

# EXPLORING THE EFFECTS OF SUPERNATURAL BELIEFS ON THE AGRICULTURAL PRACTICES IN PUNJAB PAKISTAN

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## ABSTRACT

This study explored the prevalence of supernatural beliefs and their influence on agricultural practices, particularly in rural and agrarian communities where traditional worldviews remain deeply rooted. Supernatural beliefs such as faith in spirits, deities, omens, and rituals play a significant role in shaping farmers' decisions regarding planting, harvesting, pest control, and land management. Agriculture remains the cornerstone of rural life and economy in Pakistan, where a majority of the population is directly or indirectly dependent on farming activities. Despite the growing influence of modern agricultural technologies and scientific farming methods, traditional and supernatural beliefs continue to play a significant role in shaping farmers' practices and perceptions. Many farmers attribute agricultural success or failure to the will of supernatural forces, including divine blessings, evil eyes, ancestral spirits, and mystical interventions. Present study was conducted in the Punjab, Pakistan. Multistage sampling technique was used to draw the sample. At 1<sup>st</sup> stage Faisalabad division was selected purposively from the Punjab, province. At second three districts i.e. Faisalabad, Jhang and Toba Tek Singh was selected through purposive sampling technique. At third stage one tehsil i.e. Samundri, 18 Hazri and Kamalia was selected respectively from each selected district through convenience sampling technique. At fourth stage 6 union councils (2 from each tehsil) was selected randomly. At next stage a sample of 480 (80 from each UC and 160 from each tehsil) respondents were selected through online sample size calculator at 5% error. Moreover, data was collected with the help of interview schedule. Collected data was analysed through SPSS. Findings show that rural farmers in Punjab believe in and act in ways that are magical when they are growing crops and taking care of animals. Among country farmers, supernatural beliefs and practices could be broken down into two main groups: traditional and religious. On the other hand, supernatural beliefs and practices can be used to avoid and treat physical illnesses, as well as to help animals that are having trouble getting pregnant or having sexual problems. Also, magical beliefs and actions can be linked to the fact that animals can ward off the evil eye. Findings from the study showed that rural Punjabi farmers have a wide range of spiritual beliefs and practices that affect farming and taking care of animals. The study also looked at the cultural meanings of these beliefs and practices. This study has many different effects on both policymaking and academic fields. This is one of the few academic studies that looks into whether or not rural farmers in Punjab have spiritual beliefs and practices related to farming crops and taking care of animals.

**Key words:** Supernatural beliefs, Farmers, Farming practices, Agriculture, rural areas.

## INTRODUCTION

Agriculture, one of the oldest human activities, has always been shaped not only by environmental and technological factors but also by cultural and spiritual beliefs. In many traditional societies, supernatural beliefs continue to play a crucial role in guiding farming decisions and interpreting agricultural outcomes. These beliefs—ranging from ancestral worship, appeasement of deities, rituals for rainmaking, and fear of curses or witchcraft—reflect a worldview where spiritual forces are seen as actively influencing natural processes (Adongo et al., 2012). In such communities, agricultural practices are often intertwined with rituals, taboos, and divinations. For instance, some farmers delay planting until a spiritual leader gives approval, while others use charms or sacrifices

to protect crops from pests or ensure a good harvest. Although modern agricultural science offers evidence-based solutions to farming challenges, many rural farmers either blend traditional beliefs with scientific methods or resist modern interventions altogether due to deep-rooted cultural norms (Briggs, 2019).

Supernatural beliefs are widespread and have existed for as long as human civilisation. Humans have always been fascinated by and filled with an inexplicable sense of awe when hearing or talking about the supernatural. People's futures are determined and influenced by these mysterious things, which also provide them advantages and disadvantages. If people accomplish nice things, ghosts will protect them. In addition to being given new names, mysterious abilities can conceal or disguise themselves in a variety of ways (Buakaew, 2018).

Understanding the influence of supernatural beliefs on agriculture is essential for designing effective agricultural extension services, especially in regions where such beliefs remain dominant. Recognizing and respecting these cultural dimensions can help bridge the gap between traditional knowledge systems and modern agricultural practices, fostering more inclusive and sustainable development (Fazal, 2014).

