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## AVIATION AND PSYCHOLOGY: BRAZILIAN PRODUCTION FROM 2002 TO 2014 AT A NATIONAL CONGRESS

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**Abstract:** Aviation Psychology is an area of activity that counts on the presence of many psychologists, although it is not so widespread within the category and is not yet considered a specialty. This research is characterized as a bibliographical research, with the objective of identifying what we are producing about Aviation Psychology, based on a survey of papers presented at the Psychology Congress: Science and Profession . Data collection took place between October and November 2017, with five studies being selected and analyzed. It can be seen that 2010 and 2014 were the years of greatest production on Aviation Psychology; the scientific poster modality was the one with the most papers presented. It appears that, in Brazil, Aviation Psychology is an area whose discussion is still small. During the research, the existence of the Brazilian Association of Psychology in Aviation was identified, which, since 2013, has held events for the dissemination and promotion of the area. It is hoped that this research will contribute to the development and recognition of this field of application of Psychology.

**Keywords:** Aeronautics, Event, Research.

## INTRODUCTION

Psychology is increasingly conquering its own space and has been building its own history with society. It has been monitoring, adapting and applying all of its knowledge to the needs of aviation, and as Moreira (2001) quotes, psychological knowledge is applied on different fronts, from the perspective of School, Social, Clinical and Organizational Psychology, seeking to understand the behavior of man, within the Aeronautical System, in order to promote Flight Safety in partnership with professionals from other areas.

The psychologist's work is quite broad, being able to dedicate himself both to issues

related to individual reactions promoted by aviation environments that are different, and to the repercussions of such reactions on these same environments. However, psychological knowledge and the participation of professionals are not enough, even though there are different aspects, such as clinical, behavioral and cognitive, which they sought to understand, knowledge of the various aspects that involve aerial activity is enough to become a preponderant condition. for an effective performance of the psychologist in this context, as Ribeiro (2009) said.

Aviation is one of the most expanded human activities in the last century and its contributions were not only in technological studies, but also related to the understanding and studies of the limitations and capabilities that human beings have, presenting advances of great importance. importance for society, as it helps human beings to deal with the demands that the air environment imposes on them and is mainly aimed at unconditionally promoting operational safety and air safety.

This position is complemented by Souza (2003, p. 19):

The success of the prevention of aeronautical accidents lies in the continuous and in-depth knowledge of man as a crew member. Exploring the psychological variables involved in the man-machine relationship thus emerges as a watchword for accident prevention.

In this way, aviation is characterized in a global area, for its great advances, high investments in the security area with the objective of guaranteeing high performance operational standards. Thus, the improvement of these investments in technology and legislation, the human being came to be seen as weak in the aeronautical system and a great risk to safety. With the risk and high rate of accidents and air disasters, man has become an object of study and research.

A good part of the accidents is seen as

human error, but due to several quantitative factors that are investigated, none of the hypotheses contributes to the investigation process. Thus, in addition to the studies implemented to eliminate these hypotheses and causes, minimizing the consequences of human error in aviation, mentioned above, research related to the analysis of personnel selection, organizational design, training, reward structure, safety culture, corporate culture and others.

Aviation Psychology is an area of activity that has the presence of many psychologists, although it is not so widespread within the category and is not yet considered a specialty. The first records of action in the area appear with the 1st World War, when the first laboratory of Psychology in Aviation was set up, in Germany. Professionals began to show the importance of psychologists both in the selection of pilots, who would be sent to the front line, and in assisting the trauma of these people when they returned from combat. After examinations, symptoms of neuroses were identified, and to minimize them, professionals used psychiatric interviews and psychological tests.

In Brazil, according to Ribeiro (2016), in the 1960s, the Selection and Orientation Institute was created within the Air Force, the body responsible for the selection of personnel, and from then on, the first female psychologists began to appear. (the) in the area. According to the author, in 2013, the Brazilian Association of Psychology in Aviation ( Abrapav ) was founded. Since its founding, the entity has brought together professionals and scientific production to assist in training and qualification, in addition to transforming the area into a specialization within Psychology.

This research is characterized as a bibliographical research. According to Gil (1999), documentary research is developed

from material that has already been prepared, consisting mainly of books and articles. With the aim of identifying what we are producing about Aviation Psychology, based on a survey of works presented at the Psychology Congress: Science and Profession, an event that is intended to be a space for the dialogue of the diversity of Psychology in Brazil.

