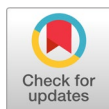


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Assessing Perceptions of Research Ethics in Higher Education Institutions in Khyber Pakhtunkhwa-Pakistan

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ABSTRACT

Background. The current study aimed to assess the level of perceptions, attitudes, and awareness regarding research ethics among faculty members and postgraduate students in Higher Education Institutions (HEIs) of Khyber Pakhtunkhwa (KPK), Pakistan.

Methods. The research was conducted in HEIs in Khyber Pakhtunkhwa (KPK), Pakistan, from August 2024 to January 2025. The study design was cross sectional. After obtaining ethical approval, about 245 participants were enrolled through convenience sampling. The data collection tool was a structured questionnaire reviewed by subject experts having questions related to perceptions of informed consent, attitudes towards research ethics, and views about university ethical committees. Data was analyzed using SPSS V. 22 where frequencies and percentages were calculated for summary statistics. For inferential statistics, chi-square and Kruskal-Wallis tests were applied for association between demographic and outcome variables.

Results. Majority of the participants were males (68%) and had a Master's degree with age range from 25-34(62%) years. Regarding perceptions of informed consent, about 93.9% expressed positive perceptions, 49.8% reported favorable attitudes towards research ethics, while 75.5% viewed research ethics committees positively. Significant association was observed between gender and attitudes towards research ethics ($p = .031$) along with perceptions of research ethics committees ($p = .008$). Age was also significantly correlated ($p < .001$) with attitudes towards research ethics, whereas those receiving ethical training exhibited better awareness ($p < .001$), attitudes ($p < .001$), perceptions of informed consent ($p = .019$), and ethics committees ($p < .001$).

Conclusion: The current study broadly highlighted a positive understanding of research ethics and participant perceptions. However, the key area highlighted required improvement and targeted approaches in context of attitudes and perceptions of ethical committees. By arranging trainings through institutional support, the culture of research ethics, individual perceptions, and ethical compliance can be positively reinforced.

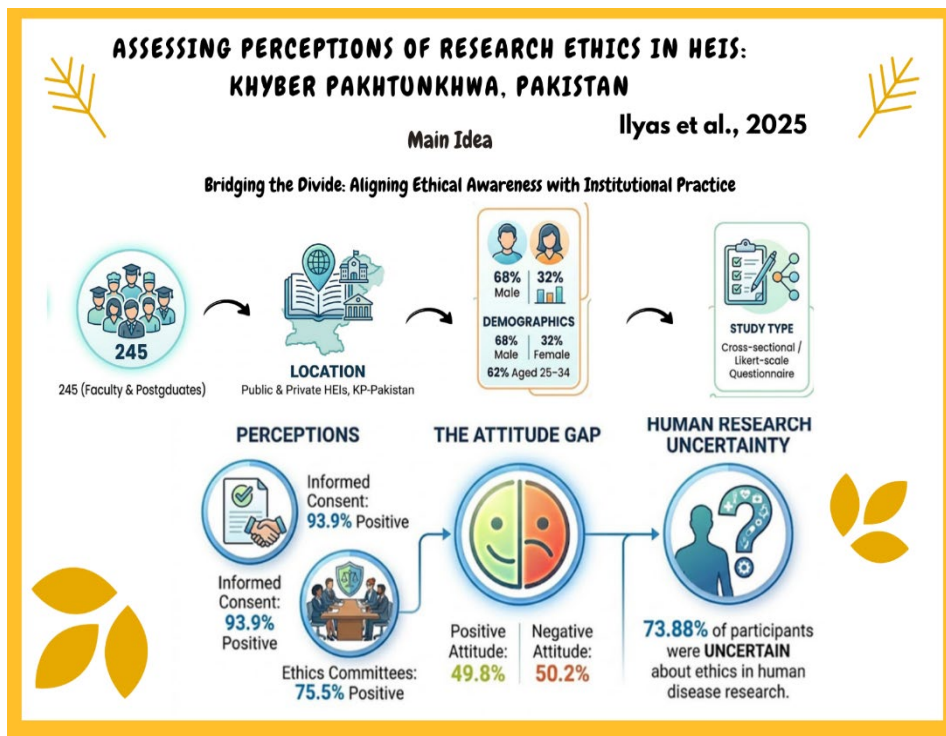
Keywords: ethical committee, higher education institutions, informed consent, research ethics

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Highlights

- The majority (93.9%) of respondents showed positive perceptions of informed consent in HEIs of KP.
- Nearly half of the participants demonstrated negative attitudes towards research ethics.
- Formal ethics training significantly improved awareness, attitudes, and perceptions ($p < .05$).

