A SYSTEMATIC REVIEW OF AVIATION PSYCHOLOGY RESEARCH TOPICS (2013-2022)

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1. INTRODUCTION

Aviation psychology studies all those human factors that can influence flight performance. Studies cover a wide range of topics and it may be very complex to have a unified view of the current state of the art. Only a previous study tried to analyze the main topics of interest, indicating that training, workload and visualizations were the principal object of study (1).

2. AIM OF THE STUDY

The present work was a systematic literature review of research topics. Specifically, the aim of the present study was to identify the research topics characterizing aviation psychology research, and to track their trend over time.

3. METHOD

3.1. Sample

PsycInfo and PsycArticle database were used to collect scientific publications from 2013 to 2022. The databes identified 3606 records. Following the screening (title and abstract), 593 articles were collected for data analysis (Figure 1).

3.2. Data analysis

The abstract of selected articles were analyzed using the Automated Co-occurrence Analysis for Semantic Mapping procedure (ACASM) (2). The Cluster Analysis (CA) and Correspondence Analysis (COR) were performed using Tlab softwere.

4. RESULTS

The CA provided five topics of research (Table 1). The COR provided two factorial bipolar dimensions: *Environment vs Individual*, and *Clinical aspects vs. Organization*. The association between the factors and the clusters has shown in Figure 2. The adjusted residuals' analysis (3) has shown that in 2014 research focused on screening, in 2016 on well-being, in 2019 on personal conditions, and in 2020 on organizational aspects. (Table 2).

