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# Examining Chinese social sciences graduate students' understanding of research ethics: implications for their research ethics education

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Using the research ethics scale (Huang et al., 2021) and follow-up interviews, this study examined Chinese social sciences graduate students' understanding of research ethics of empirical studies involving human subjects. The participants included 463 Chinese graduate students majoring in teacher education, English education, management, and economics. The quantitative findings suggested that these graduate students had a fairly good understanding of researchers' ethical responsibilities and developed general human subjects' ethical awareness; furthermore, there existed significant research experience and gender-by-research experience interaction effects on their understanding of researchers' ethical responsibilities and human subjects' ethical awareness, respectively. The qualitative results indicated that the participants had realized the importance of ethics reviews for social sciences research including human subjects; and they identified best ways to promote research ethics education for social sciences graduate students in Chinese higher education. Implications for Chinese university leaders, program developers, and research methods professors are discussed.

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## Introduction

In developed countries like the United States, Canada, and the United Kingdom, it is mandatory for social sciences researchers to obtain ethical approvals for their research studies involving human subjects (Ball and Janyst, 2008; Barnbaum and Byron, 2001; Hemmings, 2006; Huang et al., 2021; Koepsell et al., 2014; Lincoln and Tierney, 2004; Lopus et al., 2007; Mauthner et al., 2002). However, they are not mandatory in most developing countries including China (Huang et al., 2021; Sleem et al., 2010). The aim of ethical reviews is to protect participants' privacy and rights (Citro et al., 2003; Huang et al., 2021; Zeni, 2001). In the United States and Canada, for example, their federal regulations govern the protection of research participants (IAPRE, 2010; U.S. DHHS, 1991).

Therefore, social sciences researchers in these countries have to receive official ethical approvals before they conduct studies including human subjects (AERA, 2000; BERA, 1992). Two purposes of ethical reviews are to help (a) social sciences researchers to know that they are responsible for protecting their human participants (Aubrey et al., 2000; Brooks et al., 2014; Huang et al., 2021; Sanders III and Ballengee-Morris, 2008; Sikes and Piper, 2011) and (b) human participants develop their ethical awareness and make sure that they are safe from harm and risks (Aubrey et al., 2000; Huang et al., 2021).

Although ethics reviews are not mandatory in most developing countries like China (Huang et al., 2021), some universities and research organizations in these countries started to require ethics reviews a few years ago for social sciences research involving human participants. This is because research in social sciences is becoming more and more international and collaborative (Huang et al., 2021; Koepsell et al., 2014; Li, 2016; Wu, 2011). For example, research ethics committees (RECs) were successfully established at a couple of Chinese universities. These RECs are responsible for conducting ethical reviews for researchers who involve human subjects in their studies (Huang et al., 2021).

In Chinese universities, however, there are not many RECs for social sciences research; researchers are not required to go through ethical reviews for their studies involving human participants (Huang et al., 2021; Koepsell et al., 2014). Given that China has become a rapidly developing country and research in social sciences is becoming more and more important in its higher education (Huang et al., 2021; MoE, 2016), the examination of social sciences graduate students' understanding of research ethics would yield important implications for the research ethics education in Chinese universities.

## A brief summary of the literature

It is a common practice for social sciences graduate students to receive research ethics education at the universities in developed countries (AERA, 2000; ASA, 1998; Drew et al., 2008; Oliver, 2003). The aim of research ethics education is to develop students' responsibilities and promote their awareness in research ethics (Huang et al., 2021; Zeni, 2001).

Social sciences researchers must understand that they are obliged to provide their human participants with detailed information about the research and obtain their consent for participation (Creswell, 2014; Decker et al., 2011; Nolen and Vander Putten, 2007; Oliver, 2003; Price, 2001; Sigler, 2009). The researchers must also understand that "consent to participate may be given by an adult, a parent, guardian, or other agent legally authorized to act on a person's behalf" (Drew et al., 2008, p. 78). Likewise, human participants must be aware that they should be informed by the researchers how the research is conducted, what the potential risks are, and whether or not their participation is voluntary (Creswell, 2014; Drew et al., 2008; Huang et al., 2021).

