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Research Readiness, Practices and Engagement among Dentistry Faculty in Higher Education Institutions (HEIS)

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Abstract
This study aimed to assess the research readiness, practices, and engagement of Dentistry faculty in Higher Education Institutions (HEIs) in CALABARZON. Utilizing a descriptive-correlational design, the study involved 73 faculty members from selected HEIs, with data gathered through a self-made questionnaire. The study sought to evaluate the respondents' levels of research readiness, including knowledge, attitude, and skills; research practices, including institutional policies, technical assistance, professional regulations, and faculty involvement; and research engagement in terms of capability, productivity, dissemination, and utilization.
The findings revealed that respondents exhibited very high research readiness in terms of knowledge and attitude, and high readiness in skills. The level of research practices was high for institutional policies and technical assistance and very high for professional regulations and faculty involvement. Research engagement was also high in terms of capability, productivity, and dissemination. Significant relationships were found between research readiness, practices, and engagement, with a predictive model indicating that research readiness and practices significantly predict research engagement.
The study concludes that the respondents possess strong research capabilities and engagement, largely due to institutional support, policies, and research culture. It recommends the development of a comprehensive research enhancement program, increased funding for research activities, and recognition of faculty research contributions. Future studies should explore larger sample sizes and different locales for further insight. These measures will foster a stronger research environment in HEIs and promote advancements in dental education and science.

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Introduction

Research was a fundamental pillar of higher education, shaping institutional growth and fostering academic excellence among faculty and students. In contemporary academia, research capabilities served as a benchmark for intellectual rigor, influencing university rankings, faculty development, and the overall reputation of institutions (Gopalakrishna *et al*., 2022). Within health sciences, particularly in dentistry, research played a crucial role in advancing clinical practices, refining educational methodologies, and ensuring adherence to accreditation standards (Heng *et al*., 2022). Faculty members' research readiness, encompassing knowledge, skills, and attitudes, was vital for sustaining a productive research environment. Additionally, research practices, such as institutional policies, technical assistance, and faculty involvement, shaped the extent to which faculty engaged in scholarly activities that contributed to institutional prestige and knowledge dissemination (Quitara & Abusado, 2021).

Research engagement, which included activities such as publishing, presenting at conferences, and collaborating internationally, was an essential indicator of faculty involvement in scholarly work. However, various challenges hindered research participation among faculty members, including high teaching loads, limited research training, inadequate institutional support, and lack of funding (Doshi *et al*., 2023) [8]. While several studies had examined faculty development and institutional support, there remained a gap in understanding the research readiness, practices, and engagement of dentistry faculty members specifically (Pambuena & Bernarte, 2017). Previous research primarily focused on faculty recruitment, retention, and promotion, with limited exploration of the factors influencing research engagement in dentistry programs.

The present study investigated the interplay between research readiness, research practices, and research engagement among dentistry faculty in higher education institutions (HEIs) in CALABARZON. It sought to determine the predictive power of research readiness and research practices on faculty research engagement. By examining these relationships, this study aimed to provide insights that could guide institutional policies and strategies to enhance research culture, faculty development, and academic productivity. Given the increasing globalization and competitiveness in higher education, fostering a robust research environment was imperative for institutions striving for academic excellence and innovation.

This study was significant as it enhanced the teaching strategies and research competencies of dentistry faculty, enabling them to integrate evidence-based practices into instruction. It provided insights into curriculum improvement, fostered a research-oriented culture, and promoted scholarly productivity, contributing to institutional reputation and professional growth. It supported the effective management of higher education institutions by exploring motivation concepts. This study also aided in achieving learning objectives and developing essential research competencies. Ultimately, it served as an academic reference for advancing knowledge, evaluating ideas, and exploring emerging technologies vital to the Doctor of Dental Medicine education and practice.

Methodology

This chapter presents the research procedures employed in the study, detailing the methods for data collection, presentation, and analysis. It includes research design, sources of data, population of the study, instrumentation and validation, evaluation and scoring, data gathering procedure, and statistical treatment of data.

This study utilized a descriptive-correlational research design to determine the level of research readiness, research practices, and research engagement among dentistry faculty members in selected higher educational institutions (HEIs) in CALABARZON. A descriptive-correlational method involves collecting data without influencing the subjects, allowing the researcher to describe existing conditions and assess relationships between variables (Price, Jhangiani & Chiang, 2019).

The primary source of data was the responses collected from dentistry faculty members of selected HEIs in CALABARZON through a structured survey questionnaire. Only empirical data collected from the respondents were statistically treated and analyzed.