GRAPHICAL ABSTRACT



1. INTRODUCTION

Research ethics relies on few principles, and the ultimate goal of research ethics is to mitigate the harm, ensure privacy, and confidentiality [1]. Informed consent is one of the fundamental ethical principles in context of research involving human subjects. This states that those involved in research are fully aware of nature, potential benefits, and risks of the study before en-

rollment [2]. There is a considerable significant variation in the implementation of informed context owing to cultural, educational, and institutional contexts besides its universal recognition. In Khyber Pakhtunkhwa (KPK), where research infrastructure in educational institutions is still in developing phase, it is essential to understand the application of informed consent, research ethics, and the role of institutional ethics committees.

It is the role of institutional ethics committees to oversee the ethical conduct of research in academic institutions where the focus is to review research proposals, to ensure compliance as per ethical standards, and safeguard the rights and welfare of participants [3]. However, the efficiency of these committees is often reliant on their composition, resources, and the level of awareness among researchers and students.

The perceptions regarding informed consent, research ethics, and research ethical committee of both postgraduate students and institutional employees are essential factors that influence the research climate of an institution. An institution, where there is a lack of awareness or misconceptions about ethical principles, may suffer from ethical breaches in research practices. On the other hand, having strong understanding of these principle shows foster growth and active compliance of ethical standards [4]. In comparison with global research, few studies have examined the perceptions regarding informed consent and ethical procedures in KPK. Most of the previous studies have been conducted on this subject either in prosperous nations or Pakistani cities, understating rural and semi-urban areas [5]. The gap in the current literature highlighted the role of this study to assess the perceptions of students and employees of HEIs about informed consent, research ethics, and research ethics committees. This contributed to the tailored broader discourse on ethical research practices in the region.

2. METHODOLOGY

This cross-sectional study was conducted in various institutions of KPK from August 2024 to January 2025. After obtaining institutional ethical committee approval, about 245 participants including both employees and students were recruited

using nonprobability convenient sampling. The study population comprised postgraduate students and faculty members from both public and private universities of KPK. Faculty members and students unwilling to participate were excluded from this study. Data was collected after obtaining informed consent from all the participants using structured questionnaire and its content validity was verified from the subject experts. The questionnaire comprised questions related to attitudes towards research ethics, perceptions pertaining to informed consent, and perceptions of university research ethics committees. Participants were given the right to withdraw from the study at any stage without any consequences. All the questions consisted of 5-point Likert scale wherein 1 denotes strongly agree, while 5 indicates strongly disagree. The survey was administered using both online Google Forms and printed copies along with consent form based on participants' preference. Data obtained was kept anonymous and confidentiality was maintained throughout the study. Furthermore, data was analyzed using SPSS V.22. Frequency and percentages were calculated for qualitative variables and for summary statistics of participants' response. Regarding inferential statistics, chi-square test was applied to determine the association between demographics and key variables involved, that is, *i.e.*, attitudes towards research ethics, perceptions of informed consent, and perceptions of university research ethics committees. Kruskal-Wallis test was also applied to compare the mean across various groups. A *p*-value of less than 0.05 was considered statistically significant result.

3. RESULTS

The study population ($n=245$) comprised predominantly males (68%) aged 25-34 (62%), as shown in Table 1. The majority of participants held Master's degrees

(56%), while an equal proportion (22%) had Bachelor's and Doctoral degrees. Formal ethical training was reported by 44% of participants, with a substantial proportion

(40%) uncertain about their training statuses. Most participants had research experience, with 43% having 1-5 years and 32% having less than 1 year of experience.

Table 1. General Characteristics of the Study Population

Variable	Parameters	Frequency	Percentage
Age Groups	<25	52	22%
	25-34	153	62%
	35-44	28	11%
	45-54	8	3%
	>55	4	2%
Gender	Male	165	68%
	Female	80	32%
Level of Education	Bachelor's	54	22%
	Master's	136	56%
	Doctoral	55	22%
Received Formal Ethical Training	Yes	106	44%
	No	99	40%
	Uncertain	40	16%
Years of Research Experience	No research experience	37	15%
	<1 Year	79	32%
	1-5 Year	106	43%
	6-10 Year	17	07%
	>10 years	6	03%

