Typology of the Guardia Civil agent who commits suicide.

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Abstract

Suicide is a serious public health problem, which seems to be increasing both internationally and in Spain. It is a complex phenomenon, with multifactorial etiology, which has been extensively studied with epidemiological and descriptive approaches, to identify risk and protection indicators that help prevent it, implementing effective interventions. Assuming that people who commit suicide do not form a homogeneous group, it is known that there are particular groups that have a higher incidence, so preventive strategies must be adapted to this different case mix. Furthermore, even within professions, it has been proven that suicide is not homogeneous either, with, for example, different subgroups or suicidal types being found in the military population (Griffith, 2012). Law Enforcement Agencies (police) constitute one of those special groups, due to the greater stigma related to mental health, easy access to lethal means (firearms), and constant occupational exposure to trauma (serious accidents, violence, serious abuse or death). But there are no known works that have studied whether there are different suicide profiles among agents. Here we present the first typological study that has been carried out in Spain in this regard, analyzing data from 640 Guardia Civil agents who committed suicide between 1982 and 2022. Through multiple correspondence, two-stage cluster and bivariate analysis on 16 sociodemographic, professional variables and from the event itself, three clearly differentiated groups emerged. These results are discussed for the purposes of their preventive usefulness.

I. INTRODUCTION

Suicide, defined as the intentional self-harm act by an individual to end their own life with a lethal outcome, represents a global public health concern, with devastating effects not only on the individuals involved but also on their families and acquaintances (World Health Organization [WHO], 2019). It is estimated that currently, over 700,000 suicide cases occur worldwide each year (WHO, 2023).

In Spain, 4,003 suicide deaths were documented in 2021, representing a 1.6% increase from the previous year. This phenomenon is established as the leading cause of external death among men, with a total of 2,982 deaths and a 1.8% increase. Among women, it ranks as the third leading cause of death, with a total of 1,021 victims (INE, 2022). The increasing trend in the incidence of cases is particularly alarming: according to provisional data published by INE for 2022, there has been an increase in the number of suicides, preliminarily reaching a total of 4,097 deaths, a 2.3% rise compared to 2021 (INE, 2023). Thus, Spain is significantly affected by suicide, though its rate is low compared to other OECD countries. Nonetheless, as observed, the country records an average of at least ten deaths daily due to this cause, not to mention attempts, and survivors. This complex situation seems not to be adequately addressed by health authorities, except for a weak network of local, sectoral, and uncoordinated actions and protocols, far from the national program urged by WHO as an effective tool to reduce the number of deaths (Blanco, 2022; Patton, 2022).

Suicide is a complex, multifactorial phenomenon that has been extensively studied over time through numerous descriptive and epidemiological research (Martin et al., 2020). It involves an interaction of various elements, both biological and psychosocial. From a biological perspective, recent research has suggested the existence of genetic predispositions that may increase an individual's vulnerability to suicide (Segal, 2009). However, it is crucial to recognize that the environment and psychosocial factors play a key role in this process.

At the psychological and mental health level, mental disorders such as depression, anxiety, and schizophrenia are closely associated with an increased risk of suicide (Moitra et al., 2021; O'Connor & Pirkis, 2016). Chronic stress, mental disorders, lack of social support, and access to lethal means are also well-documented risk factors (O'Connor & Pirkis, 2016). Additionally, changes in sociocultural and economic dynamics can influence suicide rates at a population level (Gunnell et al., 2020). It is important to recognize that the interaction of these factors is complex and can vary from one individual to another, thus underlining the need for a multidisciplinary approach in the study, prevention, and treatment of suicide, understanding that suicide is a dilemmatic-intentional-behavioral-contextual phenomenon where numerous factors intertwine: cultural, social, existential, psychological, clinical, and biological (García-Haro et al., 2020). Examples of such interactions include the tendency of more educated individuals to leave suicide notes more frequently (Chavez-Hernandez et al., 2006). This may reflect a higher likelihood of communicating their final thoughts, as is their usual practice. In a similar vein, older people tend to leave suicide notes more often than younger individuals, although some studies report contrasting results. Furthermore, those who do not leave suicide notes are often influenced by factors like physical illnesses, psychiatric disorders, or a prior history of mental health issues (Misra and Ghanekar, 2017).

However, despite its multifactorial nature, suicide is a preventable phenomenon: the identification of risk and protective factors for suicide can facilitate evidence-based preventive decision-making (Isometsä, 2014). These factors are also essential in defining what type of interventions are necessary and constitute a crucial

element in any national suicide prevention strategy (WHO, 2019).

Although this issue affects various groups and communities, there are specific collectives that, for quantitative reasons, appear to have higher vulnerability, one of them being police forces. When reviewing scientific literature, some studies state that suicide rates tend to be higher in police organizations compared to the general population rates (Milner et al., 2013; Milner et al., 2017), while others report they are equivalent, or even lower (Loo, 2003), knowing since long ago that these differences can be explained by methodological issues (Hem et al., 2001). On one hand, due to the characteristics of the populations compared (Violanti et al., 2019), as it is necessary to consider, for example, gender differences and the ages of active work: to compare general population figures with police, one must match gender (males) and working age ranges (18 to 65 years). On the other hand, due to possible differences in counting suicides in police forces vs. the general population: officers frequently resort to firearms, leaving little doubt about suicidal intention and counting all suicides, while many fatal accidents of the general population (suicide by jumping, drownings, traffic accidents) may be masking suicides that are not counted (Domínguez et al., 2007).

In the case of the Spanish Guardia Civil, one of Spain's two state public security forces, a study analyzing cases over 38 years (1982-2020; pending publication) matched by age and gender, found that suicide rates have been progressively decreasing: at the beginning of the study period, the rate almost doubled that of the equivalent civilian population (active male population) at 20.9 vs. 13 per 100,000 people, while in the last decade it seems to tend to equalize (15.5 vs. 13.4).

This work does not aim to debate whether police suicide rates are higher or not than those of the general population, but it is interested in delving into how to prevent suicide, as regardless of the rates, a single suicide is unacceptable, both in the general population and in any profession. For these preventive purposes, at the beginning of the century, a plan of action against suicidal behavior was developed for the personnel of the Guardia Civil, taking advantage of the study of cases that occurred in previous years: the Preventive Psychological Assistance Plan (PPAP), implemented in 2002 and updated in 2010 (Congress of Deputies. Interior Committee, 2017). The primary objective of this PPAP is to prevent and thereby reduce self-destructive behaviors of the Guardia Civil agents, applying all measures deemed necessary by the Institution itself. For which it is essential to thoroughly understand the phenomenon, identifying the indicators of suicide risk that can be noticed by colleagues, subordinates, and commanders, and implementing warning protocols that allow, in turn, to activate effective preventive resources.