The study focused on research readiness, research practices, and research engagement among faculty members of the College of Dentistry at selected HEIs. The total number of faculty members in each institution was identified to determine the sample size.

The sample size was calculated using the Raosoft sample size calculator, with a 5% margin of error and a 95% confidence level. A total of 73 faculty members from six selected HEIs participated in the study out of 87 total faculty members. Stratified random sampling was employed to ensure proportional representation across institutions. The inclusion criteria for respondents were: (1) teaching professional dentistry courses and (2) having at least five years of experience in either a part-time or full-time capacity.

Instrumentation and Validation

A self-made questionnaire was developed based on a review of relevant literature to assess research readiness, research practices, and research engagement. The questionnaire consisted of three sections:

- Part 1: Research readiness (knowledge, attitude, and skills)
- Part 2: Research practices (institutional policy, technical assistance, professional regulations, and faculty involvement)
- Part 3: Research engagement (capability, productivity, dissemination, and utilization)

To ensure validity, the questionnaire was reviewed by experts in educational management, research, and statistics. A pilot test was conducted with 15 dentistry faculty members in Batangas to assess reliability, using Cronbach's alpha for internal consistency. The results indicated excellent reliability: research readiness ($\alpha = 0.957$), research practices ($\alpha = 0.981$), and research engagement ($\alpha = 0.978$).

Evaluation and Scoring

The following scale was used to interpret responses:

Table 1

Assigned Points	Numerical Range	Categorical Response	Verbal Interpretation
1	1.00 - 1.74	Strongly Disagree	Very Low
2	1.75 - 2.49	Disagree	Low
3	2.50 - 3.25	Agree	High
4	3.26 - 4.00	Strongly Agree	Very High

Data gathering procedure

The researcher sought approval from the Deans or institutional heads before conducting the survey. Questionnaires were distributed via Google Forms, and respondents were briefed on the study's objectives. Informed consent was obtained to ensure confidentiality. Upon collection, data were tallied and statistically analyzed with the assistance of a statistician.

Statistical treatment of data

The following statistical tests were applied:

1. **Weighted Mean** - To determine respondents' levels of:
   - Research readiness (knowledge, attitude, and skills)
   - Research practices (institutional policy, technical assistance, professional regulations, and faculty involvement)
   - Research engagement (capability, productivity, dissemination, and utilization)
2. **Pearson's r correlation coefficient** - To assess the relationships between:
   - Research readiness and research practices
   - Research readiness and research engagement
   - Research practices and research engagement
3. **Regression Analysis** - To determine the predictive power of research readiness and research practices on research engagement.

Results and Discussion

This study examined research readiness, practices, and engagement of dentistry faculty in HEIs, addressing a critical gap in literature. It explored faculty preparedness for research, their participation in research activities, and the challenges and opportunities they face. The study involved 73 dentistry faculty members from various HEIs, with an average age of 44 years and 11 years of professional experience. This diverse sample offers a representative perspective on the research culture among dentistry faculty in higher education.

Table 2: Mean values of indicators for research readiness, practices, and engagement

Indicator	Mean	Categorical Response	Verbal Interpretation
Level of Research Readiness			
Research Knowledge	3.23	Agree	High
Research Attitude	3.31	Agree	Very High
Research Skills	3.12	Agree	High
Overall Weighted Mean	3.22		Very High
Level of Research Practices			
Institutional Policy Indicators	3.11	Agree	High
Technical Assistance Indicators	3.09	Agree	High
Professional Regulations Indicators	3.31	Strongly Agree	Very High
Faculty Involvement Indicators	3.26	Agree	Very High
Overall weighted mean	3.22		Very High
Research Engagement			
Research Capability Indicators	3.19	Agree	High
Research Productivity Indicators	2.93	Agree	High
Research Dissemination Indicators	2.99	Agree	High
Overall weighted mean	2.97	Agree	High

The descriptive statistics revealed a generally high level of research readiness among dentistry faculty. Specifically, the faculty reported a high level of research knowledge (mean = 3.23), a positive research attitude (mean = 3.31), and strong research skills (mean = 3.12).

In terms of research practices, faculty reported a high level of satisfaction with institutional policies (mean = 3.11), technical assistance (mean = 3.09), and faculty involvement (mean = 3.26). Interestingly, professional regulations were rated as very high (mean = 3.31), suggesting that faculty perceive these regulations as supportive rather than hindering.

