AMJ Australasian Medical Journal [AMJ 2020;13(12):317-329]

# The attitude and behaviour of family medicine residents toward qualitative researches, 2020

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## RESEARCH

Please cite this paper as: Wali RM. Alghamdi AA. Alghamdi YA. The attitude and behaviour of family medicine residents toward qualitative researches, 2020. AMJ 2020;13(12):317–329. https://doi.org/10.35841/1836-1935.13.12.317-329

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## ABSTRACT

### Background
Although medical research consists of quantitative and qualitative research, the latter is less actively performed; this is also true in family medicine. In Saudi Arabia, the residency program requires family-medicine-residents to perform some research; however, many perform quantitative research. What prevents residents from performing qualitative research? The present study was an attempt to determine this.

### Aims
To evaluate the knowledge and barriers in conducting qualitative studies in the family medicine residency program at the Western Region of Saudi Arabia.

### Methods
This cross-sectional observational study was conducted in Primary Health Care Centers at the National Guard Health Affairs, the Western Region of Saudi Arabia, including all Family Medicine residents in the third and fourth year who agree to participate. Twenty-one responses were collected from the residents via an electronic questionnaire. The data were analysed using SPSS (Statistical Package Social Sciences) version 24.0.

### Results
The majority of participants (90.5 per cent) had research experience and agreed that qualitative research can lead to professional enhancement if supported by carrier advancement, the pursuit of personal interest, and further education. The majority of residents who were not currently involved in research stated that the lack of experience and release time were a great hindrance to performing qualitative research.

### Conclusion
Many barriers including lack of training on qualitative study prevented residents from performing qualitative research. More emphasis should be paid on qualitative research in residency.

### Key Words
Qualitative research, family medicine, residency program

## What this study adds:

**1. What is known about this subject?**
Quantitative studies are performed more by researchers than qualitative researches, even though qualitative research is an integral type of research.

**2. What new information is offered in this study?**
Although residents agree that qualitative research has a generally positive effect, their lack of knowledge and experience on qualitative research are some of the barriers that restrain them from doing a qualitative research.

**3. What are the implications for research, policy, or practice?**
There is a need to improve the residency training program research curriculum to have more emphases on qualitative research.

## Background

In medicine, researchers act as the turning wheel to the continuity of education and the evidence to health system improvement and reform. Researches are divided into two main categories, qualitative and quantitative research.[1]

Quantitative research provides medical practitioners with numeric data that analyse the efficacy of the current practice and methods that can be implemented in the field. In contrast, qualitative research offers non-numerical data, such as exploring behaviours and experiences that lead to implementing a new practice. Although it is clear that ideally, there should be a combination of both types, the primary method of research worldwide was predominantly quantitative. Primarily because quantitative research is of a higher level of evidence than qualitative research, and it is less time consuming . [2,3,7]

One of the medical specialties that take great effort in research activity is family medicine. That is because evidence-based learning (EBM) and research methodology are integrated into their residency curriculum as a 4-6 week block. Furthermore, all residents should conduct research before they graduate from the program.[4,5] However, according to International Scientific Indexing (ISI), the proportion of qualitative research is done in less in all specialties, including family medicine. Besides, based on expert opinion, qualitative research is also underdone in family medicine in Saudi Arabia.[3]

Therefore, this research identifies and explores National Guard family medicine residents' opinions about qualitative research and why it is not considered as a primary option for their graduation thesis.

## Method

**Setting and population:**

The research was conducted in Primary Health Care Centers at the National Guard Health Affairs (NGHA), in the Western Region of Saudi Arabia. Thirty-two family medicine residents in the third and fourth year (R3, R4) were invited to patriciate in the research. The exclusion criteria were family medicine residents in the first and second year (R1, R2), residents not at NGHA residency program, and those who refused to participate.

**Study design:**

This study was a cross-sectional observational study conducted during the year 2020 on attitude and barriers that led to reduced qualitative research conduct by third and fourth-year residents.

The sample size was calculated at a 95 per cent confidence interval (CI) level with a 50 per cent response distribution and a margin of error of ±5 per cent. The required sample size was determined to be 30 using Raosoft software.[8] A simple random sample technique was used to select study participants.

**Data collection and analysis:**

An electronic questionnaire adopted from previous similar research was distributed among R3 and R4 family medicine residents through emails.[6] The questionnaire contained 36 questions in five sections that include demographic questions (Age, gender, residency year). These sections measured residents' previous research experience (yes/no), attitude toward research and research skills (5 points Likert scale), and perceived barriers and enablers to conducting qualitative research (5 points Likert scale).