## **MATERIALS AND METHOD**

### **TYPE OF STUDY PERFORMED**

This is a documentary research. According to Gil (1999), documentary research is developed from material that has already been prepared, consisting mainly of books and articles.

According to Morris *et al.* (1995), documentary research can clarify some central characteristics of the discipline, describing how its practices and struggles developed, as well as the development of some of its subdisciplines.

### **SOURCE**

Source includes any and all pieces that make it possible to obtain news and information about the historical past (MELO, 2010). In this article, the annals of the editions of the Brazilian Congress Psychology: Science and Profession (2002, 2006, 2010, 2014) were used as a research source.

### **DOCUMENTS**

Everything can be a document, as long as it is assumed as such, given that documents do not exist as such before the researcher's curiosity intervenes (PROST, 2008). Bearing in mind that this article is intended to present what we are producing on Aviation Psychology, works published in the annals that address the proposed theme were used.

## PROCEDURE

The search terms used to select the papers were: aviation psychology, aviation; plane, airline, team, operational safety and air safety. From the identification of works on the subject, the following information was catalogued: (a) author; (b) author's institution; (c) modality in which it was presented; (d) year of publication; (e) objectives of the work; (f) method and (g) conclusion. This information was organized in a table created in Microsoft Word.

After collecting the information listed above, the abstracts of the papers were read. With this reading, we sought to identify what we are producing about Aviation Psychology.

## RESULTS AND DISCUSSION

The Brazilian Psychology Congress: Science and Profession is organized by the Forum of National Entities of Brazilian Psychology, composed of Psychology entities, four editions of this meeting have already been held, in the years 2002, 2006, 2010, 2014. a space for the dialogue of the diversity of Psychology in Brazil; the annals of the event were chosen for this reason.

For the search, the terms described above were used. With "Aviation Psychology", "Operational Safety" and "Air Safety", zero works were found, therefore, no work was selected with these terms. As for "aviation", works were located in 2006 (1), 2010 (1) and 2014 (2), all of which were selected for analysis. With "aerea" a work produced in 2010 was located and selected. With "equipe" works were located in 2002 (233), 2006 (25), 2010 (44) and 2014 (33). Despite the amount of materials located, they did not address the content of this study and were not selected for analysis. Given the above, five papers were selected for analysis. Chart 1 summarizes this information.

As for the modalities of presentation, the Brazilian Congress Psychology: Science and

Profession presents several forms, namely: round table, symposium; as I do, chatting about; oral communication and poster. Papers in the round table, symposium and oral communication modalities were not located, nor were they analyzed. Figure 1 presents the number of works analyzed by existing modalities in the editions of the Brazilian Congress Psychology: Science and Profession.

In the modality of how I do it, in which a discussion about a theme and/or work process is carried out in a more informal way by a professional specialized in the subject, a work was located and analyzed. The works presented in this modality can deal with theoretical-conceptual themes, research, training in Psychology, scientific publications and emerging themes. It should be noted that Aviation Psychology is an emerging topic in Psychology.

In conversation about, reports of experience/practice carried out by a specialized professional about a work process are presented, focusing, in a more informal way, on the methodology, procedure and techniques used. In this modality, a work was located and analyzed.

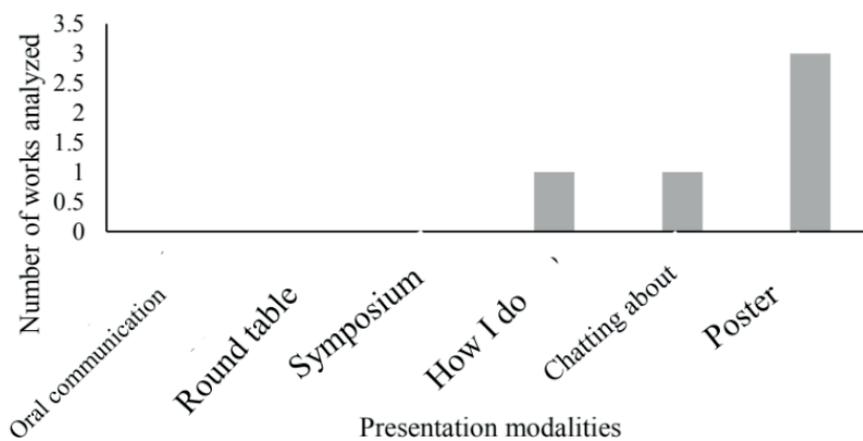
In the poster modality, three works were located and analyzed. This type of presentation is characterized by being, according to Souza (2011), an opportunity for undergraduate students to present reports of their internships and scientific initiation research. In addition, professionals can present in this modality due to the ease of elaboration of the material for presentation.