Furthermore, educational researchers must be responsible for protecting their human participants' privacy (Lincoln and Tierney, 2004; Zeni, 2001). Privacy can be an individual's "right", which is valued in Western countries (Drew et al., 2008). It is the educational researchers' responsibility to protect their human participants' privacy and maintain confidentiality in collecting and analyzing the data. They need to understand that no name is required for data collection; further data are analyzed and reported as groups to protect the anonymity of the participants (AERA, 2000; Oliver, 2003). Similarly, participants in social sciences research must know the limits of their protections, how confidentiality will be maintained, and the procedures taken to minimize risks to confidentiality before they participate in the study (AERA, 2000; BERA, 1992).

In addition, researchers must be responsible for protecting their human subjects from risks and harm by serving as participants, which has become the most basic ethical concern in social sciences research (AERA, 2000; Bankert and Amdur, 2006; BERA, 1992; Drew et al., 2008; Mauthner et al., 2002; Oliver, 2003). Therefore, the researchers must take particular care with young children, older individuals, or disabled individuals (Bankert and Amdur, 2006; Oliver, 2003; Sanders III and Ballengee-Morris, 2008). If there are potential risks, the researchers must know how serious they are and how they are minimizing these risks (Bankert and Amdur, 2006; Oliver, 2003; Zeni, 2001). According to AERA (2000), it is the right of participants, or their guardians to know the potential risks and consequences by participating in a study; therefore, the participants must ensure that there are no known or foreseeable risks and harm incurred by their participation in the study.

The last but not the least, integrity has become an important ethical issue in social sciences research. There are several integrity related ethical issues that the researchers must be aware of in conducting and publishing educational research (Huang et al., 2021; Jones, 2000; Mullen, 1999; Simons and Usher, 2000). For example, it is the researchers' ethical responsibility to maintain integrity during the execution of a research study. The data collected for a study must be objective and accurate. Further, cheating in both data collection and data analysis is unethical and it invalidates the results of a research study. Therefore, researchers must follow the codes of ethics in conducting research and be honest in both data collection and data analysis (Drew et al., 2008; Huang et al., 2021). Similarly, researchers should also maintain integrity during the publication of their research. Unethical conduct includes plagiarism, simultaneous submission, and inappropriate authorship practices (Jones, 2000; Simons and Usher, 2000). For example, it is not ethical for social sciences researchers to adopt an instrument for data collection without obtaining the copyright owner's permission; it is also not ethical to present other researchers' work without citing properly in the article. Further, multiple publications of the same article and the submission of the same article to multiple journals at once are unethical practices; and the list and order of authors must be decided according to each other's contribution to the article (Drew et al., 2008).

Within the realm of business ethics research, gender emerges as one of the most frequently examined variables (Loe et al., 2000; O'Fallon and Butterfield, 2005; Schminke, 1997). Many studies indicated that gender plays a role in ethical awareness, orientation, judgment, and behavior (Cohen et al., 2001; Glover et al., 2002; Jaffee and Hyde, 2000; Libby and Agnello, 2000; Loo, 2003; Lund, 2008). For example, many researchers reported that women were usually more ethical in their responses than men (Loo, 2003; Glover et al., 2002; Lund, 2008), whereas Schminke (1997) indicated there were no significant differences between

them. According to Dalton and Ortegren (2011), the business ethic disparities between genders are not inherently derived from gender itself, but are a manifestation of social desirability response bias.

However, there is limited exploration of the gender impact on research ethics in other social sciences such as education, management, and economics. Huang et al. (2021) found that gender could significantly impact educational researchers' perceptions of ethical awareness and responsibilities. Further investigation is needed to examine the gender effect on research ethics in social sciences.

Since two decades ago, researchers in some developing countries (e.g., China, Lebanon, Qatar, South Africa) have started to examine ethical issues in social sciences research (Huang et al., 2021; Makhoul et al., 2014; Mamotte and Wassenaar, 2009). For example, Huang et al. (2021) conducted a mixed-methods study to examine participants' understanding of ethical responsibilities and perceptions of ethical awareness. A total of 418 faculty members and graduate students representing two universities in China participated in this study. Results indicated that participants knew basic researchers' ethical responsibilities and demonstrated general participants' ethical awareness.