Ethical approval was obtained from the Institutional Review Board (IRB) of King Abdullah International Medical Research Center (KAIMRC). Ethical principles were maintained throughout the research process. All participants signed informed consent, and they were informed about their right to withdraw from the study. Confidentiality and anonymity were assured. The data were stored in workplace computers with access to only the researchers. The investigators were available to answer any questions about the questionnaire during data collection.

The data were analysed using SPSS (Statistical Package Social Sciences) version 24.0. Continuous variables are presented as mean and standard deviation and categorical variables as frequency and percentage. For inferential statistics, Fisher's exact test was used to test residents' involvement in research activities compare to their demographics, attitudes, enablers, and barriers toward qualitative research. The ANOVA test was used to test the relationship between residents' age and their current research activity involvement. A p-value <0.05 was considered significant.

## Results

**Demographic characteristics**

This study collected responses from 21 Family medicine residents in NGHA. As demonstrated in Table 1, the majority of the residents were female (n=16, 76.2 per cent). Nearly half are in 3rd year (n=10, 47.6 per cent), and the rest are in their 4th year (n=11, 52.4 per cent).

Figure 1 shows that (n=19, 90.5 per cent) of participating residents had conducted research in the past and had

formal research training. Almost half of the residents are currently involved in quantitative research (n=11, 52.4 per cent).

Table 2 shows the residents' attitude toward qualitative research. 47.6 per cent (n=10) agree that qualitative research helps professional enhancement, 52.4 per cent (n=11) agree that there should be dedicated time allotted for research, and 47.6 per cent (n=10) agree that qualitative research helps to change health policies. Moreover, participants find qualitative research to affect the medical field and promotive critical thinking positively.

Table 3 shows research enablers. It showed that career advancement (n=10, 47.6 per cent), the pursuit of personal interest (n=9, 42.9 per cent), and the pursuit of further education (n=9, 42.9 per cent) were the research enablers that most of the residents strongly agreed on.

Table 4 shows the barriers to conducting qualitative research. Lack of experience in qualitative research (n=10, 47.6 per cent), lack of training (n=9, 42.9 per cent), and lack of release time by the program (n=8, 38.1 per cent) are the most common barriers to conducting qualitative research.

**Statistical analysis:**

While comparing family medicine residents' involvement in a research project to their demographic, we found significant results showing that almost half of the senior residents (n=5, 45.5 per cent) are not involved in research. The rest are doing quantitative research. Regarding junior residents, half of them are doing quantitative research, and the other half are conducting qualitative research with a p-value of 0.005 (Table 5).

There is a predominant attitude among the residents currently participating in quantitative research to stand neutral about qualitative research being more valid than quantitative research with a p-value of 0.006. Regarding that qualitative research promotes critical thinking, 75 per cent (n=6) of the residents currently in quantitative studies have a neutral opinion toward it with a p-value of 0.042. Furthermore, the majority of the residents who were neutral to qualitative research being easier to conduct were doing quantitative research with a p-value of 0.036. Lastly, all family residents currently conducting quantitative research strongly agree that there should be dedicated time allotted for research with a p-value of 0.020 (Table 6-8).

Table 9 is specifying that those who have higher mean age (29.80±0.447) are not conducting research, and those who have lower mean age (27.20±0.447) are conducting qualitative research, which is significant with a p-value of 0.001.

## Discussion

This study, to our knowledge, the first study in Saudi Arabia that highlights family medicine residents' attitudes and behaviour toward qualitative research.

Only 23.8 per cent of residents are currently involved in qualitative research, which is the same percentage as those not conducting research. On the other hand, a towering 52.4 per cent of the researchers are involved in quantitative studies. These results support the fact that quantitative research is performed more than qualitative.[3]

In this study, there is a broad agreement on qualitative research having a significant role in changing health policies and enhancing professional enhancement. These results mirror results in a similar study conducted before in Indonesia, where the gathered responses' regarding qualitative research changing health care policies, and professional enhancement was 96.6 per cent and 100 per cent, respectively.[6] Besides, qualitative research improving patient care, and promoting critical thinking appears to be the only two undisputed aspects among family medicine residents. Likewise, residents in Thailand agree that research enhances inquiry-based learning.[14] In India, a student's attitude toward conducting research found it was beneficial to clinical practice.[15] Hence, qualitative research opportunities should be implemented and integrated into all medical fields to improve practice and teaching opportunities.