In terms of identifying indicators, it is known that the stigma related to mental health, easy access to lethal means (firearms), and constant exposure to trauma (such as serious accidents, violence, severe abuses, or death) that can chronify situations of work-related stress, are some of the factors that can contribute to the increased risk of suicide in the Law Enforcement Agencies (Krishnan et al., 2022; Stanley et al., 2016; Violanti et al., 2009; Violanti, 2010; Webster, 2013). Indeed, police officers in general, and therefore Guardia Civil in particular, may face different stressful situations more frequently than the citizenry due to their daily work (Kop et al., 2015), which can increase the appearance of mental health problems, such as post-traumatic stress disorder (PTSD), depression, or anxiety (Chae & Boyle, 2013), which have already been said to be suicide risk factors. In addition, facing these challenges in an environment where asking for help can be perceived as a sign of weakness (what

is known as the issue of stigma), and in a culture of self-sufficiency that emphasizes strength, resilience, and independence, can discourage agents from expressing vulnerability or seeking help, and further exacerbate the problem (Chae & Boyle, 2013; Karaffa & Koch, 2016; Stuart, 2008). Especially when one of the peculiarities of the police profession is the very easy access to such a lethal means as firearms (Miller & Hemenway, 1999). Other risk factors found in the police population refer to possible substance abuse (alcohol or drugs) as a coping mechanism for work-related stress (Waters & Ussery, 2007); to family history of suicide (Melhem et al., 2007); to emotional tensions as a result of family and personal problems, in turn derived from couple conflicts or economic or legal difficulties, more or less related to the vicissitudes of the exercise of the police profession; or, finally, to isolation and the perception of lack of support or understanding, both inside and outside the police force, which can also increase the risk (Chae & Boyle, 2013).

Knowing the existence of this constellation of indicators, every time the suicide of a Guardia Civil agent is registered, within the framework of the PPAP, the systematic performance of a psychological autopsy (PA; Vidal et al., 2004), or better psychobiographical autopsy (García-Haro et al., 2020), is protocolized, which is the technique that allows clarifying the circumstances of a death by suicide, homicide, or accident, focusing on the demographic and psychosocial aspects of the victim at the time of death (Ceballos-Espinoza, 2015; Gómez-Segura, 2016). It is a retrospective and indirect method of researching the personality characteristics and life conditions of a person, with the aim of approaching the understanding of the circumstances of their death, which is profusely used in the investigation of suicides to venture their intentionality and the motivations (causes) that led people to make the self-destructive decision.

Thanks to the PAs implemented by the specialists of the suicide prevention team within the Psychology Service, information on hundreds of self-destructive behaviors among Guardia Civil personnel has been compiled. Much of this data has been made available to the authors of this work, with the aim of going beyond the mere description of the cases and verifying if there are patterns that facilitate their prevention, checking if there is a typology of the Guardia Civil agent who commits suicide. Understanding by typology a hierarchical system of categories used to organize objects according to their similarities and differences (González-Álvarez et al., 2022; Santos-Hermoso et al., 2022; see also chapters 5 and 6 of Sotoca et al., 2019).

Indeed, it is known that people who commit suicide do not form a homogeneous group, since there is great diversity in terms of how and why self-destructive behaviors are carried out. This has led to the formulation of several theories about suicide (Barzilay & Apter, 2014), and scientific research on whether suicides can be grouped into groups, categories, or typologies, that differ from each other in terms of the combination of variables that explain the path to suicide. To date, proposals for typologies on suicidal behavior are known, both theoretical and empirical, having even already conducted critical reviews on them (Bagley & Shahnaz, 2017; Martin et al., 2020).

In the most recent empirical proposal known (Sinyor et al., 2014), a Canadian team characterized suicide in the general population of Toronto by studying 2,886 fatal cases that occurred between 1988 and 2010, asking themselves if they could be grouped into classes or types. For this purpose, they performed a two-step cluster analysis on variables 1) demographic (age, sex, and marital status); 2) mental illness; 3) healthcare assistance prior to suicide; 4) recent stressors within the last year: bereavement, unemployment, financial problems,

immigration, relationship breakup, interpersonal conflicts, recent medical stressors (including being upset by a diagnosis, health deterioration or loss of independence due to a medical condition), or criminal justice involvement; and 5) issues about the suicidal act itself, such as the method used, the location, and the presence of a suicide note.

It turned out that the self-destructive cases were significantly grouped into five clusters. Group 1 (10.53% of the cases) had the highest proportion of women and accumulated cases with non-violent methods of death, with depression, and a suicide attempt in the past. Group 2 (16.91%) was the oldest, had the highest proportion of people with a recent stressor, violent methods of suicide, and all were married. Group 3 (19.43%) mostly had men between 20 and 64 years old, and all had experienced recent stressors, suffered from a mental illness or had a history of substance abuse. Group 4 (20.23%) gathered the youngest people, and the highest proportion of deaths by jumping from a height, few were married, and almost half suffered from bipolar disorder or schizophrenia. Finally, group 5 (32.88%) was the largest of all, grouping people all single, with no previous suicide attempts, less likely to have an identified mental illness, and those who left a suicide note.

These studies demonstrate that suicide is a complex phenomenon unlikely to adhere to rigid archetypes, concluding that identifying subgroups of people who die by suicide is an important step towards a more advanced approach to understanding the causes and pathways to suicide and, ultimately, to develop more specific and effective measures to prevent it.

But not only is there no single model that explains suicides, but typologies may be more effective for specific assessment and prevention of suicide risk when developed for particular at-risk groups. It's different to characterize suicide in the general population than in specific collectives, such as law enforcement agencies or military personnel, who are accustomed to working in stressful situations and to carrying and using firearms. To date, no typology of police suicides is known, but Griffith (2012) did report an empirical study on military suicides in the Army National Guard (ANG), examining 294 fatal cases that occurred between 2007 and 2010, analyzing two groups of variables. The first group included information from the ANG's own personnel database: age, gender, race, level and type of high school attainment, mental category (based on the Armed Forces Vocational Aptitude Battery), marital status, rank, prior service, years of service, military status (M-day or part-time vs. full-time military service), military occupational specialty (distinguishing between combat arms and others), and current professional situation (in training or already deployed). The second group included information collected by the Unit in which the military member committed suicide, according to a standard model, which gathered data on: family problems (conflicts between parents and children, partner problems, recent loss or death), school problems (academic problems, dissatisfaction, having to drop out), employment problems (dissatisfaction, uncertainty, having lost job), behavioral problems (spouse/child abuse, driving under the influence of substances), new life circumstances (unwanted pregnancy, newlywed, new parent, new employment, recent separation or divorce), and health conditions (suicidal thoughts, previous suicide attempt, substance and/or alcohol abuse, evidence of anxiety or depression, and other health problems).