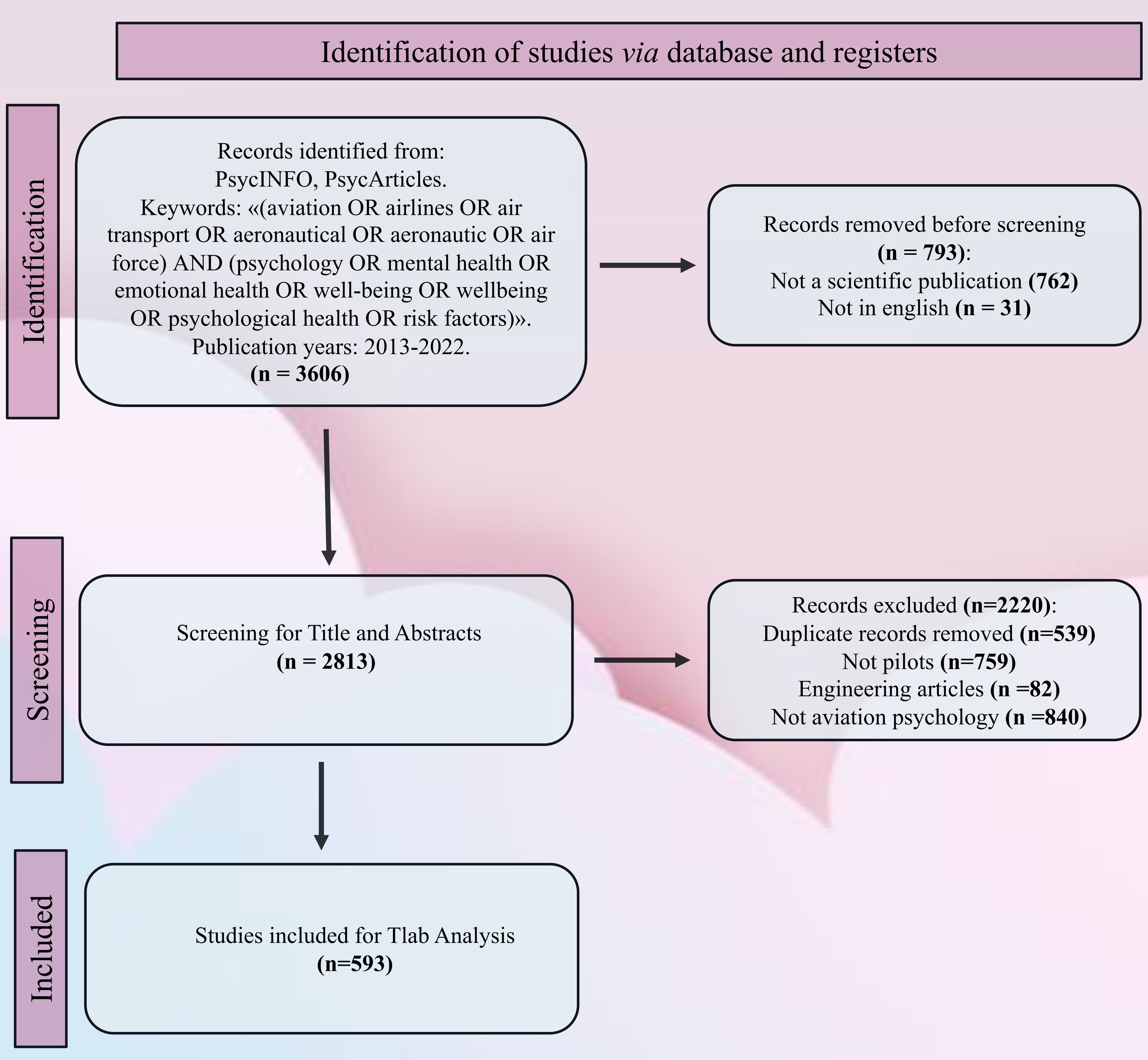

Figure 1. Flow-chart of the sample.

Personal conditions		Well-being		Organizational aspects		Cognitive laboratory studies		Screening	
Lemmas	χ2	Lemmas	χ2	Lemmas	χ2	Lemmas	χ2	Lemmas	χ2
Fatigue	625,04	Health	234,65	Incident	204,28	Visual	246,30	Train	258,29
Sleep	270,33	Suicide	216,54	Debrief	195,21	Display	199,86	Training	257,18
Anxiety	236,62	Maltreatment	162,09	Learning	170,74	Auditory	178,10	Selection	210,77
Symptom	128,88	Child	145,53	Team	148,59	Weather	171,28	Human	111,89
Stress	126,87	Family	137,04	Leadership	133,22	Flight	156,62	Personality	88,36
Automation	106,23	Care	133,73	Practice	108,23	Workload	149,99	Candidate	85,01
Mishap	102,79	Airman	127,22	Multiteam	98,88	Simulator	126,06	Validity	59,10
Attitude	102,10	Resilience	113,78	Unsafe	94,27	Illusion	110,38	Competence	58,93
Duration	94,87	Disorder	101,12	Manager	86,90	Task	108	Assessment	58,72
Day	87,88	Medical	100,78	Organizational	83,608	Pilot	104,06	Aptitude	53,72
Sleepiness	85,35	Member	94,47	Report	80,17	Spatial	100,48	Receive	47,38
Mood	81,35	Population	94,44	Culture	77,56	Fixation	75,96	Wellbeing	44,79
Depression	78,80	Diagnose	84,15	Attainment	77,52	Land	75,96	Analysis	42,98

Table 1. Topics' characteristic lemmas.