Furthermore, career advancement, the pursuit of personal interest, and pursuit of further education are the most agreed upon research enablers. On the other hand, the university's career advancement and recognition are the most agreed upon enablers in Banda Aceh, Indonesia study.[6] In Germany, general practitioners demonstrated using data from research to substantiate their quality of care as an enabler for research.[16]

Moving to barriers, lack of experience in qualitative research, lack of training, lack of release time by the program, and lack of financial incentives restraining most residents from doing qualitative research. Similarly, in Australia, one of the barriers was finance-related, which is low funding rates.[13] Also, a study done in Oman shared the same barrier to our study, which is a decrease in the allotted time.[9] Research blocks during residency program

should touch on these aspects because, in a previously done literature review, it was found that researchers who received more training have improved in evaluation skills, facilitation of knowledge translation, and developed a deeper understanding of the need for research which leads to personal and professional enhancement.[10,11]

Although most residents believe that qualitative research have a positive effect in health care system policies, it could not encourage residents to perform qualitative research because of their lack of experience on qualitative research. This reflects what is seen worldwide where there is only 3.4 folds increase in qualitative research but still in proportion is far less than quantitative accounting for 4.1 per cent of published papers throughout all specialties back in 2007.[3]

Lastly, since almost all senior family medicine residents are not conducting qualitative research, there should be qualitative research teaching and training directed to them.

**Recommendations:**

The study reflects the need to encourage residents to conduct more qualitative studies in the future and calls upon administration to provide more support both verbally and financially by giving incentives to residents to conduct qualitative research. Finally, future studies can be done in different family medicine residency program in a different areas of the Kingdom of Saudi Arabia and evaluate the progress among family medicine residents in performing qualitative research.

## Conclusion

This study satisfied the research aim of finding why family medicine residents do not conduct qualitative research. A clear idea of the residents' attitude was formulated, showing that residents find qualitative research as a good assistant to change. Regarding enablers, residents agreed that career advancement and pursuit of personal interests were good motivation to perform qualitative research. Moreover, multiple factors, such as lack of experience and lack of financial incentives, were conceived as barriers by residents. Finally, the study compares its finding to other research worldwide and summarizes the improvement needed in family medicine programs in relation to qualitative research.

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## ACKNOWLEDGEMENTS

The authors would like to express their deep gratitude to all residents who participated in this study. The authors would like to acknowledge the help of Dr. Muhammad Anwar Khan in performing the statistical analysis of the collected data.

## PEER REVIEW

Not commissioned. Externally peer reviewed.

## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

## FUNDING

None

## ETHICS COMMITTEE APPROVAL

This study was approved by the Institutional Review Board of King Abdullah International Medical Research Centre (KAIMRC), a research wing of KSAU-HS, Jeddah (Reference No: RJ20/097/J; Dated: 12/07/2020).

**Table 1: Residents demographics and research experience**

| Demographics | Mean | SD |
|---|---|---|
| **Age (years)** | 28.48 | 1.25 |
| | **n** | **%** |
| **Gender** | | |
| Male | 5 | 23.8 |
| Female | 16 | 76.2 |
| **Residency year** | | |
| R3 | 10 | 47.6 |
| R4 | 11 | 52.4 |
| **Additional Degrees:** | | |
| MBBS | 1 | 4.8 |
| Bachelor (other than MBBS) | 6 | 28.6 |
| Masters | 1 | 4.8 |
| Not applicable | 13 | 61.9 |
| **Have you conducted a research in the past?** | | |
| No | 2 | 9.5 |
| Yes | 19 | 90.5 |
| **If yes, How many?** | | |
| Not applicable | 2 | 9.5 |
| 1-2 years | 7 | 33.3 |
| 3-4 years | 10 | 47.6 |
| >4 years | 2 | 9.5 |
| **How many of them are qualitative?** | | |
| None | 10 | 47.6 |
| 1-2 | 7 | 33.3 |
| 3-4 | 2 | 9.5 |
| Not applicable | 2 | 9.5 |
| **Are you currently involved in a research project?** | | |
| No | 5 | 23.8 |
| Yes, quantitative | 11 | 52.4 |
| Yes, qualitative | 5 | 23.8 |
| **Have you received formal training in conducting research?** | | |
| No | 2 | 9.5 |
| Yes | 19 | 90.5 |
| **Total** | **21** | **100** |
| **If yes, for how long?** | | |
| 2 weeks | 3 | 17.6 |
| 1 month | 12 | 70.6 |
| 2 months | 2 | 11.8 |
| **Total** | **17** | **100** |

