

ORIGINAL ARTICLE OPEN ACCESS

Public Attitudes Toward Xenotransplantation in South Korea: A 2023 Survey Study

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Correspondence: Ivo Kwon (kivo@ewha.ac.kr)**Received:** 22 October 2024 | **Revised:** 7 March 2025 | **Accepted:** 18 April 2025**Funding:** This research was supported by a grant of the Korea Health Technology R&D Project through the Korea Health Industry Development Institute(KHDI), funded by the Ministry of Health & Welfare, Republic of Korea (grant number: HI20C1234).**Keywords:** animal right | brain dead subject | ELSI | Korean attitude | xenotransplantation

ABSTRACT

Background: Xenotransplantation is a promising field to solve the problem of insufficient allograft and has been actively studied in Korea. However, there are a number of ethical, legal, and social issues to consider, and it is necessary to know the public attitudes regarding them.

Methods: A Computer Aided Web Interview consisting of 22 questionnaire items was conducted to investigate the attitudes of Korean related to xenotransplantation. Participants were selected from Hankook Research MS (Master Sample) panel. A total of 1007 sets of data were finally collected and analyzed with SPSS. A statistical analysis was performed using an independent *t*-test and chi-square method.

Results: 72.9% of the respondents were positive about xenotransplantation, while 22.2% negative. 61.7% said that they would accept xenotransplantation for incurable diseases. 64.4% agreed with genetically modified pigs for organ resource. 61% agreed that the brain dead could be transplanted first for research purpose, while 32.7% disagreed. The ratio of response that the risk of zoonotic infection is important was 97.2%; the safety issue due to immunosuppression 98.7%; the human identity issue after transplantation 67.4%; and the animal right issue 51.6%. Men were more favorable to xenotransplantation than women on all but one item (stigmatization). There was no significant difference between religions except for the human identity issue.

Conclusion: Korean people are favorable to xenotransplantation as a therapeutic option and also positive with the use of pig even genetically modified in spite of the issue of animal rights. They are also positive with the idea of using the brain dead as study subject for xenotransplantation, which is currently forbidden in Korea.

1 | Introduction

According to data on organ donation status provided by the Ministry of Health and Welfare of Korea, the number of organ transplants in 2022 was 1354, of which 387 organs were donated after brain death. On the other hand, the number of people waiting for organ transplantation was 41 706 in 2022, which is steadily increasing every year [1].

Xenotransplantation is a promising field to solve the problem of insufficient allografts. Xenotransplantation using genetically modified pigs is being actively studied in humans overseas. In September 2021, a research team at NYU Langone Health performed the first kidney xenotransplantation in the brain dead and conducted the second kidney xenotransplantation in November 2021 [2]. Subsequently, in January 2022, under the U.S. Food and Drug Administration (FDA)'s Expanded Access approval, the

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University of Maryland School of Medicine performed a heart xenotransplantation on a male patient supported by VA-ECMO [3]. Throughout 2022 and 2023, several additional xenotransplantation studies involving the deceased were conducted in the United States. Also, in March 2024, the Air Force Medical University Xijing Hospital in Xi'an, China, conducted the first liver xenotransplantation in a brain-dead person [4].

Meanwhile, the xenotransplantation study shifted toward living patients. In September 2023, Massachusetts General Hospital performed a heart xenotransplantation on a male patient with end-stage heart failure [5]. Beginning in 2024, multiple kidney xenotransplants were performed in living patients [6–8].

In Korea, xenotransplantation research has been actively conducted with the launch of the Xenotransplantation Research Center (XRC) at the Seoul National University and has produced a lot of remarkable outcomes, especially in the field of pancreatic islet and cornea xenotransplantation [9]. Since 2011, the experiment of pig to nonhuman primate xenotransplantation with kidney, heart, and liver has been tried in a numbers of institutions in Korea [10–12], and the possibility of human trial of xeno organ transplantation is being explored.

However, there are legal, ethical, and social implications (ELSI) regarding xenotransplantation; the risk of zoonoses, animal right of the experimental animals including genetically modified pigs and nonhuman primates, and the lifelong surveillance, et al. In addition to these general ethical concerns, South Korea's strong Confucian influence necessitates culturally tailored ethical considerations. Therefore, enough public discussions, social consensus and appropriate regulatory framework are required before proceeding with human trials and clinical application [13]. Previously, similar surveys on the perception of xenotransplantation were conducted in Korea [14, 15]. Given that xenotransplantation technology now extends to organ transplantation, which bring about new issues and ethico-legal implications, it is time to conduct another perception survey.