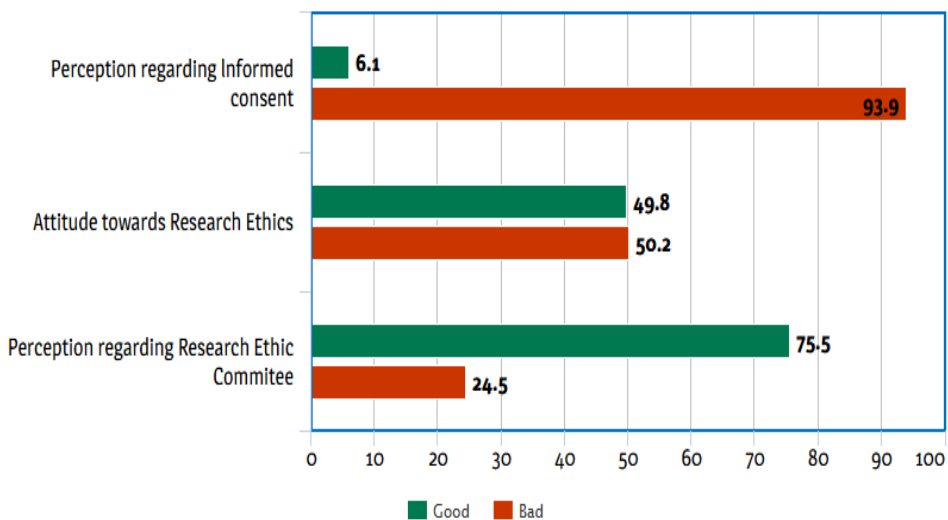


Figure 1. Percentage of Attitudes and Perceptions Regarding Research Ethics and Ethical Committees

Participants' views and beliefs about research ethics are shown in Figure 1. The majority of people (93.9%) had positive views on informed consent, whereas only 6.1% had opposing views. A significant majority (75.5%) had a positive view on the study ethics committees, whereas 24.5% had negative perceptions. The distribution of attitudes regarding research ethics was

more equally distributed, with a little greater percentage of respondents reporting good attitudes (49.8%) than negative attitudes (50.2%). While highlighting certain areas for improvement in general attitudes towards research ethics and perceptions of research ethics committees, this data indicated an extensive understanding of informed consent principles.