**Figure 1: Research experience and background**

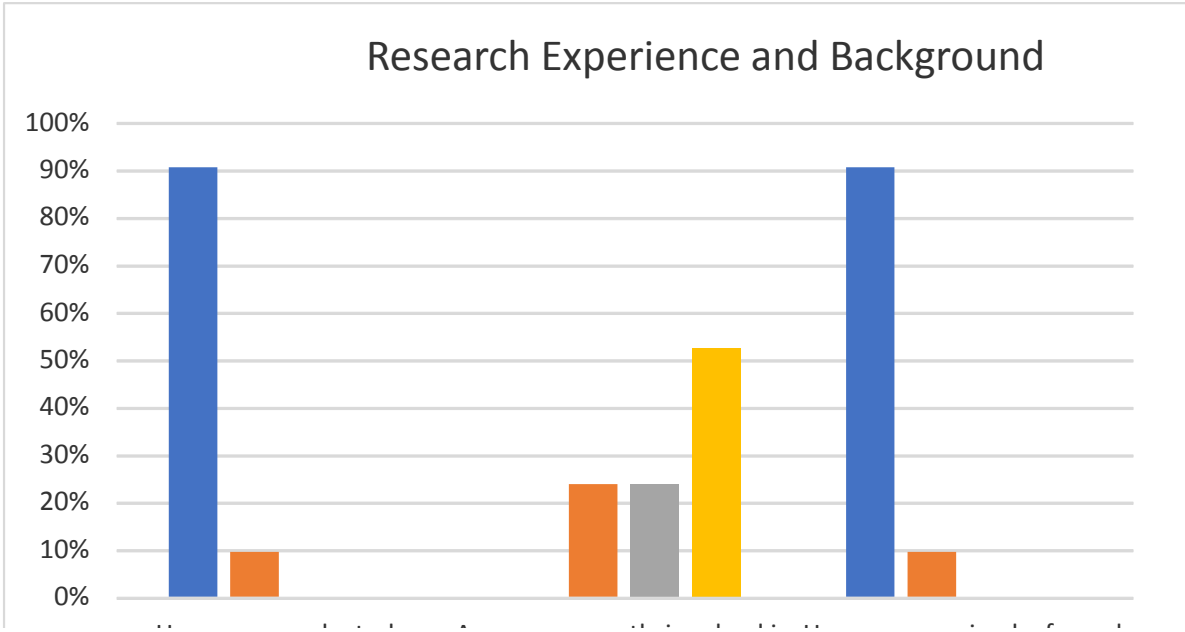


**Table 2: Research attitude**

| | Strongly disagree | | Disagree | | Neutral | | Agree | | Strongly agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| **I am interested in conducting a qualitative research** | 0 | 0 | 1 | 4.8 | 11 | 52.4 | 5 | 23.8 | 4 | 19.0 |
| **Qualitative research is more valid than quantitative research** | 1 | 4.8 | 3 | 14.3 | 13 | 61.9 | 4 | 19.0 | 0 | 0 |
| **Qualitative research has a positive effect on medical field** | 0 | 0 | 1 | 4.8 | 7 | 33.3 | 7 | 33.3 | 6 | 28.6 |
| **Qualitative research promotes critical thinking** | 0 | 0 | 0 | 0 | 8 | 38.1 | 7 | 33.3 | 6 | 28.6 |
| **Qualitative research improves patient care** | 0 | 0 | 0 | 0 | 9 | 42.9 | 7 | 33.3 | 5 | 23.8 |
| **Qualitative research helps professional enhancement** | 0 | 0 | 1 | 4.8 | 5 | 23.8 | 10 | 47.6 | 5 | 23.8 |
| **Qualitative research helps to change health policies** | 0 | 0 | 1 | 4.8 | 8 | 38.1 | 10 | 47.6 | 2 | 9.5 |
| **Qualitative research is easier to conduct** | 1 | 4.8 | 4 | 19.0 | 7 | 33.3 | 7 | 33.3 | 2 | 9.5 |
| **I am confident in my ability to conduct a qualitative research** | 1 | 4.8 | 1 | 4.8 | 14 | 66.7 | 4 | 19.0 | 1 | 4.8 |
| **Research should be a top priority** | 1 | 4.8 | 0 | 0 | 10 | 47.6 | 7 | 33.3 | 3 | 14.3 |
| **There should be dedicated time allotted for research** | 0 | 0 | 0 | 0 | 6 | 28.6 | 11 | 52.4 | 4 | 19.0 |