By performing a two-stage cluster analysis, first calculating hierarchical cluster with ANG variables, which yielded a solution of between 2 and 4 groups, and then applying a new K-means cluster calculation on that solution, a final solution of 2 groups emerged, characterizing two different types of soldiers: one with 1/3 of

the sample, corresponding to already professional soldiers, deployed in assignments, and older (called careerists), vs. another (2/3) with younger soldiers, under training, not deployed, and single (among other variables; first-termers). A solution that was later enriched by checking how the information from the second group of variables was distributed between the two clusters. It concluded that suicide prevention policies should be adapted to the different characteristics of the groups. However, no subsequent scientific literature has been found on whether this recommendation has been implemented or not (Bryan et al., 2015; Griffith, 2022).

It has already been mentioned that in the field of police profession, no typological works on suicide are known, so the main objective of this study is to explore whether with the information historically collected by the Guardia Civil every time a suicide of personnel is confirmed, a specific typology could emerge that would help with prevention tasks. To this end, an empirical study was conducted similar to the ones previously mentioned, using equivalent variables, both demographic and professional, and regarding the suicide itself. These variables will be studied, as explained below, with multivariate data analysis techniques, according to the methodology already validated in previous Spanish studies on typology development in other fields (González-Álvarez et al., 2022; Santos-Hermoso, et al., 2022). As this is the first known study on suicidal typology in the police field, no previous hypotheses about what results would be expected are proposed; but since the Spanish Guardia Civil is an institution with military organization, it is worth asking whether results somewhat similar to those of Griffith's (2012) study in the American ANG will be found, despite the great functional differences between both institutions."

II. METHODOLOGY.

A. Participants

An analysis was conducted on a database containing information about 640 Guardia Civil officers who, during their years of service or once retired, died by suicide from 1982 to 2022. The individuals in this sample were aged between 18 and 84 at the time of their death, with an average age of 38.77 years (SD = 12.33). In terms of gender distribution, the sample consisted of 626 men and 14 women.

B. Analyzed variables

A total of 16 variables were examined. Eight were sociodemographic variables: 1) *Age*, divided into four brackets each containing approximately the same proportion of individuals (25%). 2) *Sex*, male or female. 3) *Marital status*, recoded into three categories: single, in a relationship, or separated; the recoding was done broadly such that the separated category included those who were separated, divorced, or widowed, while the relationship category encompassed all types of partnerships regardless of the formality of the union. 4) *Offspring*, yes/no. 5) *Educational level*, with three categories: elementary (comprising EGB, ESO, or FP/ "grado medio", "bachillerato" or equivalent, a two-year program that qualifies students to enroll in university (including BUP, COU, "bachillerato", and FP II/"grado superior"), and university level. 6) Previous *contact with mental health services (MHS)*, as a dichotomous yes/no variable. 7) *Main problems* that may have triggered the suicide, categorized into psychophysical (considering both psychological issues and medical problems that could cause psychological discomfort), economic, family-related, legal, partnership-related, and work-related. And 8) *previous*

suicide attempts, as a binary categorical variable (yes/no).

Four professional variables were also used: 9) *Employment status*, categorized into active (performing duties as a member of the Guardia Civil) or inactive (on leave due to health reasons, on leave of absence, retired, or in any other situation where they are not fulfilling their usual duties as a member of the Guardia Civil). 10) *Background* upon joining the Guardia Civil, consisting of four categories: civilian (any citizen without any direct previous link to Guardia Civil), "colegio de guardias jóvenes" (a school for children of active, reserve, or retired Guardia Civil members), auxiliary Guardia Civil (individuals who performed Military Service under the special volunteer figure in the Guardia Civil), and military (entry into the Guardia Civil through a restricted quota for serving in the Armed Forces). 11) The *scale* to which they belonged, in three categories: scale of "cabos y guardias" (lowest entry-level ranks), sub-officers, and officers. And 12) *Decorations*, to account for the rewards achieved during their professional career, recoded into three categories: no medals, one medal, and two or more medals.

Lastly, four variables related to the event were analyzed: 13) *Duty status*, a binary categorical variable, to distinguish whether the suicide occurred while on duty (during working hours) or not. 14) *Location of death*, divided into private residence (whether their own or someone else's), official residence (accommodation provided by Guardia Civil), police facilities, public roads, or outside urban areas (such as open fields). 15) *Suicide method*, categorized into hanging, knife, firearm, cutting, impact (which included the majority group of suicide by jumping from height, as well as deaths by car accidents, train collisions, or use of explosives) and ingestions (broadly considered, including cases where any element introduced into the body caused death: alcohol, drugs, or toxic substances not limited exclusively to oral administration, also including cases of drowning caused by water or inhalation of harmful gases). And 16) *Suicide note*, as a binary yes/no variable.

C. Data analysis

In order to identify the possible relations between the studied variables, a multiple correspondence analysis (MCA; Hair et al., 2006) was performed using the statistical analysis software IBM SPSS Statistics® 26. To determine how many dimensions should be considered, an initial exploratory analysis was conducted on 15 components, evaluating the variance explained by each dimension (eigenvalue) in conjunction with the measure of internal consistency, known as Cronbach's alpha, an indicator of how well the variables in each dimension are related to each other. Based on the analysis, the optimal number of dimensions was selected to ensure parsimony. When constructing the multivariate model, only variables with a contribution of 0.2 or more to each component were included, as recommended by Linting & van der Kooij (2012). After determining individual coordinates along the dimensional axes, a two-step cluster analysis was then performed. This method empirically determined the number of distinct clusters or groups formed among the cases, thereby facilitating the identification of various typologies.

Subsequently, to describe these typologies, contingency tables were created between the obtained clusters and the studied variables. The presence of significant associations between typologies and variables was assessed using the chi-square statistic (χ^2) (α=0.05), and the effect size (strength of the detected association) was estimated with Cramer's V statistic, interpreted as small (0.10-0.29), medium (0.3-0.49), or large ($\geq$ 0.50). To identify the cells that determined the association detected by the χ^2 statistic, the magnitude and direction of the

interaction with each variable category were verified through the analysis of adjusted standardized residuals (ASR), considering significant those greater than 1.96 or less than -1.96.

III. RESULTS

During the computation of the MCA, a parsimonious solution for grouping variables in two dimensions was obtained. The first component accounted for 14.68% of the data variance (*eigenvalue* = 3.321) and had high internal consistency ($\alpha = 0.745$); while the second dimension explained 10.32% of the variance (*eigenvalue* = 2.335) and also demonstrated good internal consistency ($\alpha = 0.610$). From the third dimension onwards, none showed an internal consistency greater than 0.5. Together, the two-dimensional model manages to explain 25% of the variance (see Table 1).