2 | Methods

This survey was conducted by computer-aided web interview for 2 weeks beginning on December 19, 2023, in collaboration with Hankook Research. The sample was drawn according to proportions of residence, sex, and age based on the September 2023 Resident Registration Population Statistics from the Ministry of the Interior and Safety. Adults aged 19 to 64 years were selected as participants, and an automated quota allocation program was used to draw appropriately proportioned sub-quota samples. A total of 36 675 individuals received the survey link, and 1434 individuals participated. Of these, 20 were excluded for failing to meet selection criteria, 215 were excluded for exceeding designated quotas, 179 discontinued the survey before completion, and 13 provided insincere responses. The final sample, therefore, comprised 1007 participants (513 men and 494 women).

Using Cochran's formula for a total population of 50 million, with a 95% confidence level and a 3% margin of error, a sample size of approximately 1067 was calculated. Given that major domestic polling agencies often survey about 1000 adults nationwide

and a margin of error of $\pm 3.1\%$ was considered acceptable, the survey was concluded with 1007 valid responses. Each participant received a 5000 KRW incentive through the research company.

The questionnaire was developed through a literature review and expert consultation (Appendix 1). It included items on demographic characteristics, awareness of xenotransplantation, willingness to accept xenotransplantation, and concerns about xenotransplantation, comprising a total of 24 close-ended questions (using a Likert scale). After drafting the questionnaire, one expert on the ELSI of xenotransplantation, one specialist in science-technology-society education, and one clinical xenotransplantation expert reviewed and revised the instrument. This study was approved by the Institutional Review Board of Ewha Seoul Hospital (IRB number SEUMC 2023-10-038-002).

All collected data were edited, coded, and analyzed using SPSS 29.0 for Windows. Statistical analyses included independent *t*-test and chi-square tests with the variables of gender, age group, education level, and religious beliefs.

3 | Results

3.1 | Demographic Features of the Respondents

A total of 513 male and 494 female respondents answered this survey. The number of the respondents for each age group was 199 for those in their 20s (19.8%), 192 for 30s (19.1%), 235 for 40s (23.3%), 255 for 50s (25.3%), and 126 for above 60s (12.5%). The residences of the respondents were equally distributed according to the population rate of each region of Korea. As for education, 0.3% of the respondents were middle school graduates or below, 18.4% high school graduates, and 81.3% college graduates or higher. As for religion, 19.5% of the respondents were Protestant, 12.2% Buddhist, 8.9% Roman Catholic, and 2.2% other religions; 57.2% of the respondents reported that they had no religious beliefs (Table 1).

3.2 | Level of Awareness About Xenotransplantation

When asked, "Have you ever heard about xenotransplantation before taking this survey?", 71.2% of the respondents answered "yes", and 28.8% answered "no". Among the 717 respondents who answered "yes", the question "How did you hear about xenotransplantation? (multiple responses allowed)" revealed that "Television" and "Internet" were the most common sources (72.1% each), followed by "Social media (24.7%)", "Newspaper (20.4%)", and "Acquaintances (7.5%)".

Respondents were asked, "How much do you know about xenotransplantation?" on a four-point scale: "I know it very well", "I know it somewhat", "I do not know it", and "I do not know it at all". For analysis, the first two categories ("I know it very well" and "I know it somewhat") were combined as "know", whereas the latter two ("I do not know it" and "I do not know it at all") were combined as "do not know". Through this categorization, 59.0% indicated that they "know" xenotransplantation, while 41.0% said that they "do not know".

TABLE 1 | Demographic feature of the respondents.

Categories	Numbers	%
Gender		
Males	513	50.9
Females	494	49.1
Age		
19–29	199	19.8
30–39	192	19.1
40–49	235	23.3
50–59	255	25.3
60–65	126	12.5
Education level		
≤ Middle school	3	0.3
High school	185	18.4
College	137	13.6
University	553	54.9
≥ Graduate school	129	12.8
Religion		
No religion	576	57.2
Protestant	196	19.5
Buddhism	123	12.2
Roman Catholic	90	8.9
Other	22	2.2
Total	1007	100.0

The same question format was used to assess knowledge of brain death. After collapsing the response categories in a similar manner, 95.6% answered they “know”, while 4.5% answered that they “do not know”.