The research engagement indicators also showed high levels, with faculty reporting strong research capability (mean = 3.19), high research productivity (mean = 2.93), effective research dissemination (mean = 2.99)

Table 3: Stepwise regression analysis of different factors affecting research readiness

Indicator	Coefficient	Std. Error	p-value
Research Capability			
Faculty Involvement	0.3986895	0.0861167	0.001*
Research Attitude	0.1500813	0.073236	0.044*
Research Skills	0.2248589	0.0732263	0.003*
Research Dissemination	0.2248645	0.055118	0.001*
Research Knowledge			
Faculty Involvement	0.2798736	0.0967204	0.005*
Research Attitude	0.2496997	0.0903873	0.007*
Research Skills	0.237363	0.0881529	0.009*
Research Attitude			
Research Capability	0.299404	0.1351276	0.030*
Research Knowledge	0.3120379	0.1286732	0.018*
Professional Regulations	0.276955	0.1200541	0.024*
Institutional Policy	0.1736922	0.1011767	0.091
Research Productivity	-0.2714184	0.0967168	0.007*

Research Productivity			
Faculty Involvement	0.2613349	0.109836	0.020*
Professional Regulations	-0.3115189	0.1050634	0.004*
Research Dissemination	0.4860121	0.0744594	0.001*
Research Attitude	-0.2334856	0.0964064	0.018*
Institutional Policy	0.2819048	0.0854531	0.002*
Technical Assistance	0.3378883	0.1283165	0.011*
Research Dissemination			
Research Capability	0.3318229	0.1394078	0.020*
Institutional Policy	-0.1825553	0.1024238	0.079
Professional Regulations	0.2224494	0.1175172	0.063
Research Productivity	0.7439207	0.0997368	0.001*

Research Capability

The analysis revealed that faculty involvement ($\beta = 0.399$, $p < 0.001$), research attitude ($\beta = 0.150$, $p < 0.05$), research skills ($\beta = 0.225$, $p < 0.01$), and research dissemination ($\beta = 0.225$, $p < 0.001$) significantly predicted research capability. The strong positive association between faculty involvement and research capability underscores the importance of active participation in research activities. This suggests that faculties who are more involved in research, whether through collaborative projects or independent investigations, develop a stronger sense of research capability. Similarly, a positive research attitude fosters a conducive environment for skill development and engagement. The significant impact of research dissemination on capability implies that the act of sharing research findings not only contributes to the broader scholarly community but also enhances the researcher's perceived ability to conduct future research.

Research Knowledge

For research knowledge, faculty involvement ($\beta = 0.280$, $p < 0.01$), research attitude ($\beta = 0.250$, $p < 0.01$), and research skills ($\beta = 0.237$, $p < 0.01$) emerged as significant predictors. This finding aligns with the notion that knowledge acquisition in research is multifaceted, requiring active engagement, a positive mindset, and practical skills. The strong influence of faculty involvement suggests that experiential learning, through participation in research projects, is a key driver of research knowledge. The fact that research attitude and skills also significantly predict knowledge highlights the importance of both cognitive and practical aspects in knowledge development.

Research Attitude

The predictors of research attitude were more varied, encompassing research capability ($\beta = 0.299$, $p < 0.05$), research knowledge ($\beta = 0.312$, $p < 0.05$), professional regulations ($\beta = 0.277$, $p < 0.05$), and research productivity ($\beta = -0.271$, $p < 0.01$). The positive influence of research capability and knowledge on attitude suggests a reciprocal relationship, where confidence and expertise foster a positive disposition towards research. Interestingly, professional regulations were found to positively influence research attitude, implying that clear guidelines and standards may enhance faculty's perception of research as a structured and valued activity. However, the negative association between research productivity and attitude warrants further investigation. It might suggest that the pressures associated with high research output could potentially lead to burnout or a less positive attitude towards research.

Research Productivity

Faculty involvement ($\beta = 0.261$, $p < 0.05$), research dissemination ($\beta = 0.486$, $p < 0.001$), institutional policy ($\beta = 0.282$, $p < 0.01$), and technical assistance ($\beta = 0.338$, $p < 0.05$) were significant positive predictors of research productivity. Conversely, professional regulations ($\beta = -0.312$, $p < 0.01$) and research attitude ($\beta = -0.233$, $p < 0.05$) exhibited negative associations. The strong positive impact of research dissemination underscores the importance of sharing research findings for enhancing productivity. Institutional policies that support research, along with the provision of technical assistance, play a crucial role in facilitating faculty productivity. The negative influence of professional regulations on productivity suggests that overly stringent regulations may hinder research efforts. The inverse relationship between research attitude and productivity, as observed earlier, highlights the complex interplay between these factors.