Table 1. *Contributions of the variables to each dimension.*

Variables	Dimensions	
	1	2
Age	0.782	0.261
Marital status	0.725	0.028
Offspring	0.725	0.005
Decorations	0.413	0.021
Previous contact with MHS	0.048	0.514
Educational level	0.006	0.387
Suicide note	0.043	0.319
Duty status	0.004	0.218
Employment status	0.093	0.294
% of explained variance	14.68	10.32

The discrimination measures in Table 1 show that the variables that contribute the most to dimension 1 are, in order: *age*, *marital status*, *offspring*, and *decorations*. As can be seen in Graph 1, these variables are distributed in such a way that an individual of older age, in a partnership or separated, with children and more decorations scores high in this dimension. However, this dimension is not exclusively linked to the *age* variable, as there are cases where younger individuals score higher on this dimension and vice versa. Interpreting that this dimension would be more related to life achievements and accumulated experience than to age, it was decided to name dimension 1 as "life experience."

On the other hand, the variables that contribute to dimension 2 are: *contact with MHS*, *educational level*, *suicide note*, *duty status*, and *employment status*. Factors contributing to a higher score in this dimension include having been evaluated by a mental health professional, a higher educational level, and leaving a suicide note. In Graph 1, it can be observed that the categories most distant on the Y-axis are associated with lower values for the 'inactive' situation and higher values for 'on duty' and 'educational level bachillerato/equivalent'. It seems more likely that a person with greater work activity and a higher educational level occupies jobs with greater responsibilities, which may expose them to more stressors. This greater exposure to stress can lead to the seeking of mental health assistance. Therefore, this dimension was named "occupational circumstance."

Graph 1. *Distribution of variable categories in a bidimensional plane*
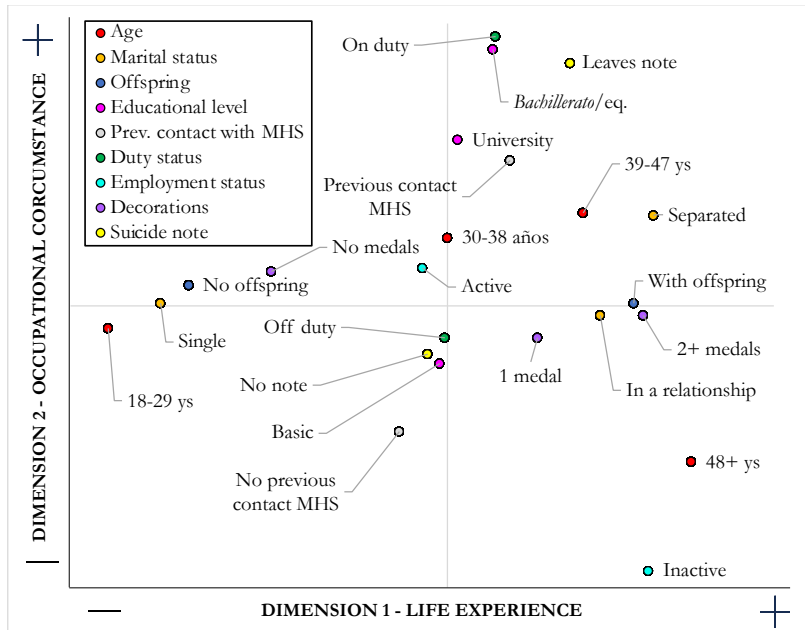
After selecting the two dimensions, the coordinates of each case were obtained in this two-dimensional space; and by using these coordinates as an input, the two-step cluster analysis determined that the individuals in the sample were empirically grouped into three different clusters, with a silhouette index of 0.6. The distribution of cases across the three groups was 23.6%, 32.5%, and 43.9% of the sample (see Graph 2), observing that they were distributed in the two-dimensional space as represented in Graph 3.

Graph 2. *Proportions and silhouette index of the cluster analysis.*
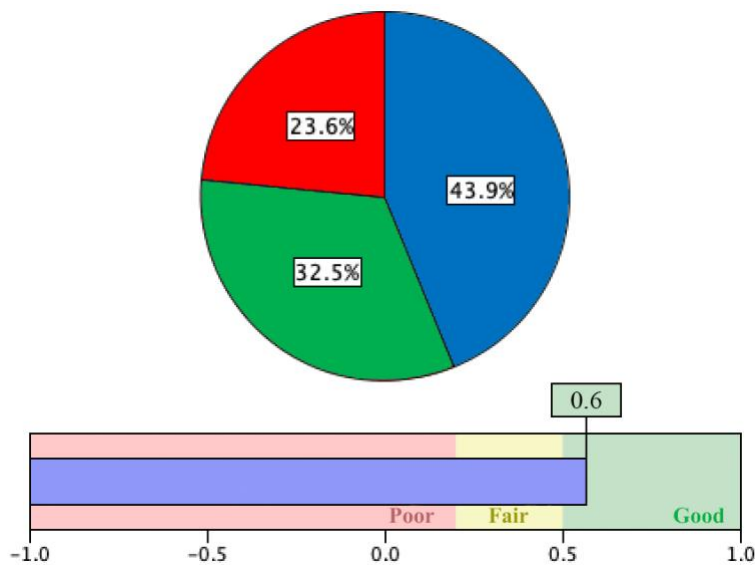
Graph 3. *Representation of suicide cases distributed across life experience and work activity dimensions, grouped according to their cluster.*
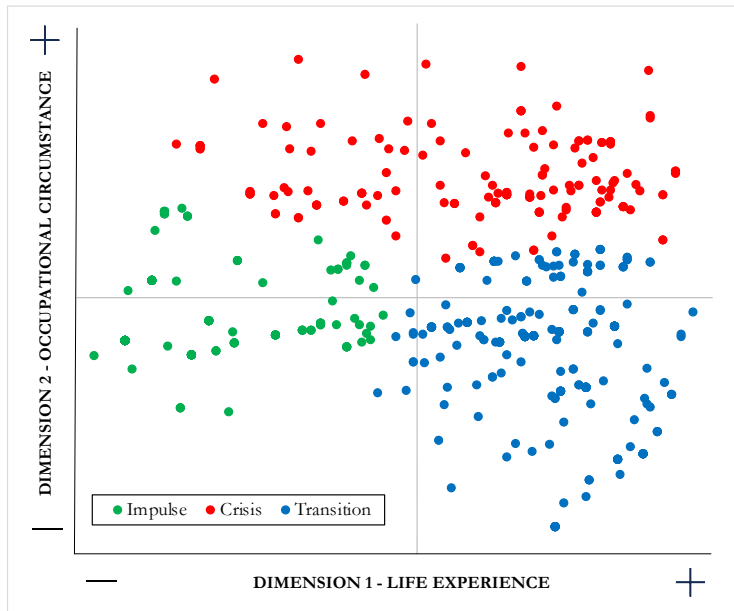

Table 2. *Statistical significance parameters of the comparison between the 16 sociodemographic, professional, and event-related variables with the three groups obtained in the two-step cluster analysis.*

Variable	χ^2	n	df	p-value	Cramer´s V
Age	443,132	640	6	0.000*	0.588
Sex	3,011	640	2	0.222	0.069
Marital status	375,174	618	4	0.000*	0.551
Offspring	364,083	602	2	0.000*	0.778
Educational level	235,427	640	4	0.000*	0.429
Prev. contact w/MHS	199,840	640	2	0.000*	0.559
Main problems	15,611	418	10	0.111	0.137
Previous attempts	8,144	640	2	0.017*	0.113
Employment status	89,143	637	2	0.000*	0.374
Background	49,397	640	6	0.000*	0.196
Scale	18,507	640	4	0.001*	0.120
Decorations	153,533	602	4	0.000*	0.357
Duty status	123,868	640	2	0.000*	0.440
Location of death	40,208	624	8	0.000*	0.179
Suicide method	40,872	631	10	0.000*	0.180
Suicide note	206,732	640	2	0.000*	0.568

Note. *p < 0.05. df = degrees of freedom.