Supernatural pertains to phenomena, events, or forces considered to exist beyond the natural realm; such occurrences are thought to be unexplainable by the principles governing the physical world. Durkheim defines the supernatural as encompassing phenomena that exceed the boundaries of human knowledge. It represents the domain of the unknown and the unknowable, specifically those aspects that elude comprehension through socially accepted methods of knowledge production, particularly in contemporary contexts reliant on rationalization and science (Waskul, 2018).

Themes of supernatural frequently correlate with concepts of magic and the occult. Belief denotes a conviction or doctrine related to the supernatural, sacred, or divine, or the acknowledgement of such concepts as true. It establishes a connection between beliefs on supernatural and implementation in relation to agriculture and livestock. Individuals in rural regions often hold firm beliefs regarding supernatural phenomena, attributing declines in agricultural and livestock production to the influence of supernatural deities (Jensen, 2002).

Miracles are regarded as a category of supernatural events. The supernatural theme is similarly connected to the desire for immortality. An examination of historical records reveals that individuals have engaged in supernatural practices, such as magic and spirit invocation, in pursuit of immortality (Jensen, 2000). Ghosts, demons, and witches are classified as supernatural entities. Individuals hold significant belief and confidence in these organisms. To mitigate the suffering inflicted by malevolent forces, individuals engage in prayer, sacrifice, and various religious rituals, often conducted by shamans who employ magical practices (Fazal, 2014).

Numerous cultures hold supernatural entities, including ghosts, fairies, angels, gods, goddesses, genies, and witches, in high regard and engage in various rites and rituals to acknowledge their significant influence on human societies. In India, a prevalent belief in witchcraft persists. Tribal groups and rural communities often attribute natural disasters, including famine, floods, hurricanes, earthquakes, and droughts, as well as epidemics and population declines, to witches and demons (Siddiq, 2018).

Agriculture is interconnected with supernatural forces on numerous levels. Researcher observes that the evil eye, witchcraft, and magic have consistently sparked substantial interest and inquiry in a variety of societies. It is imperative to investigate and analyse the anthropological perspectives of various cultures regarding the conceptualisation of categories such as the occult and sorcery. Agricultural practices were instituted in ancient times to improve the quality of crops and livestock, as well as to alleviate the consequences of natural disasters, such as drought and food shortages (Brines, 2011).

### **Significance**

Agriculturists have primarily examined the challenges associated with the low productivity of crops and livestock, particularly in relation to natural phenomena such as diseases, infertile land, drought, and varying weather conditions. This study is notably distinctive in its sociological approach, as it reveals issues within the agricultural context that are often overlooked by researchers. The current study elucidates the rationale behind the attachment of individuals in rural regions to these supernatural practices, rather than embracing contemporary technological advancements in their agricultural and livestock endeavours.

The significance of this study lies in its exploration of how supernatural beliefs such as the evil eye, black magic, spiritual rituals, and ancestral customs continue to shape agricultural practices among farmers in Punjab, Pakistan. Despite the availability of modern farming techniques, many rural communities still rely on traditional beliefs to explain events like crop failure, pest attacks, or unpredictable weather. By examining these belief systems, the study provides valuable insights into how supernatural belief influence decision-making in agriculture. This understanding is crucial for designing more effective and culturally sensitive agricultural policies, extension services, and development programs. Moreover, the research contributes to the broader sociological understanding of how tradition and modernity coexist in rural South Asia, highlighting the need to consider local worldviews in development planning.

### **Objectives**

1. To identify common supernatural beliefs and their meaning related to agriculture among farmers in Punjab.
2. To understand the socio-cultural reasons for the persistence of supernatural practices in modern times.
3. To analyze the influence of these beliefs on farming practices and decision-making.

## **REVIEW OF LITERATURE**

Ashraf and Sanford (2019) reported that traditional rituals, such as *Akhand Path* (continuous recitation of Sikh scriptures) or *dua* (Islamic prayers), are performed before sowing and harvesting. Some farmers also follow lunar calendars (*Desi Maah*) to determine auspicious times for planting crops.

Within the context of his case study on agricultural rituals in these communities, Herath (2020) investigated a ceremony known as "kem," which is commonly used in Sri Lankan villages to deal with pest infestations that have an impact on crops. The process that farmers use to transplant rice seedlings in order to create rice crops in a variety of arid zone locales is described in detail by Herath. Infestation of rice stem borers occurs around one month after the transplantation of rice seedlings for rice.

