical concerns, so researchers faced a dilemma in ensuring a representative sample while respecting participants' autonomy.

## CONCLUSION

The current study reported a high IPE readiness among healthcare students, suggesting a willingness to embrace IPE. Since healthcare students in Nigeria are ready for and showed positive attitudes towards IPE, IPE should be integrated into undergraduate healthcare professions curricula as it could help to improve attitudes towards interprofessional practice.

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## ETHICAL APPROVAL

Ethical clearance was sought from the Bayero University Kano Health Research Ethics Committee (BUK-HREC/214) and permission sought from the Faculties of Clinical Sciences, Pharmaceutical Sciences and Allied Health Sciences prior to data collection. Additionally, informed consent was obtained from all participants prior to data collection after all necessary information about the study was provided.

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