3.3 | Attitudes to Xenotransplantation Research

When asked, “Do you agree with transplanting pig organs into humans to treat incurable disease?” 12.9% of respondents strongly agreed, 60.0% agreed, 18.9% disagreed, 3.3% strongly disagreed, and 5.0% responded, “I don’t know”. For the question, “Do you agree with sacrificing the lives of primates for the treatment of human incurable disease?” 13.8% strongly agreed, 60.6% agreed, 17.2% disagreed, 4.6% strongly disagreed, and 3.9% said “I don’t know”. When asked, “Do you agree with sacrificing the lives of pigs for the treatment of human incurable diseases?” 17.3% strongly agreed, 60.7% agreed, 15.5% disagreed, 3.7% strongly disagreed, and 2.9% responded, “I don’t know”. Regarding the question, “Do you agree with transplanting porcine organs into nonhuman primates (monkeys) first, before transplanting porcine organs into humans?” 18.8% strongly agreed, 60.1% agreed, 16.6% disagreed, 2.3% strongly disagreed, and 2.3% responded, “I don’t know”.

In response to “Do you agree with genetically modifying pigs to transplant their organs into humans?” 11.6% of respondents

strongly agreed, 52.8% agreed, 24.2% disagreed, 7.1% strongly disagreed, and 4.2% said, “I don’t know”. Finally, when asked, “Do you agree with transplanting porcine organs into brain-dead individuals for research before transplanting into living patients?” 9.6% strongly agreed, 51.4% agreed, 25.6% disagreed, 7.1% strongly disagreed, and 6.3% responded “I don’t know” (Figure 1).

3.4 | Acceptability of Xenotransplantation as a Medical Treatment

When asked, “Would you accept xenotransplantation as a treatment if you had a disease for which no other treatment was available?” 61.7% responded “yes”, 30.2% responded “no”, and 8.1% said, “I don’t know”. Among the 621 respondents who expressed willingness to undergo xenotransplantation, the most common reason was “the possibility of curing an incurable disease is worth trying (53.1%)”. In contrast, among those who did not intend to undergo xenotransplantation, “safety concerns” were the top reason (50.3%), followed by “identity confusion (35.2%) and ”judgment by others (2.0%)”.

In response to the question “Do you think xenotransplantation is necessary?” 77.3% answered “yes”, while 22.7% answered “no”. Among the 778 respondents who said xenotransplantation is necessary, the most common reason was “it will increase the chances of curing incurable diseases and improve the quality of life (54.9%)”. Conversely, among those who considered xenotransplantation unnecessary, “safety concerns” ranked first (45.4%), followed by “reckless animal sacrifice and ethical issues (21.0%)” (Figure 2).

3.5 | Concerns About Xenotransplantation

When asked, “How important do you think the risk of transmitting an emerging infectious disease from pigs to humans is if receiving xenotransplant?” 49.9% of respondents answered “very important”, 47.3% answered “important”, 2.0% said “not important”, 0.5% said “not important at all”, and 0.4% said, “I don’t know”. In response to “How important do you think safety issues related to immunosuppressive medications are if receiving xenotransplant?” 50.5% answered “very important”, 48.2% “important”, 1.2% “not important”, and 0.1% answered, “I don’t know”. Regarding “How important it is to consider the possibility of stigmatization or judgment from others if one receives xenotransplant?” 28.0% said “very important”, 39.4% “important”, 24.1% “not important”, 5.3% “not important at all”, and 3.2% responded “I don’t know”. When asked, “How important do you think it is to be concerned about stigmatization and judgment from others if receiving xenotransplant?” 12.0% chose “very important”, 31.9% “important”, 42.2% “not important”, 11.9% “not important at all”, and 2.0% said “I don’t know”.

When asked, “Do you think the animal rights issue associated with sacrificing pigs are important?” 10.4% responded “very important”, 41.2% “important”, 33.0% “not important”, 11.0% “not important at all”, and 4.4% said, “I don’t know”. Meanwhile, in response to “Do you think the animal rights issue associated with sacrificing nonhuman primates (monkeys) are important?”