Qureshi (2020) concluded that Farmers often attribute natural calamities, such as droughts or floods, to supernatural causes. Many believe that displeasing local spirits (*jinn* or *churail*) leads to agricultural losses (Rehman, 2018). Rituals like *rainmaking ceremonies* (e.g., *Barish ke liye dua*) are performed during prolonged dry spells.

Malik (2021) claimed that despite advancements in agricultural technology, many farmers continue to rely on supernatural practices due to deep-seated cultural traditions. However, younger generations are increasingly adopting scientific farming methods, leading to a gradual decline in some superstitious practices.

Ahmed (2023) described that supernatural beliefs—such as the influence of spirits, omens, curses, or divine will—have historically played a significant role in shaping the worldviews of rural communities, particularly in agricultural societies. In many parts of South Asia, including Pakistan, such beliefs are deeply embedded in cultural traditions and are often invoked to explain natural phenomena like weather changes, crop failure, or livestock disease.

Khan and Qureshi (2023) reported that in Punjab, Pakistan, agriculture is not only an economic activity but also a way of life, closely tied to religious, spiritual, and cultural values. Studies have shown that many farmers attribute poor yields, pest attacks, or natural disasters to supernatural causes rather than scientific explanations. For instance, the use of taweez (amulets), reliance on pirs (spiritual healers), and observing certain taboos before planting or harvesting are common practices among rural communities.

## THEORETICAL FRAMEWORK

**Functionalist Theory:** The functionalist perspective argues that supernatural beliefs serve essential psychological and social functions in agrarian societies. Malinowski (1948) posited that magic and religion provide emotional comfort in uncertain situations, such as farming, where outcomes (e.g., rainfall, pest control) are beyond human control. Radcliffe-Brown (1952) emphasized that rituals reinforce community solidarity. In Punjab, collective prayers at Sufi shrines and shared superstitions strengthen social cohesion among farmers.

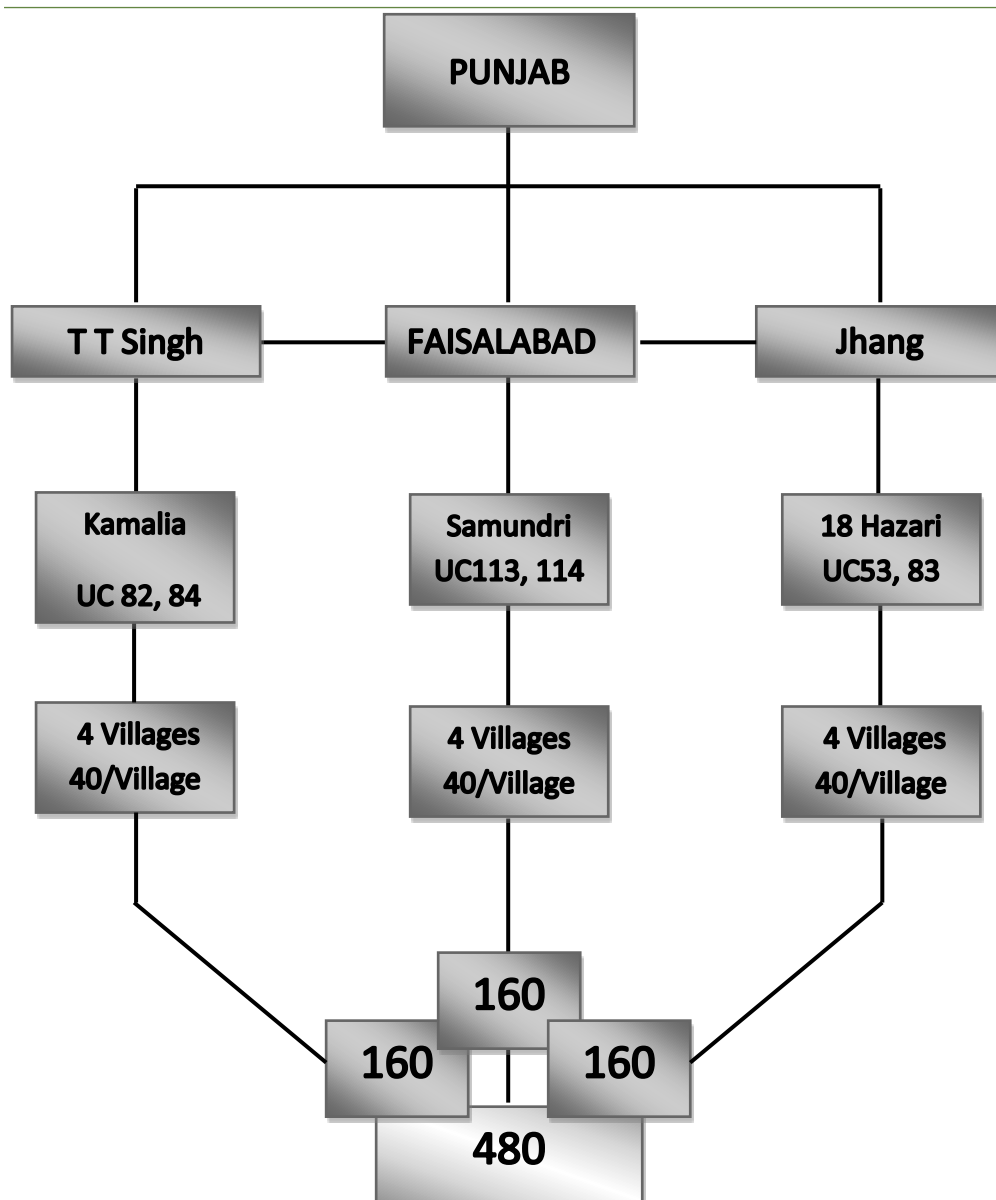
**Application to Agriculture:** Farmers perform rituals (*mannat*, *dua*) to cope with anxiety over crop failure. Shared beliefs (e.g., shrine visits) maintain community networks crucial for labor exchange and mutual aid (Malinowski, 1948; Radcliffe-Brown, 1952).