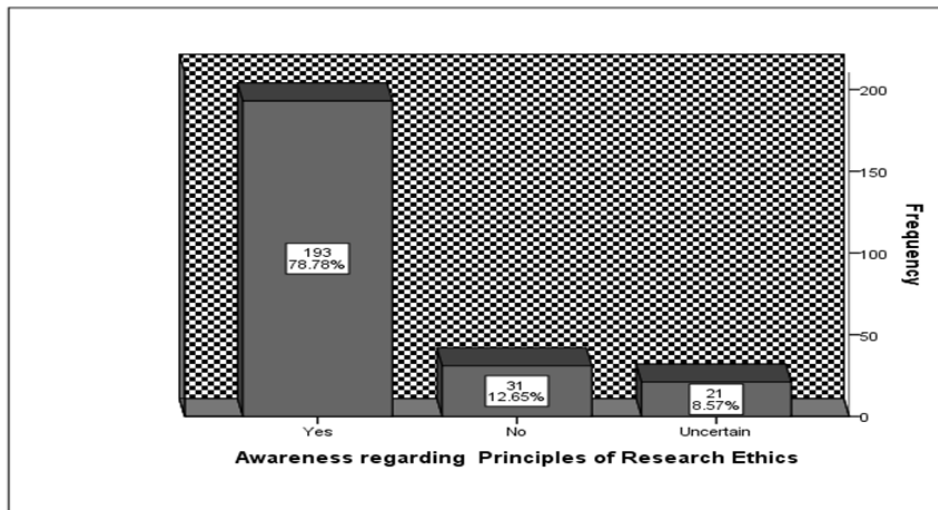


Figure 2. Awareness Regarding Principles of Research Ethics

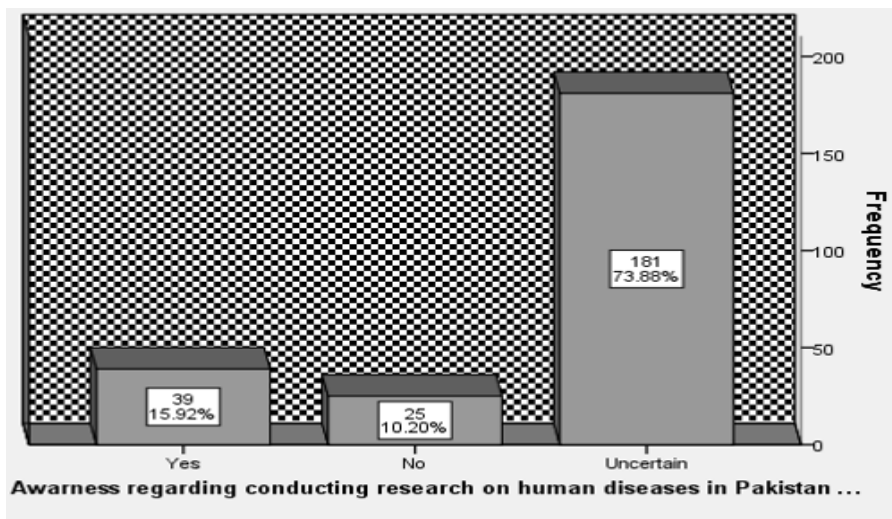


Figure 3. Awareness Regarding Conducting Research on Human Diseases in Pakistan

Table 2. Perceptions and Attitudes regarding Informed Consent, Research Ethics and Research Ethics Committees, and its Association with Demographic Variables

Variables		Perceptions about Informed Consent			Attitudes towards Research Ethics			Perceptions about Research Ethics Committees			Awareness of Research Ethics		
		Good	Bad	<i>p</i>	Good	Bad	<i>p</i>	Good	Bad	<i>p</i>	Good	Bad	<i>p</i>
Gender	Male	153	10	0.936	90	73	0.031	130	33	0.008			
	Female	75	5		32	48		55	25				
Age	<25	47	5	0.079	17	35	0.001	31	21	0.001	12	40	0.127
	25-34	145	8		93	60		129	24		57	96	
	35-44	28	0		12	16		22	6		10	18	
	45-54	6	2		0	8		3	5		1	7	
	>55	4	0		0	4		0	4		0	4	
Education	Bachelor's	49	2	0.248	27	24	0.811	34	17	0.236	13	38	0.578
	Master's	124	12		68	68		103	33		49	87	
	Doctoral	54	1		25	30		48	10		18	40	
Receive training on Research Ethics	Yes	142	4	0.019	64	42	0.001	91	15	0.001	53	53	0.001
	No	88	11		58	81		92	45		27	112	
Experience (in years)	No Exp	33	4	0.612	14	23	0.263	23	14	0.039	13	24	0.224
	<1 years	74	6		39	41		56	23		27	53	
	1-5 years	101	5		58	48		89	17		38	68	
	6-10 years	17	0		10	7		13	4		2	15	
	>10 years	5	0		1	4		4	1		0	5	

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of PracticesNum is the same across categories of Have you received formal ethics training?.	Independent-Samples Kruskal-Wallis Test	.247	Retain the null hypothesis.
2	The distribution of AttitudefoRE is the same across categories of Have you received formal ethics training?.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	The distribution of PercepREC is the same across categories of Have you received formal ethics training?.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

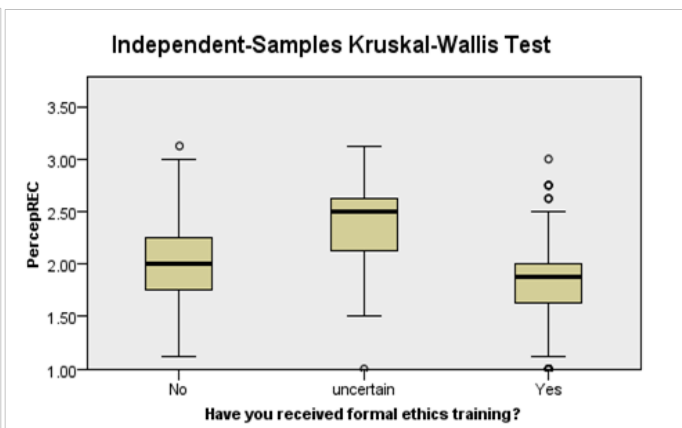
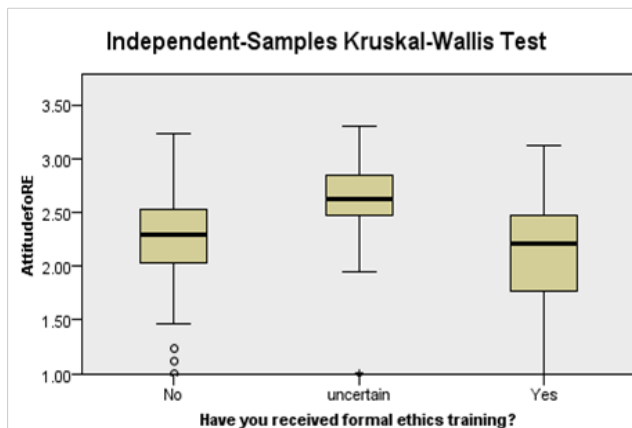
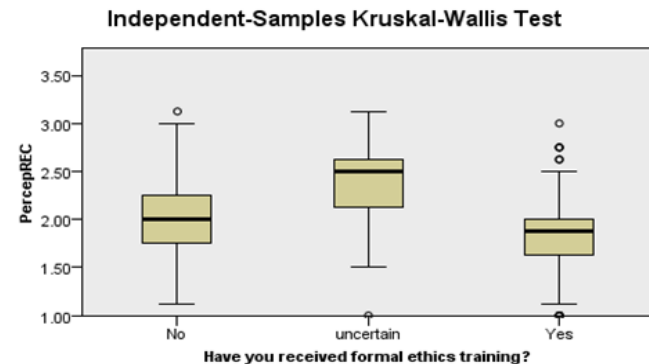