Research Dissemination

Finally, research capability ($\beta = 0.332$, $p < 0.05$) and research productivity ($\beta = 0.744$, $p < 0.001$) significantly predicted research dissemination. The strong positive association between productivity and dissemination underscores the importance of generating research outputs that are deemed worthy of sharing. The influence of research capability on dissemination suggests that researchers with a higher sense of capability are more likely to engage in dissemination activities.

The findings from this study have several implications for HEIs aiming to enhance research readiness, practices, and engagement among dentistry faculty. Firstly, fostering a culture of active faculty involvement in research is crucial for building capability, knowledge, and productivity. Secondly, HEIs should strive to cultivate a positive research attitude through supportive policies, clear guidelines, and recognition of research efforts. Thirdly, providing adequate technical assistance and streamlining institutional policies can significantly boost research productivity. Lastly, encouraging and facilitating research dissemination is essential for both enhancing faculty's research capability and contributing to the broader scholarly community.

The descriptive statistics from Table 1 provide valuable context for interpreting the findings from the stepwise regression analysis. The generally high levels of research readiness, practices, and engagement suggest that dentistry faculty in HEIs are well-prepared and actively involved in research. This is further supported by the significant predictors identified in the regression analysis.

This study is not without limitations. The cross-sectional design precludes the establishment of causal relationships. Future research could benefit from longitudinal studies to explore the dynamic interplay between the identified predictors and research outcomes. Additionally, qualitative studies could provide deeper insights into the challenges and opportunities faced by dentistry faculty in their research endeavors. Future research should also explore the potential moderating effects of institutional characteristics and individual faculty demographics on research readiness, practices, and engagement.

In conclusion, this study provides valuable insights into the factors influencing research readiness, practices, and engagement among dentistry faculty in HEIs. By addressing the identified predictors, HEIs can create a more supportive and conducive environment for research, ultimately contributing to the advancement of dental science and education.

Discussion

The findings of this study provide valuable insights into the research readiness, practices, and engagement of Dentistry faculty in Higher Education Institutions (HEIs) in CALABARZON. The results indicate that while faculty members demonstrate strong research capabilities, there remain areas for improvement in fostering a more research-oriented culture within their institutions.

Research Readiness

The study revealed that respondents had very high levels of research knowledge and attitude and high levels of research skills. This suggests that faculty members possess the foundational competencies required for conducting research, likely due to prior exposure to research training and seminars. However, the slightly lower rating in research skills indicates a need for continuous capacity-building initiatives, particularly in research methodology, data analysis, and scholarly writing.

Research Practices

Faculty members reported very high levels of research practices in terms of institutional policy, technical assistance, professional regulations, and faculty involvement. This suggests that institutions have established research policies and support mechanisms, contributing to faculty members' active engagement in research-related activities. The presence of technical assistance and adherence to professional regulations further reinforce a structured research environment. However, sustained institutional support, particularly in terms of funding opportunities and research mentoring, remains essential to further strengthen faculty research engagement.

Research Engagement

The study found that research engagement among faculty members was high in terms of research capability, productivity, and dissemination. This indicates that while faculty members are involved in research activities, there is room to enhance research output and dissemination efforts. Providing incentives for research publication, conference participation, and collaborative research initiatives could enhance faculty members' engagement in scholarly activities and increase institutional research visibility.

Correlational Findings

The results showed significant relationships between research readiness, research practices, and research engagement. Faculty members with higher research readiness tend to exhibit better research practices and greater research engagement. Additionally, research practices were found to be significantly correlated with research engagement, suggesting that institutional policies, technical assistance, and faculty involvement play a crucial role in promoting research activities. The predictive analysis further demonstrated that research readiness and research practices significantly influence research engagement, highlighting the importance of enhancing faculty preparedness and institutional support to foster a strong research culture.

Implications for institutional development

The study's findings emphasize the need for HEIs to implement structured research enhancement programs that focus on skill development, mentorship, and institutional support. Strengthening research training programs, increasing funding allocations, and fostering collaborations with other institutions can further support faculty research productivity. Additionally, HEIs should establish monitoring mechanisms to ensure sustained research engagement among faculty members.

Limitations and future research directions

While this study provides meaningful insights, it is limited to six HEIs in CALABARZON and may not be generalizable to all dentistry faculty in the country. Future research should consider expanding the sample size and exploring other regions to validate the findings. Additionally, qualitative studies could provide deeper insights into the challenges and motivations of faculty members in engaging with research. Investigating the application of research findings in dental education, clinical practice, and policymaking could also be a valuable area of study to assess the broader impact of faculty research engagement.

Overall, the study underscores the importance of fostering a supportive research environment within HEIs, ensuring that faculty members receive the necessary resources and encouragement to enhance their research engagement and contribute to the advancement of dentistry education and practice.

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