As previously stated, five works were selected for analysis. Chart 2 summarizes the information related to these surveys.

Araújo *et al* (2006) identified that the profession of aviators is wrapped in a belief that it only brings benefits to the worker's life. According to these authors, all the symbolism that exists around the plane, synonymous with

Search terms	2002		2006		2010		2014	
	located	Selected	located	Selected	located	Selected	located	Selected
aviation psychology	0	0	0	0	0	0	0	0
Aviation	0	0	1	1	1	1	2	2
Plane	1	0	0	0	0	0	0	0
aerial	0	0	0	0	1	1	0	0
Team	233	0	25	0	44	0	33	0
operational safety	0	0	0	0	0	0	0	0
air safety	0	0	0	0	0	0	0	0

**Table 1** – Distribution, by year, of works located and selected, according to the search terms used.



**Figure 1.** Number of works analyzed by existing modalities in the editions of the Brazilian Congress Psychology: Science and Profession.

authors	Title	year of presentation	Presentation modality
Araújo, Oliveira, Costa, Lima and Mira	The other side of aviation: The consequences of aviators' work for physical and mental health	2006	Poster
Motta and Medeiros	Leave from work of crew members of the Brazilian Civil Aviation System: Incidence of mental and behavioral disorders	2010	Poster
Barros and Sa	Psychological assessment: Perspectives and challenges in the selection process for joining the Brazilian Air Force	2010	How I do
bacilio	Needs for health promotion programs for pilots of Civil Aviation companies	2014	Poster
Ribeiro, Pereira, Santos e Costa	Psychology in Aviation	2014	chatting about

**Table 2** – Information about the works selected for analysis.

power, and the crew itself, whose job would be just to travel around the world, hides the true consequences that work brings to the health of individuals.

From the observation that the relationship between the worker's body and working conditions is always studied, but the effects on the psyche are not always analyzed, Araújo et al (2006) *aimed* to identify the consequences of work factors for the health of aeronauts. As a result of the investigations, these authors found that the workloads are directly related to the wear caused to the crew, because this comes from the dynamic interaction between the workloads and the negative transformations in human biopsychic processes. Some symptoms arise as a result of tiredness, such as lack of concentration and attention, drowsiness and irritability. Agents such as noise, abnormal pressures, vibrations, temperatures, radiation, humidity, make up a set of variables that are harmful to the health of these workers. Finally, the authors point out that an intervention in this area is essential, as well as additional research on the subject.

The air transport sector involves numerous risk factors present in the work environment, according to Motta and Medeiros (2010). For these authors, alterations in the circadian rhythm due to work at irregular hours lead mainly to sleep and gastrointestinal disturbances and mood swings. In Brazil, the significant number of absences from work of aeronauts who received the psychiatric diagnosis classified as mental and behavioral disorders (ICD F00-F99) in the health inspections of the Center for Aerospace Medicine (CEMAL) in recent years has been worrying Management specialists of Human Factors in Aviation and Aviation Medicine (GFHM) of the National Civil Aviation Agency (ANAC).

Based on the observation that the number of aeronauts away from work has increased,

Motta and Medeiros (2010) analyzed the main reasons for temporary absence from work, in view of the significant incidence of "mental and behavioral disorders" among the aeronauts inspected in the CEMAL during the years 2000 to 2007.

The analysis of the removal requests allowed Motta and Medeiros (2010) to identify that the "temporarily incapacitated" (IT) judgment removed 4,283 inspected aeronauts from work, representing 8.35% of all aeronauts inspected at CEMAL in that period (51,281). The category of Flight Attendant was predominant with an index of 85.8% (3,673 leaves), followed by Airline Pilots, with 7.9%. Finally, the authors state that they hope to contribute positively to the quality and safety of some services related to Brazilian Civil Aviation.