**Table 3: Research enablers to conduct research**

| | Strongly disagree | | Disagree | | Neutral | | Agree | | Strongly agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| **Career advancement** | **0** | **0** | 1 | 4.8 | 3 | 14.3 | 7 | 33.3 | 10 | 47.6 |
| **Support from administer** | **0** | **0** | 1 | 4.8 | 3 | 14.3 | 9 | 42.9 | 8 | 38.1 |
| **Pursuit of personal interest** | **0** | **0** | 2 | 9.5 | 5 | 23.8 | 5 | 23.8 | 9 | 42.9 |
| **Pursuit of further education** | **0** | **0** | **0** | **0** | 6 | 28.6 | 6 | 28.6 | 9 | 42.9 |
| **Release time from allocated duties** | **0** | **0** | 1 | 4.8 | 9 | 42.9 | 6 | 28.6 | 5 | 23.8 |
| **Opportunity to involve students** | **0** | **0** | 1 | 4.8 | 2 | 9.5 | 10 | 47.6 | 8 | 38.1 |
| **Opportunity to work with businesses and community partners** | **0** | **0** | 4 | 19.0 | 6 | 28.6 | 8 | 38.1 | 3 | 14.3 |
| **Formal recognition by the residency program** | **0** | **0** | **0** | **0** | 4 | 19.0 | 10 | 47.6 | 7 | 33.3 |

**Table 4: Research barriers**

| | Strongly disagree | | Disagree | | Neutral | | Agree | | Strongly agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| **Lack of experience** | 0 | 0 | 1 | 4.8 | 4 | 19.0 | 10 | 47.6 | 6 | 28.6 |
| **Lack of training** | 2 | 9.5 | 2 | 9.5 | 3 | 14.3 | 9 | 42.9 | 5 | 23.8 |
| **Lack of knowledge about qualitative research** | 0 | 0 | 3 | 14.3 | 7 | 33.3 | 6 | 28.6 | 5 | 23.8 |
| **Lack of release time by the residency program** | 2 | 9.5 | 2 | 9.5 | 4 | 19.0 | 5 | 23.8 | 8 | 38.1 |
| **Lack of administrative support** | 0 | 0 | 2 | 9.5 | 9 | 42.9 | 3 | 14.3 | 7 | 33.3 |
| **Lack of expert supervision** | 2 | 9.5 | 1 | 4.8 | 6 | 28.6 | 6 | 28.6 | 6 | 28.6 |
| **Lack of infrastructure** | 0 | 0 | 1 | 4.8 | 9 | 42.9 | 7 | 33.3 | 4 | 19.0 |
| **Lack of grants** | 0 | 0 | 1 | 4.8 | 10 | 47.6 | 7 | 33.3 | 3 | 14.3 |
| **Lack of financial incentives** | 0 | 0 | 1 | 4.8 | 6 | 28.6 | 7 | 33.3 | 7 | 33.3 |
| **Lack of recognition by the residency program** | 2 | 9.5 | 1 | 4.8 | 8 | 38.1 | 5 | 23.8 | 5 | 23.8 |

**Table 5: The association of demographics and research experience to current research activity**

| | Are you currently involved in a research project? | | | | | | |
|---|---|---|---|---|---|---|---|
| | No | | Yes, quantitative | | Yes, qualitative | | p-value |
| | n | % | n | % | n | % | |
| Gender | | | | | | | |
| Male | 0 | 0.0% | 4 | 80.0% | 1 | 20.0% | 0.527 |
| Female | 5 | 31.3% | 7 | 43.8% | 4 | 25.0% | |
| Residency year | | | | | | | |
| R3 | 0 | 0.0% | 5 | 50.0% | 5 | 50.0% | 0.005 |
| R4 | 5 | 45.5% | 6 | 54.5% | 0 | 0.0% | |
| Additional Degrees: | | | | | | | |
| MBBS | 0 | 0.0% | 0 | 0.0% | 1 | 100.0% | 0.476 |
| Bachelor (other than MBBS) | 2 | 33.3% | 4 | 66.7% | 0 | 0.0% | |
| Masters | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | |
| Not applicable | 3 | 23.1% | 6 | 46.2% | 4 | 30.8% | |
| Have you conducted a research in the past? | | | | | | | |
| No | 0 | 0.0% | 2 | 100.0% | 0 | 0.0% | 1.000 |
| Yes | 5 | 26.3% | 9 | 47.4% | 5 | 26.3% | |
| If yes, How many? | | | | | | | |
| Not applicable | 0 | 0.0% | 2 | 100.0% | 0 | 0.0% | 0.311 |
| 1-2 years | 3 | 42.9% | 3 | 42.9% | 1 | 14.3% | |
| 3-4 years | 2 | 20.0% | 6 | 60.0% | 2 | 20.0% | |
| >4 years | 0 | 0.0% | 0 | 0.0% | 2 | 100.0% | |
| How many of them are qualitative? | | | | | | | |
| None | 2 | 20.0% | 8 | 80.0% | 0 | 0.0% | 0.005 |
| 1-2 | 3 | 42.9% | 1 | 14.3% | 3 | 42.9% | |
| 3-4 | 0 | 0.0% | 0 | 0.0% | 2 | 100.0% | |
| Not applicable | 0 | 0.0% | 2 | 100.0% | 0 | 0.0% | |
| Have you received formal training in conducting research? | | | | | | | |
| No | 0 | 0.0% | 0 | 0.0% | 2 | 100.0% | 0.095 |
| Yes | 5 | 26.3% | 11 | 57.9% | 3 | 15.8% | |
| If yes, for how long? | | | | | | | |
| 2 weeks | 0 | 0.0% | 2 | 66.7% | 1 | 33.3% | 0.389 |
| 1 month | 3 | 25.0% | 8 | 66.7% | 1 | 8.3% | |
| 2 months | 0 | 0.0% | 1 | 50.0% | 1 | 50.0% | |

