

# Ethical Principles in Scientific Research

There is a growing need for more data on pilots' health and well-being, especially as ICAO and many authorities update their mental health requirements. Mental health has been a focal point, gaining increasing attention during and after the pandemic.

Additionally, Reduced Crew Operations (RCO) and an increasing pilot's upper age limit require thorough research and data collection. From pilots' point of view, it is important that the research aims to address a clear clinical or safety gap.

IFALPA recognizes the necessity for Member Associations and pilots to have guidelines on ethical principles when conducting research and data collection. The cornerstone for ethics in research involving human individuals is The World Medical Association's Declaration of Helsinki.

Adhering to ethical principles and guidelines is crucial to ensuring the protection, rights, and well-being of participants. Here are key ethical principles to follow in research:

## 1. Informed Consent

Participants must be fully informed, in a manner that is easily understood, about the nature, purpose, risks, and potential benefits of the research before agreeing to participate. Informed consent is an ongoing process, and participants should have the right to withdraw at any time without facing negative consequences.

## 2. Voluntariness

Participation in research should be voluntary. Individuals should not be coerced or unduly influenced to participate. Researchers must ensure that participants are free to make decisions without any external pressures.

## 3. Non-Maleficence

Research participants should not be subjected to harm in any way whatsoever. Researchers should strive to minimize any potential physical, emotional, or psychological harm to participants. Attending research should not have any negative consequences to a pilot's career or ability to conduct work.

#### 4. Privacy and Confidentiality

The confidentiality of participants' information must be guaranteed. Participants have the right to privacy, and researchers should take measures to safeguard sensitive data. This data should be deidentified in such a way that it cannot be recognized afterwards. Ensuring the anonymity of individuals and organizations participating in the research is imperative, and informed consent is necessary for the collection and use of sensitive data.

#### 5. Respect for Persons

This principle involves recognizing the autonomy and dignity of individuals. Researchers should respect the rights of individuals to make their own decisions.

#### 6. Scientific Integrity

Researchers should conduct their studies with honesty and transparency. This includes accurately reporting findings, using valid research methods, and avoiding biases that could compromise the integrity of the research.

Any deception or exaggeration of the aims and objectives of the research must be avoided.

Any type of misleading information, as well as representation of primary data findings in a biased way, must be avoided.

Negative results should be reported just as rigorously as positive results.

All unavoidable biases in study design must be acknowledged in reporting results.

#### 7. Affiliations

Affiliations in any form, sources of funding, or any possible conflicts of interest have to be declared.

#### 8. Communications

Any communication related to research should be done with honesty and transparency. Honest and transparent communication extends to sharing findings, both positive and negative, with participants and the broader public when appropriate.

These principles are often codified in ethical guidelines and standards established by institutional review boards (IRBs) or ethics committees. Researchers are expected to submit their research proposals to these boards for ethical review before initiating any study involving human participants.

Adherence to these ethical principles helps ensure the responsible conduct of research and protects the rights and well-being of individuals involved in studies. However, if the research is not conducted by an external university or research institute but within an airline, similar ethical guidelines need to be established and followed.

## ONLINE SURVEYS

An increasing number of studies are being conducted through web-based surveys. Online surveys offer a convenient and cost-effective method for data collection, but they do come with certain limitations. Here are some of the most significant limitations associated with web-based surveys, particularly when they are open or target a large and diverse participant group like commercial pilots:

### 1. Sampling Bias

Participants in open web-based surveys are often self-selected, leading to potential bias in the sample. Those who choose to participate may not be representative of the larger population, introducing a sampling bias that can affect the generalizability of the results.

### 2. Lack of Control Over Participants

In an open survey, researchers have limited control over who participates. This lack of control can lead to a diverse and potentially unrepresentative sample, making it challenging to draw accurate conclusions or generalize findings to a specific population.

### 3. Limited Generalizability

The findings from web-based surveys may have limited generalizability, especially when the participant group is very large and diverse, such as commercial pilots. The results may not be applicable to specific subgroups within the larger population.

### 4. Response Rate Variability

Open web-based surveys often experience lower response rates compared to more controlled survey methods. This can introduce a response bias, as those who choose to participate may have different characteristics than those who do not.

## 5. Data Quality and Validity

The quality of data collected in open web-based surveys can be variable. Participants may provide inaccurate or incomplete information, leading to concerns about the validity of the data collected.

## 6. Limited Control Over Survey Environment

Researchers have limited control over the survey environment, making it difficult to ensure that participants provide thoughtful and accurate responses. External factors, such as distractions or interruptions, can influence the quality of responses.

## 7. Security and Anonymity Concerns

Open surveys may raise concerns about the security and anonymity of participants, especially in sensitive or confidential research. Participants may be hesitant to provide truthful responses if they are concerned about the privacy of their information.

## 8. Difficulty in Establishing Causation

Correlation observed in open web-based surveys does not imply causation. Without control over variables and experimental conditions, establishing causal relationships between variables becomes challenging.

## 9. Limited Ability for Follow-up Questions

Unlike in more controlled environments, researchers may face challenges in asking follow-up questions or seeking clarification on participants' responses, potentially limiting the depth of understanding.

## 10. Difficulty in Replication

Replicating the study may be challenging due to the lack of a well-defined participant group. Replicability is a key component of scientific research, and uncertainties in participant characteristics can hinder the ability to reproduce findings reliably.

To address these limitations, researchers using web-based surveys should carefully consider their research objectives, employ strategies to enhance participant representation, and acknowledge the potential biases inherent in the methodology.