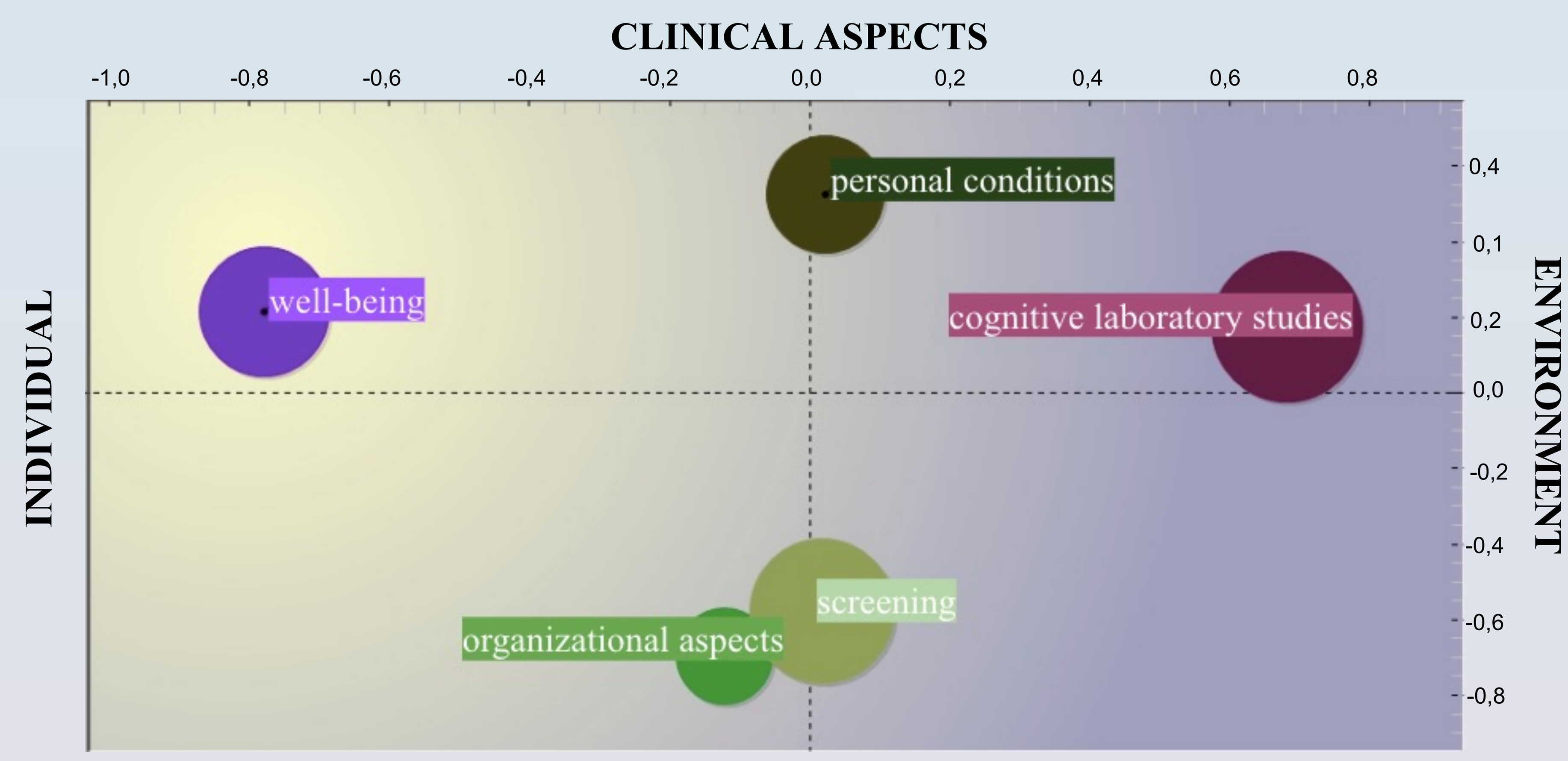

Figure 2. Semantic structure of topics position.

Year		TOPICS				
		Personal conditions	Well-being	Organizational aspects	Cognitive laboratory studies	Screening
2013	Count	9	6	3	16	11
	Adjusted Residual	0,5	-1,2	-1,1	1,6	-0,1
2014	Count	9	7	4	12	31
	Adjusted Residual	-0,7	-2,0	-1,3	-1,3	4,7
2015	Count	14	17	3	22	16
	Adjusted Residual	0,5	0,7	-2,1	1,0	-0,5
2016	Count	6	16	2	13	10
	Adjusted Residual	-0,9	2,4	-1,6	0,3	-0,6
2017	Count	5	14	8	9	12
	Adjusted Residual	-1,3	1,5	1,2	-1,2	0,0
2018	Count	8	14	8	17	8
	Adjusted Residual	-0,6	0,9	0,8	0,9	-1,8
2019	Count	19	17	8	14	13
	Adjusted Residual	2,2	0,7	0,1	-1,2	-1,3
2020	Count	10	14	14	13	17
	Adjusted Residual	-0,6	0,0	2,5	-1,3	0,0
2021	Count	15	10	12	22	16
	Adjusted Residual	0,6	-1,7	1,3	0,7	-0,7
2022	Count	8	7	6	15	13
	Adjusted Residual	-0,2	-1,1	0,2	0,8	0,3

Table 2. Research topics' distribution over the years (Adjusted Residual > 1.9).

4. DISCUSSION

The results of this study showed how, over the previous ten years, research on aviation psychology had focused on very specific and rarely integrated topics. Moreover, the time trend showed how scientific studies focused on topics that were on vogue in that particular year, based on the needs of the moment.

This study provided an overview of the literature of the last ten years and makes suggestions for future scientific production. In addition, the importance of this study lies in helping to build a scientific statute of aviation psychology. In fact, the wide range of topics covered indicates the great complexity of the study area and the need to delineate specific topics of interest that would differentiate aviation psychology from other psychological sciences.

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