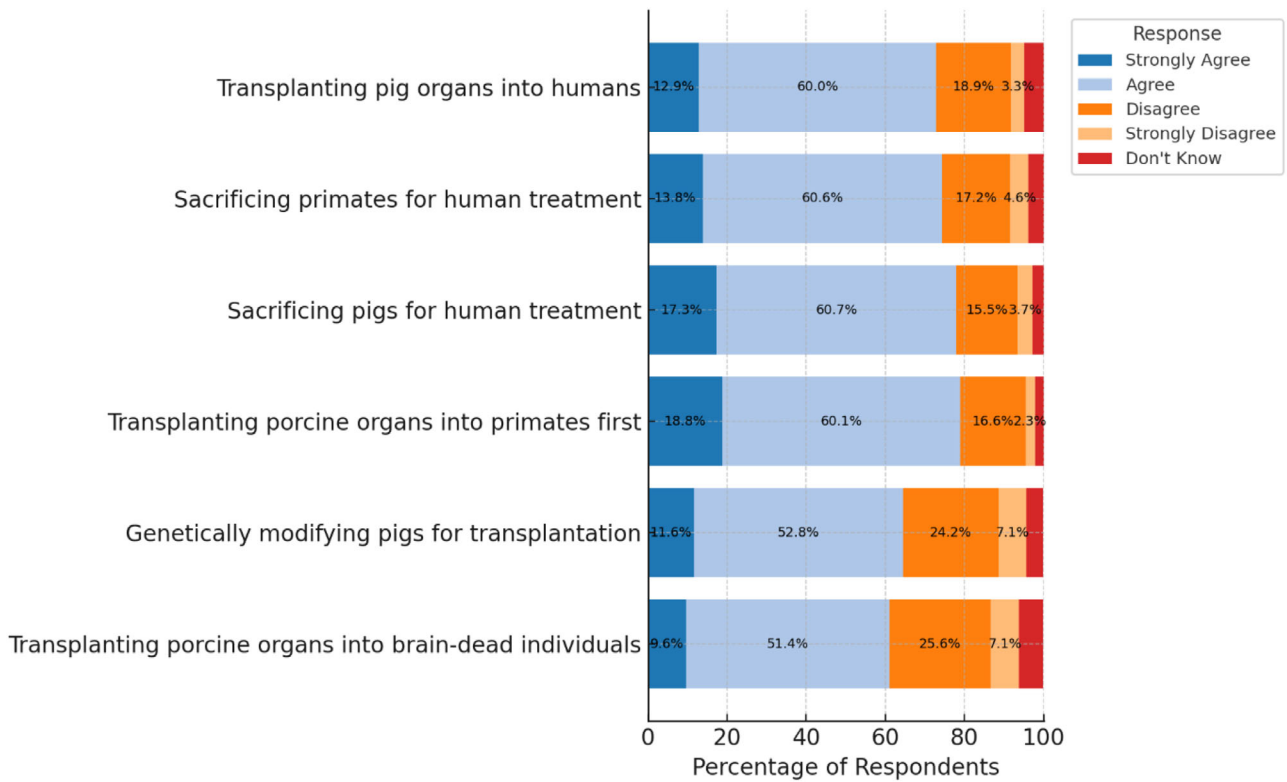
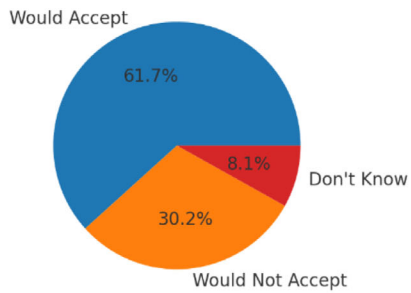
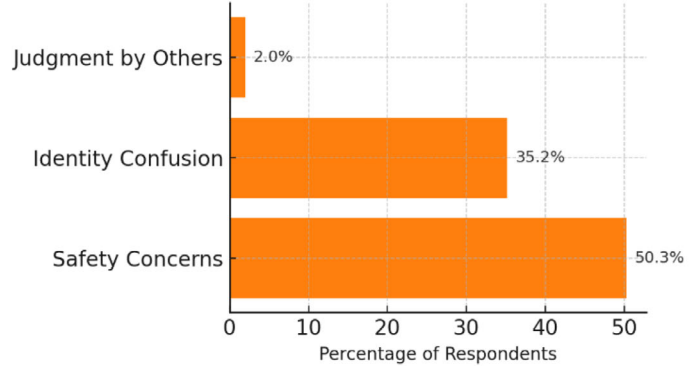


FIGURE 1 | Attitudes to xenotransplantation research.