**Table 6: The association of research enablers to recent research activity**

| | Are you currently involved in a research project? | | | | | | |
|---|---|---|---|---|---|---|---|
| | No | | Yes, quantitative | | Yes, qualitative | | p-value |
| | n | % | n | % | n | % | |
| Career advancement | | | | | | | |
| Disagree | 0 | 0.0% | 0 | 0.0% | 1 | 100.0% | 0.347 |
| Neutral | 0 | 0.0% | 1 | 33.3% | 2 | 66.7% | |
| Agree | 2 | 28.6% | 4 | 57.1% | 1 | 14.3% | |
| Strongly agree | 3 | 30.0% | 6 | 60.0% | 1 | 10.0% | |
| Support from administer | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.098 |
| Neutral | 0 | 0.0% | 0 | 0.0% | 3 | 100.0% | |
| Agree | 2 | 22.2% | 6 | 66.7% | 1 | 11.1% | |
| Strongly agree | 3 | 37.5% | 4 | 50.0% | 1 | 12.5% | |
| Pursuit of personal interest | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 50.0% | 1 | 50.0% | 0.668 |
| Neutral | 0 | 0.0% | 3 | 60.0% | 2 | 40.0% | |
| Agree | 2 | 40.0% | 2 | 40.0% | 1 | 20.0% | |
| Strongly agree | 3 | 33.3% | 5 | 55.6% | 1 | 11.1% | |
| Pursuit of further education | | | | | | | |
| Neutral | 0 | 0.0% | 5 | 83.3% | 1 | 16.7% | 0.539 |
| Agree | 2 | 33.3% | 2 | 33.3% | 2 | 33.3% | |
| Strongly agree | 3 | 33.3% | 4 | 44.4% | 2 | 22.2% | |
| Release time from allocated duties | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.156 |
| Neutral | 0 | 0.0% | 5 | 55.6% | 4 | 44.4% | |
| Agree | 2 | 33.3% | 3 | 50.0% | 1 | 16.7% | |
| Strongly agree | 3 | 60.0% | 2 | 40.0% | 0 | 0.0% | |
| Opportunity to involve students | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.151 |
| Neutral | 0 | 0.0% | 0 | 0.0% | 2 | 100.0% | |
| Agree | 2 | 20.0% | 5 | 50.0% | 3 | 30.0% | |
| Strongly agree | 3 | 37.5% | 5 | 62.5% | 0 | 0.0% | |
| Opportunity to work with businesses and community partners | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 25.0% | 3 | 75.0% | 0.240 |
| Neutral | 1 | 16.7% | 4 | 66.7% | 1 | 16.7% | |
| Agree | 2 | 25.0% | 5 | 62.5% | 1 | 12.5% | |
| Strongly agree | 2 | 66.7% | 1 | 33.3% | 0 | 0.0% | |
| Formal recognition by the residency program | | | | | | | |
| Neutral | 0 | 0.0% | 2 | 50.0% | 2 | 50.0% | 0.313 |
| Agree | 2 | 20.0% | 5 | 50.0% | 3 | 30.0% | |
| Strongly agree | 3 | 42.9% | 4 | 57.1% | 0 | 0.0% | |