To statistically characterize these three typologies of individuals who died by suicide, contingency tables were calculated between the 16 study variables and the new group variable. The chi-square statistic (see Table 2) yielded values below the alpha significance level (0.05) for the following variables: *age*, *marital status*, *offspring*, *educational level*, *contact with MHS*, *previous attempt*s, *employment status*, *background*, *scale*, *decorations*, *duty status*, *location of death*, *suicide method*, *suicide note*. No significant differences were found between groups for the variables *sex* and *main problems*.

Upon delving deeper into the analyses, studying which specific categories of each variable characterized each cluster (see Table 3), it was found that group 1 (32.5% of the sample) mainly comprised individuals aged 18 to 29 years, single, without offspring, with elementary education, and who had never been in contact with mental health services, nor had previous suicide attempts. They were active, with an auxiliary GC background, and mainly belonged to the scale "de cabos y guardias". They had no medals. Regarding the event, it occurred off duty, in an official residence, with a firearm and without a suicide note. Therefore, this group was named "impulse".

Group 2 (23.6% of the sample), named "crisis", was characterized by ages ranging from 30 to 47 years. They were often separated and might or might not have children. They had a medium-high educational level ("bachillerato or equivalent"), even university, and had been in contact with mental health services at some point. Additionally, they often had previous suicide attempts. These agents were active, had a civilian background, and could belong to any scale, possibly having medals. The event occurred while on duty, in police facilities or public roads, using various methods; leaving a note.

Group 3 (43.9% of the sample) grouped the most veteran cases in the sample, aged over 48 years. They usually had a partner and children, and mainly elementary education. They had not been in contact with mental health services, and may or may not have previously attempted suicide. Their status was inactive, with a military background, belonging to the sub-officers scale, and having one or more medals. They were off duty when the suicide occurred, which happened in a private residence, preferably by any methods except a firearm, and they did not leave a note. Therefore, this group was named "transition".

Table 3. *Variables and their categories, sample sizes, percentages, and ASR obtained in the contingency table with each cluster.*

Variable	Category		Impulse			Crisis			Transition			n cat.	% cat.
			n	%	ASR	n	%	ASR	n	%	ASR		
Age	18-29 years		151	88.8%	18.3*	16	9.4%	-5.1*	3	1.8%	-12.9*	170	26.6%
	30-38 years		41	25.9%	-2.0*	57	36.1%	4.3*	60	38.0%	-1.7	158	24.7%
	39-47 years		16	10.1%	-7.0*	63	39.6%	5.5*	80	50.3%	1.9	159	24.8%
	48+ years		0	0.0%	-9.8*	15	9.8%	-4.6*	138	90.2%	13.2*	153	23.9%
		Total	208	32.5%		151	23.6%		281	43.9%		640	
Marital status	Single		179	79.2%	18.6*	34	15.0%	-4.1*	13	5.8%	-14.1*	226	36.6%
	In a relationship		22	6.9%	-14.2*	83	25.9%	0.9	215	67.2%	12.7*	320	51.8%
	Separated		2	2.8%	-5.8*	34	47.2%	4.8*	36	50.0%	1.3	72	11.7%
		Total	203	32.8%		151	24.4%		264	42.7%		618	
Offspring	With offspring		192	73.6%	18.0*	56	21.5%	-1.6	13	5.0%	-15.9*	261	43.4%
	Without offspring		12	3.5%	-18.0*	92	27.0%	1.6	237	69.5%	15.9*	341	56.6%
		Total	204	33.9%		148	24.6%		250	41.5%		602	