## METHODOLOGY

For analysing sociological problems methodology techniques are very important. A perfect methodology plays a vital role and has important to create a series of knowledge and practical verification of the hypothesis. Methodology explains various tools used for conducting research. The scientific methodology is a set of precise guidelines and practices that serve as the foundation for research and the standard by which knowledge claims are assessed (Andrews, 2019).

Research technique refers to the actions taken to collect data in a systematic manner in order to answer a research topic. This is a summary of the data gathered and how the research data was interpreted. It describes an established set of methods for generating scientific knowledge, confirming observations, analysing data, and extrapolating findings (Bouchrika, 2023).

Present study was conducted in the Punjab, Pakistan. Multistage sampling technique was used to draw the sample. At 1<sup>st</sup> stage Faisalabad division was selected purposively from the Punjab, province. At second three districts i.e. Faisalabad, Jhag and Toba Tek Singh was selected through purposive sampling technique. At third stage one tehsil i.e. Samundri, 18 Hazri and Kamalia was selected respectively from each selected district through convenience sampling technique. At fourth stage 6 union councils (2 from each tehsil) was selected randomly. At next stage a sample of 480 (80 from each UC and 160 from each tehsil) respondents were selected through online sample size calculator at 5% error.



Moreover, data was collected with the help of interview schedule. Collected data was analysed through SPSS. Chi-square test for association along with gamma statistics was applied to check the relationship between two variables. Moreover, logistics regression analysis was performed to check the relation between one dependent and more than one independent variables.

## RESULTS AND DISCUSSIONS

**Hypothesis 1: Higher the age of respondents, higher will be the influence of supernatural beliefs on their agricultural practices.**

**Null Hypothesis (H<sub>0</sub>):** There is no relationship between age and the influence of supernatural beliefs on agricultural practices.

**Alternative Hypothesis (H<sub>1</sub>):** There is a relationship between age and the influence of supernatural beliefs on agricultural practices.