**Table 7: The association of research attitudes to current research activity**

| | Are you currently involved in a research project? | | | | | | |
|---|---|---|---|---|---|---|---|
| | No | | Yes, quantitative | | Yes, qualitative | | p-value |
| | n | % | n | % | n | % | |
| I am interested in conducting qualitative research | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.142 |
| Neutral | 2 | 18.2% | 8 | 72.7% | 1 | 9.1% | |
| Agree | 1 | 20.0% | 1 | 20.0% | 3 | 60.0% | |
| Strongly agree | 2 | 50.0% | 1 | 25.0% | 1 | 25.0% | |
| Qualitative research is more valid than quantitative research | | | | | | | |
| Strongly disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.006 |
| Disagree | 0 | 0.0% | 3 | 100.0% | 0 | 0.0% | |
| Neutral | 1 | 7.7% | 7 | 53.8% | 5 | 38.5% | |
| Agree | 4 | 100.0% | 0 | 0.0% | 0 | 0.0% | |
| Qualitative research has a positive effect on the medical field | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.088 |
| Neutral | 0 | 0.0% | 5 | 71.4% | 2 | 28.6% | |
| Agree | 1 | 14.3% | 3 | 42.9% | 3 | 42.9% | |
| Strongly agree | 4 | 66.7% | 2 | 33.3% | 0 | 0.0% | |
| Qualitative research promotes critical thinking | | | | | | | |
| Neutral | 0 | 0.0% | 6 | 75.0% | 2 | 25.0% | 0.042 |
| Agree | 1 | 14.3% | 3 | 42.9% | 3 | 42.9% | |
| Strongly agree | 4 | 66.7% | 2 | 33.3% | 0 | 0.0% | |
| Qualitative research improves patient care | | | | | | | |
| Neutral | 2 | 22.2% | 5 | 55.6% | 2 | 22.2% | 0.211 |
| Agree | 0 | 0.0% | 4 | 57.1% | 3 | 42.9% | |
| Strongly agree | 3 | 60.0% | 2 | 40.0% | 0 | 0.0% | |
| Qualitative research helps professional enhancement | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.248 |
| Neutral | 0 | 0.0% | 4 | 80.0% | 1 | 20.0% | |
| Agree | 2 | 20.0% | 4 | 40.0% | 4 | 40.0% | |
| Strongly agree | 3 | 60.0% | 2 | 40.0% | 0 | 0.0% | |
| Qualitative research helps to change health policies | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.232 |
| Neutral | 0 | 0.0% | 6 | 75.0% | 2 | 25.0% | |
| Agree | 4 | 40.0% | 3 | 30.0% | 3 | 30.0% | |
| Strongly agree | 1 | 50.0% | 1 | 50.0% | 0 | 0.0% | |
| Qualitative research is easier to conduct | | | | | | | |
| Strongly disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.036 |
| Disagree | 0 | 0.0% | 3 | 75.0% | 1 | 25.0% | |
| Neutral | 0 | 0.0% | 6 | 85.7% | 1 | 14.3% | |
| Agree | 4 | 57.1% | 1 | 14.3% | 2 | 28.6% | |
| Strongly agree | 1 | 50.0% | 0 | 0.0% | 1 | 50.0% | |
| I am confident in my ability to conduct a qualitative research | | | | | | | |
| Strongly disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.972 |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | |
| Neutral | 4 | 28.6% | 7 | 50.0% | 3 | 21.4% | |
| Agree | 1 | 25.0% | 2 | 50.0% | 1 | 25.0% | |
| Strongly agree | 0 | 0.0% | 0 | 0.0% | 1 | 100.0% | |
| Research should be a top priority | | | | | | | |
| Strongly disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.155 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Neutral | 2 | 20.0% | 7 | 70.0% | 1 | 10.0% | |
| Agree | 1 | 14.3% | 2 | 28.6% | 4 | 57.1% | |
| Strongly agree | 2 | 66.7% | 1 | 33.3% | 0 | 0.0% | |
| There should be dedicated time allotted for research | | | | | | | |
| Neutral | 0 | 0.0% | 5 | 83.3% | 1 | 16.7% | 0.020 |
| Agree | 5 | 45.5% | 2 | 18.2% | 4 | 36.4% | |
| Strongly agree | 0 | 0.0% | 4 | 100.0% | 0 | 0.0% | |