Category	Subcategory	n	%	ASR	n	%	ASR	n	%	ASR	Total n	Total %
Educational level	Basic	194	36.8%	5.0*	62	11.8%	-15.2*	271	51.4%	8.3*	527	82.3%
	Bachillerato/equivalent	12	11.5%	-5.0*	84	80.8%	15.0*	8	7.7%	-8.1*	104	16.3%
	University	2	22.2%	-0.7	5	55.6%	2.3*	2	22.2%	-1.3	9	1.4%
	Total	208	32.5%		151	23.6%		281	43.9%		640	
Prev. contact with MHS	Contact with MHS	50	17.2%	-7.5*	143	49.3%	13.9*	97	33.4%	-4.9*	290	45.3%
	No contact with MHS	158	45.1%	7.5*	8	2.3%	-13.9*	184	52.6%	4.9*	350	54.7%
	Total	208	32.5%		151	23.6%		281	43.9%		640	
Previous attempts	With previous attempts	2	8.3%	-2.6*	10	41.7%	2.1*	12	50.0%	0.6	24	3.8%
	Without previous attempts	206	33.4%	2.6*	141	22.9%	-2.1*	269	43.7%	-0.6	616	96.3%
	Total	208	32.5%		151	23.6%		281	43.9%		640	
Employment status	Active	199	36.0%	5.3*	150	27.1%	5.2*	204	36.9%	-9.4*	553	86.8%
	Inactive	6	7.1%	-5.3*	1	1.2%	-5.2*	77	91.7%	9.4*	84	13.2%
	Total	205	32.2%		151	23.7%		281	44.1%		637	
Background	Civillian	76	37.8%	1.9	58	28.9%	2.1*	67	33.3%	-3.6*	201	31.4%
	Auxilliary GC	42	51.9%	4.0*	17	21.0%	-0.6	22	27.2%	-3.2*	81	12.7%
	"Colegio de guardias jóvenes"	25	43.1%	1.8	11	19.0%	-0.9	22	37.9%	-1,0	58	9.1%
	Military	65	21.7%	-5.5*	65	21.7%	-1.1	170	56.7%	6.1*	300	46.9%
	Total	208	32.5%		151	23.6%		281	43.9%		640	
Scale	"Cabos y guardias"	201	34.8%	3.8*	137	23.7%	0.2	240	41.5%	-3.7*	578	90.3%
	Sub-officers	3	7.0%	-3.7*	10	23.3%	-0.1	30	69.8%	3.5*	43	6.7%
	Officers	4	21.1%	-1.1	4	21.1%	-0.3	11	57.9%	1.2	19	3,0%
	Total	208	32.5%		151	23.6%		281	43.9%		640	
Decorations	None	161	56.1%	11.1*	69	24.0%	-0.1	57	19.9%	-10.5*	287	47.7%
	1 medal	30	21.7%	-3.4*	31	22.5%	-0.6	77	55.8%	3.7*	138	22.9%
	2+ medals	12	6.8%	-9.0*	46	26.0%	0.6	119	67.2%	8.1*	177	29.4%
	Total	203	33.7%		146	24.3%		253	42.0%		602	
Duty status	On duty	5	8.3%	-4.2*	49	81.7%	11.1*	6	10.0%	-5.6*	60	9.4%
	Off duty	203	35.0%	4.2*	102	17.6%	-11.1*	275	47.4%	5.6*	580	90.6%
	Total	208	32.5%		151	23.6%		281	47.4%		640	
Location of death	Private residence	62	24.7%	-3.6*	61	24.3%	0,0	128	51.0%	3.3*	251	40.2%
	Official residence	65	46.8%	4.0*	21	15.1%	-2.8*	53	38.1%	-1.3	139	22.3%
	Police facilities	36	33.0%	0,0	38	34.9%	2.9*	35	32.1%	-2.5*	109	17.5%
	Public thoroughfare	11	22.0%	-1.7	19	38.0%	2.4*	20	40.0%	-0.4	50	8,0%
	Outside of urban area	31	41.3%	1.7	12	16.0%	-1.8	32	42.7%	-0.1	75	12,0%
	Total	205	32.9%		151	24.2%		268	42.9%		624	
Suicide method	Hanging	6	10.9%	-3.6*	14	25.5%	0.3	35	63.6%	3.2*	55	8.7%
	Firearm	190	36.3%	4.3*	133	25.4%	1.9	200	38.2%	-5.8*	523	82.9%
	Impact	7	25.0%	-0.9	1	3.6%	-2.6*	20	71.4%	3.1*	28	4.4%
	Ingestions	3	13.0%	-2.0*	3	13.0%	-1.2	17	73.9%	3.0*	23	3.6%
	Total	206	32.6%		151	23.9%		274	43.4%		631	
Suicide note	Leaves note	5	5.0%	-6.4*	80	79.2%	14.3*	16	15.8%	-6.2*	101	15.8%
	No note	203	37.7%	6.4*	71	13.2%	-14.3*	265	49.2%	6.2*	539	84.2%
	Total	208	32.5%		151	23.6%		281	43.9%		640	

Note. ASR = adjusted standarized residuals. *ASR<−1.96 or ASR>1.96

IV. DISCUSSION

This study aligns with the proposal by Martin et al. (2020) in emphasizing the importance of analyzing

typologies of individuals who commit suicide in specific populations, as in the current case of Guardia Civil, through multivariate techniques and cluster analysis. These analyses, although not extrapolable to the general population, can be crucial for the development of targeted and adapted prevention strategies in specific contexts and groups.

The variables selected for this research were chosen considering previous typological studies and their relevance in the context of suicide, as used in the most recent empirical work of Sinyor et al. (2014), and primarily those studied by Griffith (2012) in a military population, believing they would be analogous to those of the Guardia Civil, albeit with some differences. For example, the "scale" variable in this study may parallel the "rank" concept used by Griffith (2012), although the positions or categories do not exactly match in both countries. Likewise, "duty status" and "employment status", while related, are not exactly equivalent to "military status." Furthermore, the main problems that can trigger suicide, identified as "recent stressors" by Sinyor et al. (2014) and "circumstances surrounding the suicide" according to Griffith (2012), have been incorporated. Regarding contact with MHS, unlike Sinyor et al. (2014), who only consider the last 7 days before suicide, this research does not restrict the time frame for accessing these services. This allows for a broader view of access to MHS before suicide, ensuring that individuals who have had previous but not recent evaluations are not excluded.

In the construction of the typology, it was chosen to follow the methodology validated in previous studies (González-Álvarez et al., 2022; Santos-Hermoso, et al., 2022), noted for its empirical strength. This involved initially performing a MCA on the variables of interest. Following this, a two-step cluster analysis was conducted on the case coordinates (subjects) within the dimensional space defined by the MCA. The purpose was to determine the distribution of subjects into various groups and to subsequently elucidate these clusters through bivariate analysis (contingency tables).

Following the analyses, a typology emerged of the Guardia Civil personnel who took their own lives, categorized into three distinct sets. The first group was labeled "Impulse," primarily comprising young individuals aged 18 to 29. This group displayed characteristics distinctive of their developmental stages and socioeconomic contexts. For instance, they were often single and childless, as priorities at this life stage are more centered on personal and professional development rather than on establishing long-term familial commitments. In this phase of life, individuals are typically focused on personal exploration, education, and the initiation and consolidation of their professional careers. These priorities might influence their tendency to postpone other life aspects, such as marriage and parenthood. Furthermore, socioeconomic and cultural factors play a significant role: the trend of marrying and having children at an older age is increasingly common, as young adults may prefer to achieve economic and personal stability before taking on family responsibilities. This aligns with the current dynamics of relationships and family responsibilities, where being single and childless implies fewer obligations, allowing for greater flexibility and freedom. This, in turn, can lead to more impulsive decisions due to the absence of immediate familial responsibilities. Finally, psychosocial factors are also pertinent. The lack of a partner or children can mean a less established social support network in some cases, potentially impacting the emotional well-being of young people and their approach to handling stress or challenges.

Griffith (2012) noted that the risk of suicide was closely linked to age, educational level, marital status, rank, time in service, and deployment status; all of these being correlates of age. However, in his research, military variables explained less variance than demographic variables in relation to committing suicide or not, hence the greater importance was given to demographic factors. In the current study, it is not possible to determine which variables are related to committing suicide or not, due to the absence of a control group. Nonetheless, both in the current research and in Griffith's (2012) work, occupational variables (military in his case) are important in establishing clusters, as they are data that vary between typologies and may be relevant for prevention purposes.

The current study also includes some variables that tend to be associated and are closely linked to age. It is logical that in the "Impulse" group, the younger individuals are usually single and without children, as previously mentioned. Additionally, the correlation of professional variables with age is evident: it's expected that younger members are on active duty, since, barring rare instances such as leaves of absence, disabilities, or temporary medical leaves, one would not expect to find any agent under 30 years of age retired. The lack of rewards or decorations in this group can be attributed to their short careers, which haven't provided them enough time to earn them. The absence of previous suicide attempts in this segment is also logical when compared with the older group, where such history is more likely due to prolonged exposure to stressors. Similarly, those who have faced more stressful situations are more likely to have sought support in MHS, which could explain why the younger group has not had as much contact with these services.