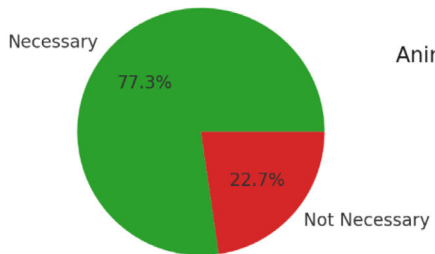
Would You Accept Xenotransplantation?



Reasons for NOT Accepting Xenotransplantation



Is Xenotransplantation Necessary?



Reasons for NOT Considering Xenotransplantation Necessary

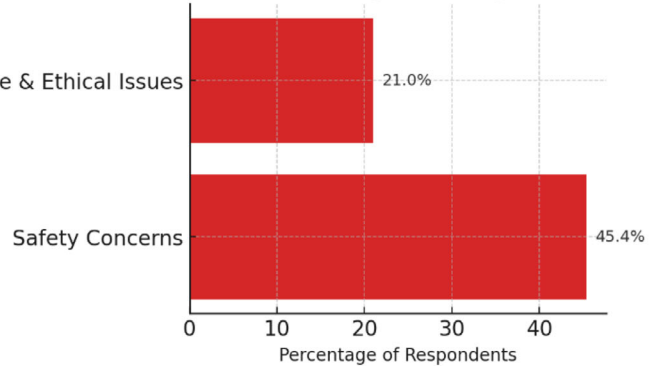


FIGURE 2 | Acceptability of xenotransplantation as a medical treatment.