This current study intended to move forward this research topic in Chinese higher education. Specifically, using the 29-item scale (Huang et al., 2021) and interviews with 30 selected participants, this study examined 463 Chinese social sciences graduate students' perceptions of research ethics for empirical studies including human subjects.

### Research questions

Four research questions were asked: (a) what is the impact of gender and previous empirical research experience (i.e., with versus without) on Chinese graduate students' understanding of researchers' ethical responsibilities? (b) What is the impact of gender and previous empirical research experience on Chinese graduate students' understanding of human subjects' ethical awareness? (c) Why are ethical reviews important for research studies involving human subjects? And (d) how should we promote research ethics education for social sciences graduate students?

### Methods

**Ethical review.** This study was reviewed and approved by the REC at the two researchers' organization before data collection. It is important to mention that this REC was recently established and it becomes one of a few social sciences RECs in Chinese universities (Huang et al., 2021).

**Instruments and data collection.** The instrument for this study was a 29-item five-point Likert research ethics scale (Huang et al., 2021, p. 327) measuring Chinese graduate students' understanding of researchers' ethical responsibilities and human subjects' ethical awareness in conducting empirical studies involving human subjects. This scale demonstrated good internal consistency reliability ( $\alpha = 0.92$ ) and excellent construct validity (Huang et al., 2021).

In addition, follow-up interviews were conducted between 30 participants and the first author of this article. These participants were selected based on the following criteria: (a) they successfully completed the five-point scale; (b) they studied at different participating universities; and (c) they represented different majors of teacher education, English education, management, and economics. Eight interview questions (see Table 4) were asked during each interview. These questions were based around the last two research questions of this study, i.e., why are ethical

reviews important for research studies involving human subjects? And (d) how should we promote research ethics education for social sciences graduate students?

Data collection was conducted electronically through WeChat, a popular social media platform in China. The participants were informed of the purpose and methods of the study. They knew that they participated in this study voluntarily and the confidentiality of their responses was also guaranteed.

**Participants.** Four hundred and sixty-three Chinese graduate students representing 12 universities across central and eastern China were the participants of this study. Their reported graduate studies majors were teacher education, English education, management, and economics. Among them, 115 were male, and 344 were female participants; 242 had previous empirical experience in conducting studies involving human subjects, and 221 did not have such experience. Further, among the 242 graduate students who had previous empirical experience in conducting studies involving human subjects, 87 were male, and 155 were female; among the 221 graduate students who did not have previous empirical research experience, 32 were male, and 189 were female participants. Finally, among the 30 graduate students who were interviewed, seven were male, and 21 were female; 18 had previous empirical research experience, and 12 had no such experience.

**Data analysis.** Using SPSS, the following analyses were performed: (a) the exploratory factor analysis (EFA), (b) the calculation of the internal consistency reliability, (c) descriptive statistical analysis, and (d) two gender-by-research experience ( $2 \times 2$ ) factorial ANOVAs for the two dependent variables (i.e., ethical responsibilities and ethical awareness), respectively. These factorial ANOVAs examined the significant main (i.e., gender and experience) and interaction (i.e., gender-by-experience) effects on Chinese graduate students' understanding of researchers' ethical responsibilities and human subjects' ethical awareness, respectively.

In addition, the interview data were analyzed both qualitatively and quantitatively. Qualitatively, the two researchers (coders) color-coded responses to interview questions and organized by content under the last two research questions. They then sorted similar responses under each research question into different categories and subcategories first independently, then collaboratively; and they finally discussed and categorized similar content by recurring themes. The purpose of this process was to ensure that the qualitative data analysis was reliable (Creswell, 2014). Further, participants' direct quotes were incorporated to enhance the validity (Creswell, 2014). Quantitatively, frequencies and percentages of each recurring theme were calculated and included in the results.