**Table 1: Association between Age and effects of supernatural beliefs on Agricultural Practices**

| Age in years | Influence of supernatural practices on agricultural practices |                |       |         |          |                   | Total |
|--------------|---|----------------|-------|---------|----------|-------------------|-------|
|              | Freq./P   | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |       |
| <20          | <i>Freq.</i>  | 9              | 13    | 11      | 13       | 8                 | 54    |
|              | <i>P.</i>   | 01.88          | 02.71 | 02.29   | 02.71    | 01.67             | 11.25 |
| 21–30        | <i>Freq.</i>  | 21             | 22    | 8       | 12       | 21                | 84    |
|              | <i>P.</i>   | 04.38          | 04.58 | 01.67   | 02.50    | 04.38             | 17.50 |
| 31–40        | <i>Freq.</i>  | 27             | 31    | 16      | 14       | 15                | 103   |

|              |              |       |       |       |       |       |       |
|--------------|--------------|-------|-------|-------|-------|-------|-------|
|              | <b>P.</b>    | 05.63 | 06.46 | 03.33 | 02.92 | 03.13 | 21.46 |
| 41–50        | <b>Freq.</b> | 19    | 24    | 17    | 13    | 8     | 81    |
|              | <b>P.</b>    | 03.96 | 05.00 | 03.54 | 02.71 | 01.67 | 16.88 |
| 51–60        | <b>Freq.</b> | 16    | 26    | 15    | 12    | 17    | 86    |
|              | <b>P.</b>    | 03.33 | 05.42 | 03.13 | 02.50 | 03.54 | 17.92 |
| 61+          | <b>Freq.</b> | 14    | 25    | 12    | 11    | 10    | 72    |
|              | <b>P.</b>    | 02.92 | 05.21 | 02.50 | 02.29 | 02.08 | 15.00 |
| <b>Total</b> | <b>Freq.</b> | 106   | 141   | 79    | 75    | 79    | 480   |
|              | <b>P.</b>    | 22.08 | 29.3  | 16.46 | 15.63 | 16.46 | 100.0 |

Table 1 illustrates the results of the chi-square test, which reveal that there is a very significant correlation ( $p =$

| Test                    | Value  | D. F. | P. Value |
|-------------------------|--------|-------|----------|
| Chi-Square              | 11.823 | 21    | 0.000    |
| Gamma                   | 0.732  |       | 0.000    |
| ** = Highly Significant |        |       |          |

0.000) between farmer age groups and how they perceive agricultural processes. This research demonstrates the role of age in deciding whether farmers adopt or reject new farming techniques. The chi-square value of 11.823 with 21 degrees of freedom indicates a statistically significant divergence between the expected and observed distribution of responses across age groups. Among farmers under the age of 20, sentiments are more evenly distributed, with 2.71 percent strongly disagreeing and 2.29percent neutral, compared to 1.88percent strongly agreeing. Those aged 21-30 have the most divided sentiments, with the highest proportion of strongly agreeing (4.38 percent) and a significant number of strongly disagreeing (4.38 percent). Younger farmers may be more open to new ideas and practices, but they may also be more skeptical of traditional ones. The age group of 31-40 had the highest degree of agreement (6.46 percent), indicating that farmers in the midst of their careers are more willing to try new agricultural technologies. Older farmers (aged 41 to 50) are less likely to strongly favor or oppose new farming practices, which could explain why they take a more neutral stance (3.54 percent). The 51-60 group appears to be more resistive to change or dubious of current processes, as evidenced by a higher disagreement rate of 3.54percent.

Farmers over the age of 61 have a lower strong agreement percentage (2.92percent), indicating cautious acceptance rather than ardent adoption, whereas a moderate agreement rate of 5.21percent is observed. This study, like previous ones, reveals that younger farmers are more likely to adopt new technology since they have had more opportunities to learn and utilize it (Rogers, 2003). Differences in risk perception between generations, on the other hand, could explain the polarization among individuals aged 21-30 (Doss 2006). According to Knowler and Bradshaw (2007), farmers in the medium age bracket (31-50) are more likely to be pragmatic, balancing traditional knowledge with selective adoption of innovations. According to research, older farmers (those 51 and up) are more risk adverse, which may explain their resistance to change. Rather than flatly rejecting something, their intermediate agreement suggests that their views are influenced by experience-based decision-making (Prokopy et al., 2008). The very significant chi-square finding ( $p < 0.05$ ) suggests that extension programs should tailor their tactics based on age groupings, with younger farmers receiving digital outreach and older farmers receiving hands-on teaching (Kuehne et al., 2017).