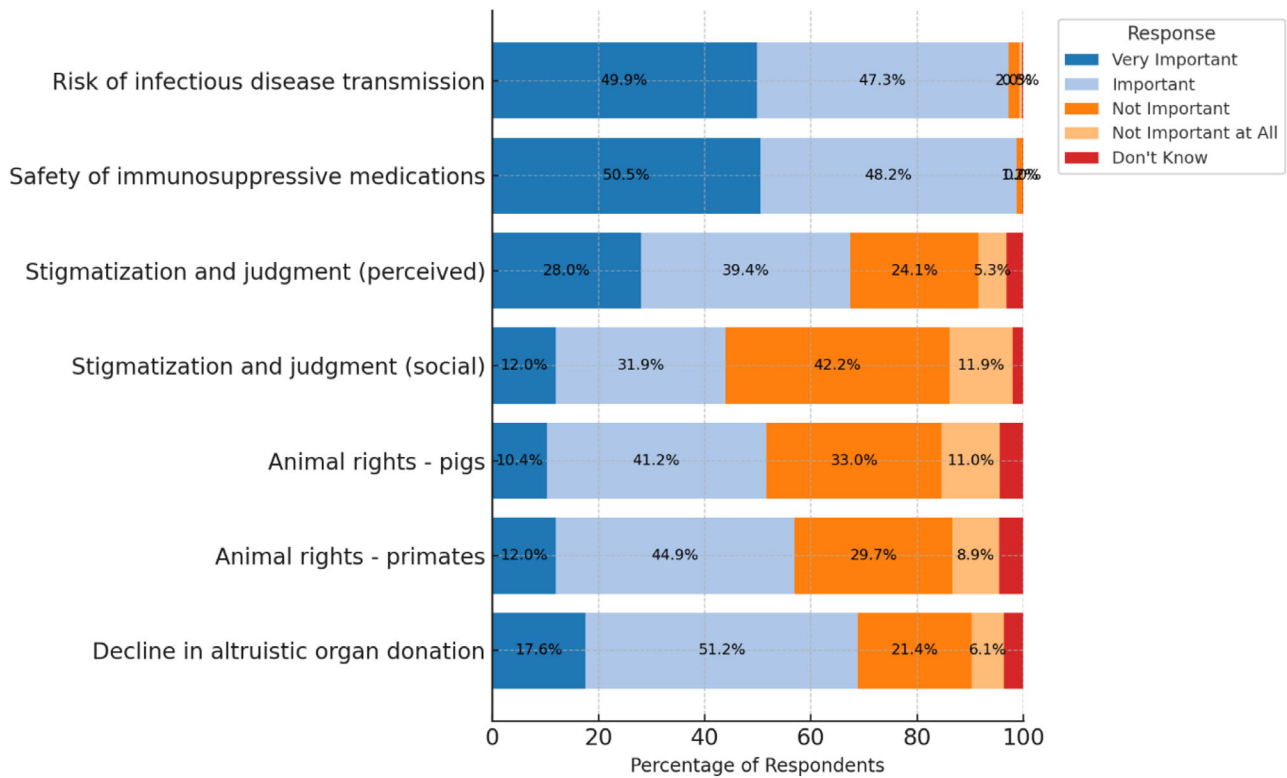


FIGURE 3 | Concerns about xenotransplantation.

12.0% answered “very important”, 44.9% “important”, 29.7% “not important”, 8.9% “not important at all”, and 4.5% said “I don’t know”. Finally, for the question “How important is the possibility that altruistic organ donation could decline if xenotransplantation becomes more common?” 17.6% responded “very important”, 51.2% “important”, 21.4% “not important”, 6.1% “not important at all”, and 3.8% said “I don’t know” (Figure 3).

3.6 | Variables That Influence Attitudes Toward Xenotransplantation

The statistical analysis was performed using respondent gender, age, education level, and religion. For gender and religion, the original groupings were used, whereas for age and education level, respondents were classified into two groups for convenience: “younger (below 50 years old)” versus “older (above 50 years old)”, and “less-educated (high school graduation or below)” and “better-educated (college graduation or above)”.

3.6.1 | Gender Differences

Gender emerged as the most influential variable, yielding significant differences ($p < 0.05$) for 14 of the 15 items surveyed. The only nonsignificant item involved concerns about stigmatization after xenotransplantation ($p = 0.065$). Overall, men exhibited more positive attitudes toward xenotransplantation than women.

One possible explanation, widely accepted in risk analysis, is that men and women tend to differ in their perceptions of risk. Women, often cast in nurturing and caregiving roles, may empha-

size health and safety issues more strongly; conversely, men may show greater willingness to accept risks in exchange for perceived benefits [16]. Evolutionary perspectives also suggest that men have historically taken more risks—sometimes unrelated to direct mate-seeking—to gain resources and thus increase reproductive success. Meanwhile, women’s concern about potential threats might be linked to protecting offspring or others in their care [17].

3.6.2 | Age Differences

Few significant differences were found between younger and older adults. In general, older adults held more positive attitudes, except regarding “The need to genetically modify pigs” and “Willingness to receive pig organs for incurable disease”. In terms of specific concerns, younger respondents were significantly more worried about the possibility of emerging infectious diseases in pigs spreading to humans ($p = 0.007$), whereas older respondents were more concerned about human identity confusion after xenotransplantation ($p = 0.009$). This heightened concern may reflect older adults’ internalized cultural or religious beliefs about the sanctity of the human body, which could make them more sensitive to perceived alterations to one’s sense of self.

A plausible reason for the older group’s more accepting stance is their increased likelihood of facing chronic health issues or organ failure—personally or within their social network—making novel treatments more directly relevant. They may also have greater trust in medical experts or a stronger motivation not to burden family members with long-term care. Younger individuals, on the other hand, may place greater emphasis on future risks, long-term side effects, and ethical considerations,

TABLE 2 | Concerns about human identity confusion: Different religious group.

Religion	Important			p value
	n (%)	Not n (%)	D/K n (%)	
No religion	365 (63%)	189 (33%)	22 (4%)	0.013
Protestant	135 (68%)	58 (30%)	3 (2%)	
Buddhism	97 (79%)	23 (19%)	3 (2%)	
Roman Catholic	68 (76%)	18 (20%)	4 (4%)	
Others	14 (64%)	8 (36%)	0	

potentially leading to more cautious views of new biomedical interventions.