Figure 4. Kruskal-Wallis Test to Compare Mean Score of Perceptions and Attitudes towards Research Ethics and Research Ethical Committees with Ethical Training Received

The frequency of responses pertaining to awareness of research ethical principles is shown in Figure 2. A large number of participants were shown to be aware of research ethical principles ($n=193$, 78.78%), while ($n=21$, 8.57%) represented uncertain statuses. A smaller percentage ($n=31$, 12.65%) of participants were unaware regarding principles of research ethics. This suggests that the study population had a generally high degree of awareness, however, efforts would be required to fill in any knowledge gaps for the remaining individuals.

The frequency of responses about awareness of conducting research on human diseases is shown in Figure 3. A significant percentage of participants ($n=181$, 73.88%) was uncertain about conducting research on human diseases. Almost 15.92% ($n=39$) of the participants were aware, whereas 10.20% ($n=25$) were unaware. This data suggests the need for awareness to increase clarity regarding the uncertain status of higher proportion of participants. The relationship between perceptions and attitudes regarding informed consent, research ethics, and ethical committees is shown in Table 2. Gender was significantly associated with attitudes towards research ethics ($p=.031$) and perceptions of the research ethics committees ($p=0.008$) but showed non-significant association perceptions of informed consent ($p=0.936$).

Significant correlations were observed between ages and attitudes towards research ethics ($p<0.001$), perceptions of the research ethics committees ($p<0.001$), whereas non-significant correlation was noted with perceptions on informed consent ($p=.079$). No significant correlation was found between education level and any of the perceptions on informed consent. All of the following variables showed significant

associations with participants who had received research training on research ethics (RToRE): awareness of research ethics ($p<0.001$), research ethics committees' perceptions ($p<0.001$), research ethics attitudes ($p<0.001$), and informed consent perceptions ($p=0.019$). Age was shown to be significantly correlated with attitudes towards research ethics ($p<0.001$) and perceptions of research ethics committees ($p<0.001$). Whereas, perceptions of informed consent were not significantly correlated ($p=0.079$).

Education level did not significantly correlate with perceptions of informed consent. Research ethics awareness ($p<.001$), perceptions of the research ethics committees ($p<.001$), research ethics attitudes ($p<.001$), and perceptions of informed consent ($p=.019$) all exhibited significant correlations with participants who had received training on research ethics.

Results of the Kruskal-Wallis test showed statistically significant differences of both attitudes towards research ethics, $df = 2$, $p < 0.001$) and perceptions of the research ethics committees, $df = 2$, $p < 0.001$) with formal ethics training (Figure 4). Those who received prior ethics training exhibited positive attitudes and perceptions compared to those who had not received research ethics training, highlighting the importance of research ethics training. However, no statistically significant difference was found for perceptions of informed consent, $df = 2$, $p = 0.247$), indicating that formal ethics training was not associated with a change in this variable.

4. DISCUSSION

The study highlighted the level of perceptions of informed consent, research ethics, and the role of research ethics committees among postgraduate students and employees of HEIs of KPK). This study was

designed with the aim to explore the current perspective of research ethics and associated culture in various universities of KPK. In this study, majority of the participants (93.9%) showed positive views regarding informed consent which is aligned with global standards of ethical principles. This depicts that informed consent is a basic principle to protect participant rights and autonomy [6-8]. However, about 6.1% of participants showed opposing views, which needs to be addressed. Furthermore, another study in Pakistan highlighted the cultural norm as an influential factor in decision-making [9].