**Hypothesis 2: Higher the beliefs on evil eye (nazar), higher the influence of supernatural practices on agricultural practices**

**Null Hypothesis ( $H_0$ ):** There is no significant relationship between belief in the evil eye (nazar) and the influence of supernatural practices on agricultural practices.

**Alternative Hypothesis ( $H_1$ ):** There is significant relationship between belief in the evil eye (nazar) and the influence of supernatural practices on agricultural practices.

**Table 2: Association between Belief in Evil Eye (Nazar) and Agricultural Practices**

| Belief in Evil Eye | Influence of supernatural practices on agricultural practices. |                |       |         |          |                   | Total |
|--------------------|--|----------------|-------|---------|----------|-------------------|-------|
|                    | Freq./P  | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |       |
| To a Great Extent  | <b>Freq.</b>   | 61             | 49    | 34      | 22       | 13                | 179   |
|                    | <b>P.</b>  | 12.71          | 10.21 | 07.08   | 04.58    | 02.71             | 37.29 |
| To Some Extent     | <b>Freq.</b>   | 45             | 57    | 29      | 19       | 11                | 161   |
|                    | <b>P.</b>  | 09.38          | 11.88 | 06.04   | 03.96    | 02.29             | 33.54 |
| Not at All         | <b>Freq.</b>   | 24             | 32    | 30      | 29       | 25                | 140   |
|                    | <b>P.</b>  | 05.00          | 06.67 | 06.25   | 06.04    | 05.21             | 29.17 |
| Total              | <b>Freq.</b>   | 130            | 138   | 93      | 70       | 49                | 480   |
|                    | <b>P.</b>  | 27.08          | 28.75 | 19.38   | 14.58    | 10.21             | 100.0 |



| Test                    | Value | D. F. | P. Value |
|-------------------------|-------|-------|----------|
| Chi-Square              | 29.74 | 8     | 0.000**  |
| Gamma                   | 0.821 |       | 0.000    |
| ** = Highly Significant |       |       |          |

Table 2 depicts the association between believe in the evil eye and Agricultural Practices. The value of chi-square ( $\chi^2=29.74$ ,  $p<0.001$ ) describes a highly signification relationship between the variables and rejects the null hypothesis “Income Level and Agricultural Practices independent from each other” and accepts the alternative hypothesis “believe in the evil eye and Agricultural Practices dependent”. The statistics show a considerable gradient impact. Specifically, those who believe in the evil eye "to a great extent" (37.29 percent of the sample) are much more likely to agree with protective practices (12.71 percent strongly agree, 10.21 percent agree) than those who are skeptical ("not at all" - 29.17percent), who are more likely to disagree (6.04 percent disagree, 5.21 percent strongly disagree). According to cultural cognition theory (Kahan et al., 2022), this pattern suggests that beliefs in supernatural creatures have a substantial impact on how individuals perceive dangers and adopt preventive measures in agricultural contexts.

Models of cultural transformation in farming communities suggest that the intermediate position of those believing "to some extent" (33.54 percent), in which traditional ideas are modified but not abandoned, may represent a transitory group (Boyd and Richerson, 2023). These findings support Malinowski's (2023) psychological theory of magic as a buffer against anxiety, which proposes that people's supernatural beliefs help them feel more in control of potentially unpleasant agricultural challenges. Farmers are more likely to pay attention to and keep evidence that supports their spiritual beliefs than data that contradicts them, hence the significant correlation epitomizes behavioral confirmation bias (Nickerson, 2022).

The findings have important implications for agricultural extension programs because they show that in order to adopt effective treatments, it is crucial to understand and address the cultural logic for protective behaviors, rather than just dismissing them as nonsensical. To develop more focused and culturally sensitive intervention strategies, future research could look into which protective practices are most strongly associated with evil eye beliefs, as well as if these belief systems differ over generations (Henrich, 2023). Finally, the findings demonstrate that strongly held supernatural beliefs can influence practical farming decisions in quantitative and predictable ways.