3.6.3 | Education Level

Only two significant differences were found based on education level. The less-educated group was more concerned about human identity confusion after xenotransplantation ($p = 0.017$), whereas the better-educated group expressed significantly greater concern about animal welfare issues related to the use of nonhuman primates in research ($p = 0.01$).

3.6.4 | Religion

Religion did not yield any significant differences, apart from one item: 79% of Buddhist and 76% of Roman Catholic reported concern about human identity confusion, compared with 68% of Protestants and 63% of those without religion ($p = 0.013$) (Table 2).

4 | Discussion

Compared with the results of similar surveys conducted in 2005 and 2009, Korean people still maintained favorable attitudes toward xenotransplantation; 72.9% in 2023, 61.6% in 2005 [14], and 69.8% [15]. The ratio of the “group of favor” seems to slightly increase since 2005, which could be explained by the fact that Korean people have been more exposed to the news and issues regarding xenotransplantation. The high favorability to xenotransplantation among Koreans may be due to the positive attitude to modern high technology and the influence of traditional Confucianism of Korean people [14].

The Confucian influence could explain the finding that they think the sacrifice of the pigs and even nonhuman primates is possible for the health and welfare of human. In the Confucian mind, the ontological hierarchy between human and nonhuman animal is undeniable; for example, according to the representative Confucian scholar Mencius (372-289 BCE), the distinction between human (人) and nonhuman animal (禽) is absolutely clear and constitutes one of the moral foundations of humanity [18]. Human is the only moral subject and could utilize the nonhuman animals for their own purposes. Of course, human should show a due sympathy when using nonhuman animals,

but any good reason could justify their sacrifice. The saving of the lives of suffering patients is a very good reason for it. To the eye of Koreans, nonhuman primates are also animal, and their “animal right” is no more than that of other animals.

For the xenotransplantation study with the brain-dead, more than half of the respondents (62.0%) showed a favorable attitude. It is a tricky response because the use of brain-dead human subject is not legally permitted in Korea. According to the “Organ Transplant Act” of Korea, the determination of brain death is only possible in the case of organ donation [19]. It means that the concept of brain death is not accepted as a general criterion of death in Korea. Therefore, to conduct the xenotransplantation study with the brain-dead subject, it is necessary to revise the current act as to recognize the brain dead as legally “dead”. It is a weird situation considering that many Korean people accept the brain death as a criterion of death [20, 21]. However, there is a strong reluctance to take the brain death as a criterion of death among not a few Korean people in addition to the distrust of healthcare providers, which prevents from the legalization of brain death as a general criterion of death.

Korean people are not so active in organ donation, as already shown, which has been explained by some cultural factors including Confucianism such as desire for intact body and filial piety [22, 23]. Consequently, the shortage of organs for transplantation would function as a driving force for xenotransplantation. It may be an explanation for the fact that Korean people seem to have a considerably positive attitude toward xenotransplantation. This study confirms again that following the 2005 and 2009 surveys.

Despite these findings, this study has several limitations. First, using an online panel may limit representativeness, as only individuals with internet access were included. Second, although we surveyed approximately 1000 participants, subdividing them into various groups (e.g., by age or education level) resulted in smaller sample sizes per subgroup, potentially reducing statistical power. Third, we did not include a wide range of variables, suggesting that future studies should incorporate more complex, multifactorial analyses.

To better align the Korean public’s relatively positive attitude toward xenotransplantation with current legal and ethical frameworks, further research is needed. In particular, exploring strategies for refining relevant legislation, addressing ethical concerns, and enhancing public trust in medical professionals will be essential to ensure that xenotransplantation can be safely and ethically integrated into clinical practice.

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APPENDIX

Section 1: Demographic Information

Please indicate your response by selecting the appropriate option.

SQ1. What is your gender?

1. Female
2. Male

SQ2. What is your age?

Only individuals aged 19 to 64 are eligible to participate.

1. 19–29 years
2. 30–39 years
3. 40–49 years
4. 50–59 years
5. 60–64 years

SQ3. In which region do you currently reside?

1. Seoul
2. Busan
3. Daegu
4. Incheon
5. Gwangju
6. Daejeon
7. Ulsan
8. Sejong
9. Gyeonggi Province
10. Gangwon Province
11. North Chungcheong Province
12. South Chungcheong Province
13. North Jeolla Province
14. South Jeolla Province
15. North Gyeongsang Province
16. Soutu Gyeongsang Province
17. Jeju Province

SQ4. What is your highest level of education?