Griffith (2012) analyzed several factors which, in both his study and the general population (of the U.S.), are most influential in committing suicide: being male, young, and white. These factors were explained by higher levels of aggression and competitiveness in this demographic group, as well as greater comfort with the use of weapons and less inhibition in employing them. Considering the results of the present article, it is possible that the natural evolution of impulsivity, which is greater in young individuals and decreases with age, may be related to the preference of the "Impulse" group for using a firearm, coupled with easy access to weapons in the Guardia Civil environment (Krishnan et al., 2022; Stanley et al., 2016; Violanti, 2010; Webster, 2013; O'Connor and Pirkis, 2016). The absence of a suicide note could also indicate that the act might have been an impulsive decision, taken without excessive planning. Lastly, it is noteworthy that in this cluster, the act occurs in an official residence and while off-duty. The official residence is located within Guardia Civil facilities, so even if agents do not take their weapons home when off-duty, they are in a space where they can more easily access them, whether it's their own weapon or those of colleagues. An impulsive decision in a moment of suicidal ideation can be facilitated by the seeking out and use of firearms.

The second group or cluster, named "Crisis," included personnel who, by age, were going through a life stage where they are more likely to experience difficult circumstances, both personally and professionally. Unlike the "Impulse" group, individuals in this segment have had more time to establish and advance in their professional careers, which can entail both achievements and accumulated stress. At this age, it is common for individuals to have reached more stable positions or those with greater responsibility at work, which in some cases may increase job-related stress and, in turn, impact their emotional and mental well-being. In terms of personal relationships, this group exhibits a more complex dynamic. Separations and divorces, common in this age group, can be highly stressful experiences, as Griffith (2012) suggests when classifying them as "new life circumstances," especially if children are involved. The breakdown of a significant relationship involves not

only an emotional shift but also adjustments in lifestyle, financial responsibilities, and family dynamics. These changes can be additional stressors contributing to a higher risk of suicidal behaviors. The higher educational level in this group suggests an ongoing commitment to learning and personal development. Within the Guardia Civil, professional advancement and specialization have increasingly prioritized academic merits over time, requiring study and dedication, which in the worst-case scenario can become stressful when it clashes with work or family responsibilities.

The fact that this group has a history of contact with MHS could indicate greater awareness of, or exposure to, mental health issues. However, it also reflects an underlying vulnerability. The presence of previous suicide attempts is one of the most predictive risk factors for future suicides (O'Connor and Pirkis, 2016), suggesting that these individuals have faced significant mental health challenges in the past. This underscores the importance of considering access to MHS not limited to the days preceding suicide. The presence of suicide notes in this group contrasts with the "Impulse" group: while impulsive actions may characterize the younger group, the presence of notes suggests a more reflective or planned consideration in the "Crisis" group. This could indicate a deeper level of despair or a more prolonged contemplation of their problems and distress.

The third group, "Transition," is characterized by encompassing the older individuals, starting from 48 years of age and extending to those over 80. Therefore, it is expected that a substantial portion of this group is retired from service, has more decorations, and holds higher positions in the Guardia Civil, as noted earlier. This life stage, marked by the transition to and during retirement, represents a significant shift in both social and professional roles, which can bring opportunities for enjoyment and relaxation, as well as emotional and existential challenges. Retirement is not merely a change in daily routine but also entails a redefinition of personal identity. For many in this group, their professional career has been a central part of their life and self-image, and transitioning from an active role to retirement can trigger an identity crisis, where one must redefine their identity without their professional career. With advancing age, additional health-related concerns arise: chronic, disabling, or terminal illnesses become more prevalent, impacting perceptions of quality of life and personal autonomy. These health issues can be critical in the emotional and psychological well-being of individuals, especially if they are seen as limiting independence and life enjoyment. Furthermore, retirement also brings changes in economic status: while some may have a secure retirement, others might face financial uncertainty or pressure due to decreased income. All these changes can be sources of stress for this group.

Although the presence of a partner and children might seem to provide a strong support network, and one of the most significant protective factors against suicide (Chae and Boyle, 2013), changes in these relationships can also occur at this life stage. On one hand, relationships with a partner may be affected by life adjustments to the new reality of retirement. On the other, children may have moved away or be less available due to their own responsibilities, potentially leading to feelings of loneliness or abandonment. This group may or may not have previous suicide attempts, but has never accessed MHS. This suggests that they either have not experienced mental health issues throughout their career, or if they have, they chose not to seek MHS. The reluctance to seek help could be particularly pronounced in this group, owing to stigma and traditional attitudes towards mental health in police and military environments (the most common backgrounds in this group; Krishnan et al., 2022; Stanley et al., 2016; Violanti et al., 2009; Violanti, 2010; Webster, 2013). This resistance to seeking help may leave many without the necessary support to confront the emotional and psychological

challenges of this life stage.

It was found that the majority of the sub-officers who took their own lives belonged to this group. They primarily had elementary education, not higher. Regarding the circumstances of the suicide, it is observed that these often occur in private homes and while off duty, reflecting the fact that most of these individuals are no longer actively working. As for the methods used, there is a notable absence of firearms, which can be explained by the lack of access to official weaponry after retirement, influencing the choice of other methods. Individuals belonging to this typology usually do not leave a suicide note, which could be interpreted as an indication of a lack of premeditation; however, since older people tend to be less impulsive, it is possible that they simply prefer not to leave one. As an alternative explanation, the absence of suicide notes could be related to a deeper and more personal deliberation about their situation, reflecting a desire for privacy or a decision not to communicate their internal struggles, possibly influenced by a sense of pride or a perception of self-sufficiency. The findings of this research align with those of Chavez-Hernandez et al. (2006), noting that members of the "Transition" cluster, who have a lower educational level than the "Crisis" cluster, generally do not leave a note. Moreover, these results seem to be in line with what was pointed out by Misra and Ghanekar (2017), who mention that the absence of a suicide note is often associated (among other reasons) with physical illnesses, a circumstance more common in older individuals.

As seen, the resulting typologies in this study are primarily organized based on age, and within each typology, certain variable categories emerge as more significant risk factors for suicide. As Griffith (2012) points out, some of the variables studied are correlative with age, explaining their influence in forming these typologies. However, in the current study, age is not the sole determining factor, although it plays an important role in the analysis. The "life experience" dimension incorporates other variables that enrich this axis, such as parenthood or the presence of a partner relationship. Figure 3 clearly illustrates the distribution of the clusters along the life experience axis, placing the younger members on the left end and the older ones on the right. Regarding the axis related to occupational circumstance, it is notable how the "Crisis" cluster, which includes individuals with higher responsibility positions, is positioned higher compared to the other two groups. Additionally, the scarce presence of members from the "Impulse" group at the lower levels of occupational activity, where a large part of the "Transition" group (most of whom are retired) is located, is worth noting. The reason why the study's younger members show lower scores on the occupational activity axis could be linked to previously mentioned aspects: given their limited experience, it is common for them to hold more routine jobs with fewer responsibilities. However, as they gain experience, they take on roles with greater responsibilities and occupational activity becomes more significant. For this reason, some young individuals with a high degree of motivation to learn and promote (as seen in the second quadrant of the graph), are in the "Crisis" group despite their age.