### Results

**The psychometric quality of the instrument.** Using maximum likelihood and promax rotation, the EFA was conducted to examine the construct validity of the instrument. The following results suggested that this instrument with 29 items contained two common factors: (a) the Kaiser-Meyer-Olkin value of 0.93; (b) two factors exhibiting eigenvalues  $>1$ ; (c) a two-factor scree plot; and (d) 61.96% of the variance explained. As Table 1 shows, the factor loadings for all items were  $>0.30$ . Under the responsibilities common factor, there were 17 items; and under the awareness common factor, there were 12 items. According to Huang et al. (2021), the 29 items were constructed based on previous literature, and thus they were valid.

Furthermore, the scale was shown to be highly reliable (alpha = 0.97). In addition, the two subscales were also shown to be highly reliable, i.e., the responsibilities subscale had an alpha coefficient of 0.97 and the awareness subscale demonstrated an alpha coefficient of 0.90.

**The descriptive statistics.** Descriptive statistics was summarized in Table 1. As Table 1 shows, 14 out of 17 items under

responsibilities had a mean score of over 4 out of 5, indicating that the participants had a fairly good understanding of ethical responsibilities that researchers must take. These results also indicated that they need further education to better understand the researchers' ethical responsibilities when they are conducting empirical studies that involve human participants.

Also as shown in Table 1, for the 12 items measuring participants' ethical awareness, seven out of 12 item had a mean score of over 4 out of 5, indicating that the participants demonstrated general ethical awareness. However, five items had a mean score of below 4.0, suggesting that they need further education to increase their ethical awareness as research participants.

**Table 1 Descriptive statistics and factor loadings of the 29 items.**

Items	1st factor	2nd factor	M	SD
1	0.75		4.32	1.04
2	0.80		4.51	0.97
4	0.79		4.17	0.99
6	0.73		4.03	1.00
7	0.53		4.13	0.94
10	0.65		4.10	0.95
11	0.81		4.23	0.90
14	0.87		4.44	0.91
15	0.70		4.11	0.87
16	0.57		3.75	1.05
17	0.69		3.98	1.17
18	0.60		3.63	0.97
20	0.84		4.37	0.95
25	0.81		4.13	1.06
27	0.93		4.35	0.98
28	0.81		4.13	1.14
29	0.92		4.43	0.98
3		0.52	3.21	1.17
5		0.78	4.37	0.94
8		0.65	4.11	0.97
9		0.74	4.22	1.01
12		0.71	3.97	1.04
13		0.70	4.08	0.98
19		0.38	3.61	1.28
21		0.49	3.55	1.16
22		0.69	4.17	0.99
23		0.54	3.87	1.18
24		0.63	4.32	0.94
26		0.66	4.21	0.96

N = 463; 1st factor = researchers' ethical responsibilities; 2nd factor = participants' ethical awareness.  
M mean, SD standard deviation.

**The 2 × 2 (gender-by-experience) ANOVAs.** In order to investigate the impact of gender and previous empirical research experience on participants' understanding of researchers' ethical responsibilities and human subjects' ethical awareness, two 2 × 2 (gender-by-experience) ANOVAs were conducted, respectively. Both ANOVAs yielded significant results, which are displayed in Tables 2 and 3.

As Table 2 shows, there was a significant main effect for whether or not participants had previous empirical research experience. Participants who had conducted studies involving human subjects (mean = 74.38) understood researchers' ethical responsibilities significantly better than participants without such experience (mean = 68.46) ( $p < 0.01$ , effect size = 0.035). Further, the gender-by-experience interaction effect was found to be significant for female participants. Specifically, the female participants who had conducted studies involving human subjects (mean = 76.07) understood researchers' ethical responsibilities significantly better than those female participants without such experience (mean = 65.53) ( $p < 0.01$ , effect size = 0.022). However, there was no significant gender-by-experience interaction effect for male participants with (mean = 72.70) and those without (mean = 71.38) previous experience in conducting empirical studies involving human subjects.

Similarly, as Table 3 shows, there was a significant main effect for whether or not participants had previous empirical research experience. Participants who had conducted studies involving human subjects (mean = 49.68) had significantly better ethical awareness than participants without such experience (mean = 46.55) ( $p < 0.01$ , effect size = 0.023). Further, the gender-by-experience interaction effect was found to be

**Table 2 Gender-by-experience ANOVA for researchers' ethical responsibilities.**

Sources	Degrees of freedom	Mean squares	F values	Significance	Effect sizes
Gender	1	112.63	0.73	n.s.	0.002
Experience	1	2579.91	16.77	**	0.035
Gender*Experience	1	1554.74	10.10	**	0.022

\*\* $p < 0.01$ ; n.s. not significant.