1. Middle school or below
2. High school graduate
3. Associate's degree
4. Bachelor's degree
5. Graduate school (current or completed)

SQ5. What is your religious affiliation?

1. None
2. Protestant
3. Buddhism
4. Roman Catholic
5. Others

Section 2: Awareness of Xenotransplantation

Definition of Xenotransplantation:

Xenotransplantation refers to the transplantation of animal organs or tissues into humans for medical purposes. Examples include islet transplantation and solid organ transplantation (e.g., heart, kidney, liver, lungs). The successful use of xenotransplantation requires overcoming challenges such as immune rejection, zoonotic disease risks, and ethical concerns regarding animal organ use.

Q1. Before participating in this study, had you ever heard of xenotransplantation?

(If you select "No", please skip to Q3.)

1. Yes → Proceed to Q2
2. No → Skip to Q3

Q2. How did you learn about xenotransplantation? (Select all that apply.)

1. Television
2. Radio
3. Newspapers
4. Internet
5. Acquaintances
6. Social media (e.g., YouTube, Facebook, Instagram)
7. Other (please specify)

Q3. How much do you know about xenotransplantation?

1. Very well
2. Somewhat
3. Not much
4. Not at all

Q4. How much do you know about brain death?

1. Very well
2. Somewhat
3. Not much
4. Not at all

Section 3: Attitudes Toward Xenotransplantation

Q5. To what extent do you agree with transplanting pig organs into humans for the treatment of incurable diseases?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree
5. Don't know

Q6. In xenotransplantation research, porcine organs are first transplanted into nonhuman primates (monkeys) before being transplanted into humans. To what extent do you agree with this practice?

1. Strongly agree
2. Agree

3. Disagree
4. Strongly disagree
5. Don't know

Q7. To what extent do you agree with sacrificing pigs for the treatment of human diseases?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree
5. Don't know

Q8. To what extent do you agree with sacrificing nonhuman primates (monkeys) for xenotransplantation research?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree
5. Don't know

Q9. To what extent do you agree with genetically modifying pigs to facilitate xenotransplantation?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree
5. Don't know

Q10. Before transplanting organs into living patients, experimental xenotransplantation may be performed on brain-dead individuals. To what extent do you agree with this practice?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree
5. Don't know

Section 4: Willingness to Undergo Xenotransplantation

Q11. If you had an incurable disease with no other treatment options, would you be willing to receive xenotransplant? (If you select "Yes", proceed to Q12. If "No", proceed to Q13.)

1. Strongly willing → Proceed to Q12
2. Willing → Proceed to Q12
3. Unwilling → Proceed to Q13
4. Strongly unwilling → Proceed to Q13
5. Don't know → Proceed to Q14

Q12. If you are willing to receive xenotransplant, what is your primary reason? (*Open-ended response*)

Q13. If you are unwilling to receive xenotransplant, what is your primary reason?

1. Safety concerns
2. Identity confusion
3. Judgment by others
4. Other (please specify)

Q14. Do you think xenotransplantation is necessary?

1. Yes → Proceed to Q14-1
2. No → Proceed to Q14-2

Q14-1. If you believe xenotransplantation is necessary, why? (*Open-ended response*)

Q14-2. If you believe xenotransplantation is unnecessary, why? (*Open-ended response*)

Section 5: Concerns about Xenotransplantation

Q15. How important do you think the risk of zoonotic disease transmission is in xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all
5. Don't know

Q16. How important do you think safety concerns related to immunosuppressive medications are in xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all
5. Don't know

Q17. How important do you think concerns about identity confusion are in xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all
5. Don't know

Q18. How important do you think concerns about stigmatization and judgment by others are in xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all
5. Don't know

Q19. How important do you think animal rights concerns regarding pigs are in xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all

5. Don't know

Q20. How important do you think animal rights concerns regarding nonhuman primates are in xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all
5. Don't know

Q21. How important do you think the potential decline in altruistic organ donation is due to xenotransplantation?

1. Very important
2. Important
3. Not important
4. Not important at all
5. Don't know

Q22. Please share any additional concerns or expectations you have regarding xenotransplantation. (*Open-ended response*)