Regarding the perceptions of ethics committees, about 75.5% of the participants had positive perceptions, whereas 24.5% showed negative perceptions. This highlights the importance of awareness regarding ethical committees' role and responsibilities as a significant percentage of the participants showed concern regarding their roles and responsibilities. Similar observations have been reported in another study where key factors were highlighted, that is, resource constrain and limited training hinder the functioning of ethical committees [10]. Another study conducted in 2024 reported similar findings where 51.5% and 52.3% of the participants knew the existence and familiarity of research ethics committees as well as their roles and responsibilities, respectively [11]. Another study from Myanmar also reported similar findings about basic research principles and functions of research ethics committees [12].

Regarding attitudes towards research ethics, an evenly-split view was noted, where 50.2% and 49.8% of the participants showed negative and positive attitudes, respectively. The higher percentage of negative attitudes highlights the need for improvement through enhanced awareness

and integration of ethical dimensions in academic curricula. These findings are consistent with another study from Pakistan where majority of the participants showed positive attitudes towards research ethics [11]. To address this, there must be a culture of ethical research trainings and awareness sessions to develop positive attitudes towards research ethics.

Figure 2 reveals that most of the participants (78.78%) in this study were mostly aware of ethical practice, indicating high level of awareness in this population, however uncertain (8.57%) and unaware participants (12.65%) need targeted intervention to address the gaps. This is supported by Myanmar study where majority (almost 92%) of participants were aware of ethical practices and ethical research committee in their institutions [13].

The current findings are also aligned with the global study where formal education and research experience are directly linked to increased awareness of bioethics principles among researchers [14-16]. This highlights the importance of comprehensive and accessible training opportunities to be provided for all the stakeholders involved to cater to a diverse audience. For instance, university students, postgraduate researchers, and faculty members would be more aware if their curricula offer compulsory contact hours for principles of research ethics along with refresher courses. Moreover, inter-institutional collaboration may also disseminate the knowledge and reduce the knowledge gap between urban and rural setups.

Interestingly, this study revealed another important factor to be addressed, that is lack of awareness and clarity for research on human diseases among the participants. Majority (73.88%) of the participants were

uncertain about this question. Similar findings were reported by another study, which highlights the instant need of trainings about the ethical guidelines on research involving human subjects. It may be due to certain systemic challenges, such as insufficient periodic professional trainings. Another study underscored the scarce educational trainings and a lack of emphasis on research ethics as a putative factor for uncertain behaviors, especially in low and middle-income countries [10].

Universities' ethical committees play a major role in developing ethical research culture in HEIs [17]. In this study, the knowledge about existence of research ethical committees was 60%. However, a significant percentage of researchers (40%) were unaware of ethical committees' existence. This might question their contribution in promoting ethical practices and culture of research in HEIs. In this study, this highlighted the under visibility of research ethical committees reflected by unawareness of ethical committees' existence. This is supported by another study, stating that universities' ethical committees play a pivotal role in mitigating unethical practices and ensuring compliance of ethical standards. It concluded that visibility of ethical committee and necessary approval of all studies involving human research maximize the culture of ethical research.

4.1. Conclusion

This study shows an overall good understanding of research ethics; however, there are certain key areas that require improvement, especially regarding the attitudes and perceptions of participants toward ethical committees. Strengthening training initiatives with institutional support can enhance the culture of research ethics, improve individual perceptions, and promote better ethical compliance.

Author Contribution

Muhammad Ilyas: conceptualization, data curation, formal analysis, methodology, supervision, validation, writing original draft. **Shehryar Ahmad:** conceptualization, data curation, formal analysis, validation, writing - original draft. **Atta ur Rehman:** conceptualization, visualization, methodology. **Muhammad Ayaz:** data curation, writing review and editing. **Raza Ullah:** data curation, writing - review & editing. **Sheraz Ahmad:** conceptualization, data curation, formal analysis. **Muhammad Haroon:** data curation, formal analysis, visualization

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The datasets used and analyzed supporting the findings were included in the main manuscript. The raw data during the current study is available to researchers on request from the corresponding author.

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Generative AI Disclosure Statement

The authors did not use any type of generative artificial intelligence software for this research.

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