**Table 3 Gender-by-experience ANOVA for participants' ethical awareness.**

Sources	Degrees of freedom	Mean squares	F values	Significance	Effect sizes
Gender	1	22.57	0.33	n.s.	0.001
Experience	1	718.94	10.61	**	0.023
Gender*Experience	1	954.06	14.08	**	0.030

\*\* $p < 0.01$ ; n.s. not significant.

**Table 4 Summarized interview results.**

Interview questions	Research questions	Recurring themes
(a) Explain ethical reviews for studies including human participants? (b) What is the general purpose of ethical reviews for studies including human participants? (c) Are ethical reviews important for studies including human participants? Explain why. (d) Why are ethical reviews beneficial for the participants? (e) Why are ethical reviews beneficial for the researchers?	Why are ethical reviews important for research studies involving human subjects?	(a) Protecting participants' dignity, interests, and rights; (b) avoiding conflicts of interests; (c) ensuring the reliability and validity of research findings; (d) protecting participants from harm and risks; (e) protecting researchers from harm and risks; and (f) making researchers abide by research ethics
(a) Did you receive research ethics education during your undergraduate and graduate education? (b) Do you think it is necessary for the university to offer research ethics educational courses or training to social sciences graduate students? And why? And (c) what are your suggestions and recommendations for the university to offer research ethics educational courses or training to social sciences graduate students?	How should we promote research ethics education for social sciences graduate students?	(a) Making ethics reviews mandatory for research involving human participants; (b) including research ethics related topics and materials in research methods courses; (c) offering special training workshops on research ethics; (d) offering university wide discussions on special research ethics cases; and (e) guiding students in research ethics review process

significant for female participants. Specifically, the female participants who had conducted studies involving human subjects (mean = 51.20) had significantly better ethical awareness than those female participants without such experience (mean = 44.47) ( $p < 0.01$ , effect size = 0.030). However, there was no significant gender-by-experience interaction effect for male participants with (mean = 48.15) and those without (mean = 48.63) previous experience in conducting empirical studies involving human subjects.

**The interview results.** The 30 interviewees' responses to the eight interview questions were coded and then grouped under the corresponding research questions. They were further categorized into the following themes under each research question. The results are summarized in Table 4.

*The importance of ethics reviews.* The 30 interviewees commented that ethics reviews for social sciences research can (a) protect participants' dignity, interests, and rights; (b) avoid conflicts of interests between researchers and participants; (c) ensure the reliability and validity of research findings; (d) protect participants from harm and risks; (e) protect researchers from harm and risks; and (f) make researchers abide by research ethics. These findings were consistent with previous literature (Huang et al., 2021).

*Protecting participants' dignity, interests, and rights.* Among these 30 participants, 24 (80%) of them commented that ethics reviews can protect participants' dignity, interests, and rights. Some participants made the following comments: "the researchers must protect the human participants' privacy;" "they [the researchers] maintain confidentiality when they are collecting the data;" and "the researchers cannot use participants' real names in reporting research results."

*Avoiding conflicts of interests between researchers and participants.* Among these 30 participants, 18 (60%) of them mentioned that ethics reviews can avoid research-participant interest conflicts. One of them stated that "if the researchers did not obtain the ethical approval before their data collection, conflicts of interests might occur [between the researchers and participants]." "It is important to ensure that there are no conflicts of interests," added by another participant.

*Ensuring the reliability and validity of research findings.* Among the 30 participants, 15 (50%) of them commented that ethics reviews can ensure the reliability and validity of research findings. The following are selected comments made by two participants: "... without ethics reviews, there is no guarantee that the measuring tools are reliable and valid ... and the research results

would be questionable;" and "ethics reviews can ensure that data collection procedures are ethical and the methods of data analysis are scientific."