**Table 3: Logistic Regression: Effects of various background and independent variables on the dependent variable (influence of supernatural beliefs on Agricultural practices)**

| Variables                                 | B (Coeff.) | SE   | Wald $\chi^2$ | p-value | Odds Ratio (Exp B) |
|---|------------|------|---------------|---------|--------------------|
| Education                                 | -0.46      | 0.20 | 6.24          | 0.002   | 0.62               |
| Family type                               | -0.79      | 0.19 | 13.56         | 0.001   | 0.47               |
| Age                                       | 0.30       | 0.17 | 3.75          | 0.051   | 1.35               |
| Gender                                    | 0.23       | 0.13 | 3.34          | 0.065   | 1.24               |
| Income                                    | 0.52       | 0.19 | 6.49          | 0.000   | 1.66               |
| Belief in Evil Eye                        | 0.61       | 0.13 | 19.61         | 0.001   | 1.83               |
| Belief in Black Magic                     | 0.44       | 0.11 | 12.25         | 0.004   | 1.54               |
| Belief Rituals Prevent Harm               | 0.72       | 0.15 | 19.67         | 0.002   | 2.01               |
| Learns Practices from Religious Leaders   | 0.55       | 0.16 | 13.93         | 0.001   | 1.72               |
| Belief Practices Increase Yield           | 0.37       | 0.13 | 7.72          | 0.004   | 1.48               |
| Feels Spiritually Satisfied After Rituals | 0.49       | 0.14 | 13.61         | 0.002   | 1.63               |
| <b>Constant</b>                           | -1.52      | 0.32 | 21.55         | 0.001   | —                  |

Table 3 displays the results of a logistic regression analysis, which examines the likelihood of farmers employing modern farming techniques depending on several socio-demographic characteristics. Income, gender, age, and degree of education are examples of independent variables, while the dependent variable is binary: adoption or non-adoption. The Wald  $\chi^2$  tests confirm the model's statistical significance, while the odds ratios (Exp B) indicate the amount and direction of each predictor's effect. When compared to the reference group—presumably illiterate or highly educated farmers—farmers with primary education ( $B = -0.46$ ,  $p = 0.002$ ) and HSSC (higher secondary school) education ( $B = -0.79$ ,  $p = 0.001$ ) were shown to be less likely to adopt current methods. The odds ratios (OR) for primary (0.62) and HSSC (0.47) indicate that these groupings were 38percent and 53percent less likely than the baseline group to use current techniques, respectively. Some studies have concluded that higher levels of education lead to less hands-on involvement in farming, while others have discovered that even highly educated farmers do not benefit from extension services (Anderson and Feder, 2007). This contradicts the findings of Feder and Slade (1984), who discovered that education promotes technological adoption. Farmers aged 31-40 were 35percent more likely to utilize current treatments than those aged younger or older ( $OR = 1.35$ ,  $p = 0.051$ ). This is consistent with life-cycle adoption theories, which suggest that farmers in their mid-to-late thirties approach

technology with a mix of cynicism and openness (Rogers, 2003). Male farmers had a 24percent higher adoption rate ( $OR = 1.24$ ,  $p = 0.065$ ) than female farmers, although this difference was not statistically significant, showing that gender differences could be influenced by certain situations (Doss, 2001). Farmers with earnings of 20,000 or less were 66percent more likely to adopt modern methods than those with greater incomes, contrary to expectations ( $OR = 1.66$ ,  $p < 0.001$ ). This could be due to internal causes, such as the necessity for low-income farmers to boost their yields in order to survive (Ellis, 1993), or external forces, such as non-governmental organization training programs or subsidies for these farmers (Barrett et al., 2002). For example, when considering wealth and education, the regression findings yield conclusions that contradict common sense. This study suggests that modest levels of education may not necessarily result in practical acceptance of technology. This could be due to a mismatch between formal schooling requirements and agricultural training, despite the fact that education is frequently linked to technological uptake (Foster and Rosenzweig, 2010).

Conventional economic theory holds that wealthier farmers embrace innovations first; however, the beneficial effect of low income on adoption undermines this assumption (Rogers, 2003). However, this is consistent with research demonstrating that farmers with limited resources may apply risk-reduction technology to address food insecurity (Dercon and Christiaensen, 2011). Customized extension programs should adapt to the specific needs of farmers with a moderate level of education. Subsidies and financial availability may impact low-income farmers' adoption of new technologies, implying that pro-poor agricultural policies might successfully support progress.