**Table 8: The association of research barriers to current research activity**

| | Are you currently involved in a research project? | | | | | | |
|---|---|---|---|---|---|---|---|
| | No | | Yes, quantitative | | Yes, qualitative | | p-value |
| | n | % | n | % | n | % | |
| Lack of experience | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.644 |
| Neutral | 0 | 0.0% | 3 | 75.0% | 1 | 25.0% | |
| Agree | 4 | 40.0% | 3 | 30.0% | 3 | 30.0% | |
| Strongly agree | 1 | 16.7% | 4 | 66.7% | 1 | 16.7% | |
| Lack of training | | | | | | | |
| Strongly disagree | 2 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0.407 |
| Disagree | 0 | 0.0% | 1 | 50.0% | 1 | 50.0% | |
| Neutral | 0 | 0.0% | 3 | 100.0% | 0 | 0.0% | |
| Agree | 2 | 22.2% | 4 | 44.4% | 3 | 33.3% | |
| Strongly agree | 1 | 20.0% | 3 | 60.0% | 1 | 20.0% | |
| Lack of knowledge about qualitative research | | | | | | | |
| Disagree | 0 | 0.0% | 2 | 66.7% | 1 | 33.3% | 1.000 |
| Neutral | 2 | 28.6% | 3 | 42.9% | 2 | 28.6% | |
| Agree | 2 | 33.3% | 3 | 50.0% | 1 | 16.7% | |
| Strongly agree | 1 | 20.0% | 3 | 60.0% | 1 | 20.0% | |
| Lack of release time by the residency program | | | | | | | |
| Strongly disagree | 2 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0.010 |
| Disagree | 0 | 0.0% | 2 | 100.0% | 0 | 0.0% | |
| Neutral | 0 | 0.0% | 4 | 100.0% | 0 | 0.0% | |
| Agree | 2 | 40.0% | 0 | 0.0% | 3 | 60.0% | |
| Strongly agree | 1 | 12.5% | 5 | 62.5% | 2 | 25.0% | |
| Lack of administrative support | | | | | | | |
| Disagree | 0 | 0.0% | 2 | 100.0% | 0 | 0.0% | 0.390 |
| Neutral | 2 | 22.2% | 4 | 44.4% | 3 | 33.3% | |
| Agree | 2 | 66.7% | 0 | 0.0% | 1 | 33.3% | |
| Strongly agree | 1 | 14.3% | 5 | 71.4% | 1 | 14.3% | |
| Lack of expert supervision | | | | | | | |
| Strongly disagree | 2 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0.093 |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | |
| Neutral | 0 | 0.0% | 5 | 83.3% | 1 | 16.7% | |
| Agree | 2 | 33.3% | 1 | 16.7% | 3 | 50.0% | |
| Strongly agree | 1 | 16.7% | 4 | 66.7% | 1 | 16.7% | |
| Lack of infrastructure | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 1.000 |
| Neutral | 2 | 22.2% | 5 | 55.6% | 2 | 22.2% | |
| Agree | 2 | 28.6% | 3 | 42.9% | 2 | 28.6% | |
| Strongly agree | 1 | 25.0% | 2 | 50.0% | 1 | 25.0% | |
| Lack of grants | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 1.000 |
| Neutral | 2 | 20.0% | 5 | 50.0% | 3 | 30.0% | |
| Agree | 2 | 28.6% | 4 | 57.1% | 1 | 14.3% | |
| Strongly agree | 1 | 33.3% | 1 | 33.3% | 1 | 33.3% | |
| Lack of financial incentives | | | | | | | |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0.547 |
| Neutral | 2 | 33.3% | 3 | 50.0% | 1 | 16.7% | |
| Agree | 3 | 42.9% | 3 | 42.9% | 1 | 14.3% | |
| Strongly agree | 0 | 0.0% | 4 | 57.1% | 3 | 42.9% | |
| Lack of recognition by the residency program | | | | | | | |
| Strongly disagree | 2 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0.139 |
| Disagree | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | |
| Neutral | 0 | 0.0% | 6 | 75.0% | 2 | 25.0% | |
| Agree | 2 | 40.0% | 1 | 20.0% | 2 | 40.0% | |
| Strongly agree | 1 | 20.0% | 3 | 60.0% | 1 | 20.0% | |

**Table 9: The association of age to current research activity**

| Age (years) | N | Mean | SD | 95% CI | | F | p-value |
|---|---|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound | | |
| No | 5 | 29.80 | 0.447 | 29.24 | 30.36 | 10.623 | 0.001 |
| Yes, quantitative | 11 | 28.45 | 1.128 | 27.70 | 29.21 | | |
| Yes, qualitative | 5 | 27.20 | 0.447 | 26.64 | 27.76 | | |