*Protecting participants from harm and risks.* Among the 30 participants, 25 (83.3%) of them stated that ethics reviews can protect participants from harm and risks. The following are a comments made by one participant: "... ethics reviews can assess the likelihood and seriousness of potential physical and psychological risks and minimize these risks ... they [ethics reviews] can also minimize risks to confidentiality ... therefore, they [ethics reviews] can help protect participants from harms and risks."

*Protecting researchers from harm and risks.* Among these 30 participants, 12 (40%) of them argued that ethics reviews can protect researchers from harm and risks. "... without the ethical approval before the data collection, the researchers might face legal problems," argued by one participant. "... without proper ethics reviews for research involving vulnerable individuals, the researchers may have serious problems in conducting the research study," explained by another participant.

*Making researchers abide by research ethics.* Among these 30 participants, 22 (73.3%) of them commented that ethics reviews can make researchers abide by research ethics. Some of them made the following comments: "ethics reviews can help researchers become aware of the integrity related ethical issues in conducting and publishing empirical research;" "... they [ethics reviews] make researchers clearly understand that dishonesty in data collection and analysis is unethical;" and "ethics reviews make them [researchers] follow the codes of ethics and maintain integrity during the publication of their research work."

*The best way to promote research ethics education.* The 30 interviewees proposed the following five best ways to promote research ethics education for social sciences graduate students: (a) making ethics reviews mandatory for research involving human participants; (b) including research ethics related topics and materials in research methods courses; (c) offering special training workshops on research ethics; (d) offering university wide discussions on special research ethics cases; and (e) guiding students in research ethics review process. These findings were consistent with previous literature (Huang et al., 2021).

*Making ethics reviews mandatory for research involving human participants.* All of the 30 participants suggested that ethics reviews be made mandatory for research studies involving human participants. One participant commented that "...the university should establish regulations for empirical research that involves human participants and make ethics reviews mandatory for such

research.” Another participant added that “... ethics review committees must be established within each college of the university to make ethics reviews possible.”

*Including research ethics related topics and materials in research methods courses.* Among these 30 participants, 21 (70%) of them strongly suggested that ethics related topics and materials be included in their research methods courses. Some of them made the following comments: “... ethical issues in empirical research should be a unit or chapter in our research methods course;” “... the research methods professors are suggested to include research ethics in their teaching and assessment of the research methods courses;” and “I think the research methods course instructor should be responsible for teaching us research ethics.”

*Offering special training workshops on research ethics.* Among these 30 participants, 20 (66.7%) of them suggested that special training workshops on research ethics be provided. For example, one participant suggested that “... special workshops on research ethics must be regularly offered to us graduate students before we start to conduct our theses studies.” Another participant added that “... specific training workshops or seminars on research ethics will surely help us better understand the ethical responsibilities as researchers and increase our ethical awareness as human participants.”

*Offering university wide discussions on special research ethics cases.* Among the 30 participants, 18 (60%) of them suggested that the university wide discussions on special research ethics cases be offered regularly to social sciences graduate students on campus. “Research ethics sometimes can be very complex,” one participant commented, “for example, qualitative research involving human participants from multiple institutions as well as vulnerable populations may become very complex from a research ethics perspective ... we graduate students need to learn to handle complex ethical issues ... they [university wide discussions on special research ethics cases] surely can help us reach that goal.”

*Guiding students in research ethics review process.* Among the 30 participants, 15 (50%) of them suggested that guidance, support, and supervision be provided for them to become more ethically knowledgeable and competent. The following are a few suggestions made by these participants: “I hope that my supervisor can give me suggestions on how to handle research ethical issues;” “... we students need faculty support and guidance in meeting the research ethical standards;” and “... ongoing supervisor assistance and support is definitely a plus for us to enhance our understanding of ethical responsibilities as researchers and increase our ethical awareness as human participants as well.”

## Discussion and conclusions

This study examined 463 Chinese social sciences graduate students’ understanding of both ethical responsibilities as researchers and awareness as participants in conducting empirical studies in social sciences. The findings indicated that they had a fairly good understanding of both researchers’ ethical responsibilities and participants’ ethical awareness (Huang et al., 2021; Mullen, 1999; Price, 2001). Nevertheless, they did not demonstrate a comprehensive understanding of these responsibilities and awareness in social sciences research and would require further research ethics education.