While efforts have been made to use variables similar to those in other typological research, comparing the results of this study with others conducted on the general population is challenging due to the unique, non-generalizable nature of the sample. This research is distinct in the policing context, as there are no comparable typological studies in this field. Furthermore, the population of this study uniquely belongs to both police and military environments. This dual characteristic means that the population studied shares certain similarities with the one analyzed by Griffith (2012) in the military context (such as scales, ranks, and access to weapons), yet

with notable differences, since Guardia Civil perform functions, occupations, and tasks significantly different from those in a purely military setting, such as citizen security, border management, or counterterrorism. These can influence the risk factors and circumstances of suicide differently compared to other law enforcement agencies or military units.

On the other hand, it is noteworthy that Griffith (2012) uses a methodology similar to that of the present article in data collection, based on PAs, while Sinyor et al. (2014) complete the variables from documentary information, ensuring inter-judge reliability. However, both authors perform a cluster analysis directly on the analyzed variables, whereas in the current work, multivariate techniques have been used prior to the cluster analysis, as suggested by Martin et al. (2020), which also makes comparison difficult. The comparability with other studies may also be affected because this research focuses on an extensive period of 40 years (from 1982 to 2022), which can limit the ability to compare with studies covering different periods: Sinyor et al. (2014) analyze a span of 12 years, from 1998 to 2010; and Griffith (2012), in turn, considers suicides that occurred in a four-year range, between 2007 and 2010. The act of suicide may be similar, and the variables analyzed too, but at the same time, it can be influenced by social factors that vary over time. Nonetheless, and understanding the limitations of comparison, some key ideas can be drawn from the different models analyzed.

Sinyor et al. (2014) highlight the importance of focusing on their cluster 2, the oldest group (average age of 55.6 years), who are married (which may indicate a good support network), and usually do not have previous suicide attempts, and it is also the second cluster with the least contact with MHS (in the last 7 days). These authors consider that this typology apparently has a low risk of suicide because it has many protective factors, yet the behavior is eventually triggered. In the present research, there is the "Transition" group, over 48 years old, with similar characteristics: they have partners and children, which may indicate a good support network, and have also not been in contact with MHS, although they differ in that they may or may not have previous suicide attempts. However, as previously discussed, having a partner and children at older ages is not necessarily related (or not in all cases) to a good support network. Nevertheless, it would be interesting to examine the presence of stressors that may have triggered the suicide as in cluster 2 of Sinyor et al. (2014). Unfortunately, although studied, the main problems did not show significant grouping among clusters, so with the current data, it is not possible to know the stressors to which they may be subjected.

Griffith's (2012) study divides its sample into two clusters with many correlating variables, such as age and rank. The cluster of the first termers in terms of age could be likened to the "Impulse" cluster of this study, but it is not entirely comparable because the Guardia Civil sample includes ages between 18 and over 80 years, and they have the careerists cluster with an average age of 39 years and the first termers with 24 years. Similarly, the careerists cluster could be likened to the crisis cluster, but with nuances. It would be interesting to compare Griffith's (2012) clusters with the "transition" cluster, as this group, primarily of military origin, may be the most comparable to the studies by Griffith (2012). However, this is not possible as they do not include retired military personnel in their study.

In summary, this pilot study aimed to obtain an overview of the profile of individuals who commit suicide in the Guardia Civil. It marks a milestone as the first publication on this specific group, thereby addressing the demand for research focused on particular populations. However, precisely because it is a pioneering

investigation, it is not without limitations. On one hand, to conduct a robust MCA, it is necessary to have well-informed variables, without missing data, and a large sample size. In this case, the small number of suicides that occur annually in the Guardia Civil means that a long period of data collection is necessary to obtain a large sample. Here, the period was 40 years, which has led to the variables studied not being as precise or complete as would be ideal. Despite having selected variables relevant to the study of suicide, many of them previously examined by other researchers, there is an issue: some variables have only started being collected from specific points in time. But even for those variables that have been collected from the beginning, variation in who and how the data were collected is inevitable, reducing the quality of the information. To circumvent this limitation, the database has been thoroughly refined, correcting errors and completing it with all available information found in the paper files of the cases. In the model's development, the decision was made not to use any data imputation methods, aiming to maintain data integrity and ensure an analysis that is more closely aligned with reality, thereby avoiding the introduction of biases.

The effect of time, along with generational changes, may also have influenced the profile of individuals who commit suicide, as life circumstances and social dynamics evolve over time, differing significantly between the 1980s and the present time. These generational changes may have altered the factors associated with suicidal behavior, suggesting that the variables or factors relevant in the complete sample might not be the same as those affecting active agents today.

On the other hand, some variables correlate with each other. It is interesting when variables correlate, but only when they measure different concepts or characteristics. For instance, variables such as "age," "decorations," and "children" tend to occur together: an older person is more likely to have children and have accumulated more decorations throughout their career. Nevertheless, these are relevant variables, and removing them from the analysis would have resulted in a significant loss of information, so the decision was made to keep them.

In conclusion, the study discussed in these pages aligns with others in recognizing that not all individuals who commit suicide are the same. Therefore, in relation to Guardia Civil, understanding the dynamics of each of the three groups described can help to develop more effective intervention and support strategies when there is knowledge or suspicion of suicidal ideation among the personnel of this Institution. As this issue goes far beyond the goals of this work, it is suggested for future studies to formulate these strategies and, once implemented, to verify their usefulness by specifically recording their impact on the individuals involved. This could involve inquiring with them about the applicability of the foundational assumptions of the strategies, and assessing if these strategies helped them to reconsider their stance.

Other suggestions for future studies are related to the fact that the database used in this research includes more variables than those employed for the development of the current model. These additional variables hold significant potential for future analyses, allowing exploration of how they align with the typologies identified in this work, thus enriching the preventive models.

For this study, the entire sample was employed to achieve a larger sample size. Considering that Guardia Civil records an average of about 10 suicides per year, limiting the analyzed time period would have led to a significant reduction in the sample size. However, given that risk factors can change over time, it is suggested

to focus on more recent cases, particularly those following the implementation of the PPAP, which have more variables recorded and are better documented. This approach aims to develop a new model that could be compared with the results of this study to assess its greater preventive value. This method would also help mitigate the limitations arising from the effects of time and generational changes.

Finally, Guardia Civil also records information on suicide attempts. Therefore, it may be insightful to analyze in future studies the cases of agents who attempted suicide but did not succeed due to external factors. Such an analysis could provide a deeper perspective and enrich the understanding of self-destructive behavior within this Institution from the standpoint of primary prevention.

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