The work of Barros and Sá (2010) aimed to present the practice of psychological assessment, planned and carried out by the Instituto de Psicologia da Aeronáutica (IPA), in the selection processes of competitions for admission to the various cadres of the Brazilian Air Force. According to the authors, the selection process can be considered as the use of evaluation and information procedures strategically planned for the purpose of identifying, among the candidates, those who, due to personal and/or professional characteristics, will best integrate with the requirements of the position, the prevailing organizational culture and the organization's expectations.

Because it is a military contest, nationwide, and the large number of positions and functions that it must fill, Barros and Sá (2010) point out that some specificities are present in the different stages that usually make up a psychological assessment of a selective nature. Such stages (planning, application, evaluation of results and feedback interview) were presented through the following

methodology: report of the work developed by the IPA, discussion about the impasses and difficulties that occur in this routine.

In addition, the authors highlight prospects for the development of research to improve the selection process. Finally, Barros and Sá (2010) believe that, in this way, we will be able to contribute to the debate and exchange of experience, fundamental for the production of knowledge in this area of Psychology.

With his research, Bazílio (2014) intended to highlight the importance of the health of aircraft crew, in particular, the pilots, who are responsible for conducting the flight. For this, the author observed the influence of Human Factors, with emphasis on fatigue, which can trigger harmful consequences for the health of the aviator and interfere with performance and, as a result of this fact, put crew and passengers at risk.

During the study, quality of life and quality of life at work received special attention. Among the analyses, the one that showed significant relevance as a health promotion program: the implementation of operative groups in companies. According to Bazílio (2014), through periodic meetings of pilots to discuss the difficulties inherent in their own work, it was possible for professionals to identify damage to their health. Finally, the author noted that the applicability of operative groups can be a tool for achieving unique changes through the performance of tasks, which no longer place them as supporting actors in decision-making related to their work.

Psychology has become present in different fields of activity in which human participation is a determining variable, according to Ribeiro *et al* (2014). Risk environments have proven to be a fertile and promising field for psychologists to work with. These include aviation. It is not new that Psychology has helped this area of knowledge, acting in the

selection, training, research, intervention, among other activities, which have flight safety as their main objective. According to the authors, the proposed debate aimed to discuss the psychologist's possibilities of acting in this complex environment.

To this end, the authors presented a small sample of such possibilities, focusing on the psychologist's work at the Aeronaval Complex of São Pedro da Aldeia, with emphasis on the training of psychologists who work in this environment. Then, a military pilot selection tool, the Military Pilot Aptitude Test (TAPMIL), was presented, adapted, standardized and validated with the specific population of air cadets of the Brazilian Air Force (FAB). Another discussion dealt with the methodology for investigating the aeronautical accident and the prospects for viewing this process through perspectives based on the systemic model and complexity.

Finally, Ribeiro *et al* (2014) presented the Brazilian Association of Aviation Psychology as an entity that was created with the purpose of bringing together psychologists who work or are interested in this field, aiming at understanding and disseminating the practices undertaken, as well as as the exchange of experiences between those who made Psychology and Aviation their professional passions.

## FINAL CONSIDERATIONS

The aim of this work is to outline the current panorama of Aviation Psychology, based on a survey of works presented at the Brazilian Congress of Psychology: Science and Profession. From the number of works identified and analyzed related to Aviation Psychology, we can point out the idea that, in Brazil, this area is new and that it is still in the process of maturation, marked by the child of the Associação Brasileira de Psicologia na Aviação (ABRAPAV) which, since 2013, has

held events to publicize and promote the area.

It can be concluded with this study the real need for discussion and work to be carried out on Aviation Psychology. It is visible that the aviation sector is increasing and its technology has been improving over the years. Thus, the performance of the psychologist begins to take small steps in this great advance in which it is emerging for society in general.

Given the importance of the subject, it is essential to talk about this topic, since society needs to have more information about the work of the Aviation Psychologist. In addition, the more academic work there is on the subject, the better it will be for the academic

community, as it enables the expansion of this area, which is still in the process of being built.

It is understood that the role of the psychologist is of paramount importance, but it is also observed how great is the lack of material and research carried out on this topic. Therefore, it is important that the psychologists make a greater commitment so that the Brazilian people see this area as something useful, no longer restricted to those of the Armed Forces. Having this initiative is one of the main ways to improve this panorama, since, if there is greater commitment on the part of psychologists to seek support, it is already a good step forward.

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