Furthermore, similar to what Huang et al. (2021) reported, participants’ previous empirical research experience had significant impact on their understanding of research ethics as both researchers and participants. Specifically, participants who had conducted empirical studies involving human subjects understood the basic research ethics knowledge significantly better than those without such experience.

For the demographic variable of gender, this study reported similar findings as previous studies (Glover et al., 2002; Huang et al., 2021; Loo, 2003; Lund, 2008; Schminke, 1997). However,

there were a couple of different findings between this study and Huang et al.’s study (2021). For example, this study reported that there was no significant gender effect on participants’ understanding of researchers’ ethical responsibilities and human subjects’ ethical awareness; whereas Huang et al.’s study (2021) reported that male participants understood ethical responsibilities significantly better than females. Furthermore, this study found that females who had conducted empirical studies involving human subjects had significantly better awareness in research ethics than those females who did not have such experience; however, Huang et al.’s study (2021) reported that males who had conducted empirical studies involving human subjects had significantly better awareness in research ethics than those males who did not have such experience.

These two studies were different in the following two ways. First, the graduate student participants in Huang et al.’s study (2021) came from only two universities and their background was education; whereas the graduate students in this study represented 12 universities across central and eastern China and their backgrounds were teacher education, English education, management, and economics. Second, Huang et al.’s study (2021) used open-ended survey questions but this study used interviews for qualitative data collection, suggesting that interviews may collect more in-depth information about participants’ perceptions of ethical responsibilities and awareness. Therefore, this study expanded Huang et al.’s study (2021) and the findings would be more interpretable, reliable, and generalizable and, therefore, add more to the body of literature.

However, future research is indeed needed to further explore (a) whether gender differences really exist and (b) if they do, whether gender differences are really inherently derived from gender itself (Dalton and Ortegren, 2011) in social sciences research ethics.

In addition, most of these participants had realized that ethical reviews are important. They can protect participants’ rights and interests (Koepsell et al., 2014; Oliver, 2003), protect participants from harm and risks (Bankert and Amdur, 2006; Huang et al., 2021). More importantly, ethical reviews can bring benefits to researchers; for instance, they can make researchers abide by research ethics and protect them from harm and risks (AERA, 2000; BERA, 1992).

Finally, similar to what Huang et al. (2021) had reported, the participants identified best ways to promote research ethics education for social sciences graduate students in Chinese universities. For example, they suggested that ethics reviews be made mandatory for research studies including human subjects; furthermore, graduate research methodology courses must include research ethics topics and materials.

The results of this study would have several implications for social sciences graduate students in Chinese higher education. First, the leaders at Chinese universities should put social sciences graduate students’ research ethics education on the agenda. The first step is to establish RECs and regulations governing empirical research involving human participants; the second step is to train REC members so that they are qualified to perform and ethics reviews; and the final step is to make ethics reviews mandatory for social sciences research involving human participants (Huang et al., 2021).

Second, it is suggested that the program developers at Chinese universities create research ethics educational courses within social sciences graduate programs. The findings of this study have indicated the necessity and urgency of such graduate courses. The next steps are for the program developers to (a) determine the course goals and objectives, materials and teaching, and course assessment of student learning, (b) make research ethics educational courses mandatory for social sciences graduate students,

and (c) ensure that students successfully complete these courses before they start to conduct their graduate theses studies.

Finally, it is suggested that including ethics related topics be made mandatory for professors teaching social sciences graduate research methods courses (Huang et al., 2021). The first step is for the professors to put these topics down in black and white in their syllabi; the second step is to develop students' understanding of ethics issues through lectures and discussions; the final step is to appropriately assess students' ethics learning during and at the end of these courses and make sure that they are ethically sensitive and knowledgeable.

### Data availability

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

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### Competing interests

The authors declare no competing interests.

### Ethical approval

This study involving human participants was reviewed and approved by the Evidence-based Research Center for Educational Assessment (ERCEA) Research Ethics Review Committee at Jiangsu University.

### Informed consent

The participants provided their written informed consent to participate in this study.

### Additional information

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