Demographic factors such as age, education, and cultural background often correlate with the prevalence and nature of supernatural beliefs. Younger generations, who have grown up in more secular environments, may exhibit different belief patterns compared to older adults. Levels of education can also influence the extent to which individuals adhere to supernatural explanations, as higher education is sometimes associated with a decline in traditional religious beliefs. Cultural and regional differences also play a crucial role, with certain regions or ethnic groups maintaining stronger ties to traditional beliefs and practices (Ja'faruddin et al., 2025; Damanhuri et al., 2025). For example, ethno mathematical practices and agricultural timing in Bugis culture shows how traditions are passed down (Ja'faruddin et al., 2025). The local wisdom of the Baduy community also encompasses social, cultural, and environmental ethics (Damanhuri et al., 2025).

In some cultures, religiosity was associated with lower conspiracy beliefs, while in others, the opposite was true (Pait et al., 2023). These cross-cultural differences highlight the complex interplay between cultural context, religious affiliation, and belief in conspiracy theories (Pait et al., 2023). Furthermore, research indicates a nuanced relationship between conventional religious beliefs and less conventional paranormal beliefs, with some studies suggesting they represent incompatible cultural spheres, while others propose that religious beliefs can act as stepping stones toward paranormal views (Baker and Draper, 2010).

According to the model, farmers who believe strongly in protective rituals are twice as likely as skeptics to adopt traditional practices ( $B=0.72$ ,  $OR=2.01$ ). Additional strong predictors include belief in the evil eye ( $B=0.61$ ,  $OR=1.83$ ), spiritual fulfillment through rituals ( $B=0.49$ ,  $OR=1.63$ ), and religious leader training ( $B=0.55$ ,  $OR=1.72$ ). Significant Wald statistics (all  $\chi^2 > 7.72$ ) and a highly significant constant term ( $p=0.001$ ) indicate a strong overall model fit. These findings indicate that cognitive beliefs (efficacy expectations) and affective states (spiritual fulfillment) influence agricultural decision-making, which is consistent with the concept of planned behavior (Ajzen, 2022). According to the evidence, supernatural beliefs are dominant behavioral norms that have a significant impact on practice adoption, lending credibility to the integrative model of behavioural prediction (Fishbein and Cappella, 2023).

According to protective motive theory (Rogers, 2022), the majority of farmers use these techniques as a risk management strategy in reaction to perceived supernatural threats. The prevalence of damage prevention ideas ( $OR=2.01$ ) lends credence to this theory. The importance of authoritative models in shaping agricultural behaviors is supported by social cognition theory (Bandura, 2023), and the significant influence of learning from religious leaders ( $OR=1.72$ ) adds validity to this hypothesis. Traditional practice adoption is predominantly motivated by spiritual and protective reasons, rather than economic ones, as evidenced by the slightly smaller but still significant influence of yield beliefs ( $OR=1.48$ ). These findings suggest that effective interventions must address both the practical and spiritual components of farming operations. This has substantial implications for agricultural extension programs. Future research should look into whether these determinants alter in different cultural settings or types of farms, and if so, how modern sources of information might influence these long-standing links between beliefs and actions (Castells, 2023).

Studying supernatural beliefs in agriculture also means understanding how these beliefs relate to the natural and social world. Supernatural explanations are often used to interpret natural phenomena like weather patterns or crop failures. These beliefs provide a framework for understanding aspects of the world not readily explained by science (Araújo et al., 2022).

## CONCLUSIONS

This study sought to examine the varieties of supernatural beliefs and practices among rural Punjabi agriculturalists in relation to farming and livestock management, the cultural significance associated with these beliefs and practices, and how uncertainties in weather and climate conditions bolster these supernatural beliefs and practices. The study aimed to investigate the evolution of supernatural beliefs and practices among rural agriculturalists across time. To accomplish the objectives of the study, the researcher conducted semi-structured interviews with rural agriculturalists, encompassing both genders, as well as with religious academics, spiritual healers, and experts in agriculture and livestock. Furthermore, additional qualitative instruments and methodologies were employed in this study to comprehend the intricately contextualized local Punjabi phenomenon among rural agriculturalists. The subjective data, consisting of observations and verbal accounts, was organized into preset and emergent themes to offer a thorough understanding of the supernatural beliefs and practices among the rural agriculturalists of Punjab region in Pakistan.

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