# Predicting drop-out during initial training among volunteer firefighters

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## Abstract

*This article looks at the drop-out rate among volunteer firefighters during their initial training. It is based on data collected in France. It uses a mixed approach to identify profiles likely to leave their commitment quickly during initial training. Profile data from 330 individuals still in employment and 42 dropouts were used. The results show that women, individuals with prior knowledge of the environment, and city dwellers are more likely to drop out, while individuals from advantaged socioeconomic backgrounds will continue their involvement. Adjustments in communication, environmental management and mission specialisation could help retain volunteers and limit the risk of early drop-out. This study addresses a particularly important issue at a time when the recruitment of volunteer firefighters is posing significant challenges around the world.*

**Keywords:** volunteer firefighters, commitment, initial training, dropouts

## Introduction

The volunteer fire brigade remains largely unexplored in the field of education and training, despite the fact that it is used extensively in many countries to carry out emergency missions. The available literature raises two notable points. On the one hand, recent research into firefighter training has generally focused on the tools used, such as the work of Monteiro et al. (2021) and Wheeler et al. (2021), who have looked at the role

of virtual reality in developing skills for training this population. On the other hand, research into drop-out in continuing education is rare, whatever the environment studied, despite some interesting work published in recent years, such as that on drop-out in e-learning courses (Dirzyte et al., 2023).

Based on the French example, this article looks at the risk of dropping out of volunteer firefighter training, focusing on the first few years of commitment. Using a mixed approach, it seeks to identify the profiles most likely to end their involvement quickly, during their initial training. Official statistics and previous work (Pudal, 2011, 2016) show a certain homogeneity in the profiles of volunteer firefighters, with a majority of men, young, from working-class backgrounds and white. However, given the criteria to be met, almost anyone can sign up. At the same time, there is a high resignation rate during the first few years of service, which in France are mainly devoted to initial training. This training would therefore not enable certain profiles to be retained in the ranks, and these need to be identified. This research could provide new insights into the volunteer fire brigade population, one of the most important challenges of which is to build loyalty, particularly at a time when recruitment difficulties are high, both in France and internationally, such as in the United States and the United Kingdom.

After presenting the French research context, this article will propose a theoretical framework based on the special status of volunteers, on initial training in this activity and on dropping out of training. The research methodology will then be detailed and will present the data, the analyses carried out, the ethical framework of the research and the profile of the participants in the survey. The results will then be presented. They are based on binomial logistic regression. Finally, a discussion will look again at the risk of dropping out of the profession and the challenge of retaining the loyalty that lies behind the initial training of volunteer firefighters.

## Context

Alongside their Danish and Finnish counterparts, French fire fighters have the widest range of duties and responsibilities (Chevreuil, 2010). French firefighters have to be multi-skilled, providing medical assistance in addition to dealing with fires. Rescuing victims and assisting people are their primary principal duties, accounting for 81% of all interventions (data from the Ministry of Interior for 2021).

In France, public policy on civil protection is a shared responsibility between the State and local authorities: the General Directorate for Civil Protection and Crisis Management administers it at national level, while the departmental fire and rescue services manage the bulk of the fire department at local level. Firefighters can be recruited from a number of different backgrounds, depending on whether they wish to make it their profession or a secondary activity: military (5% of the total number of firefighters); professionals, if they are recruited through a competitive examination (17% of the total number); voluntary, when they work in their spare time, alongside their main job or studies (78% of the total number). The volunteer system is highly developed in the country and is particularly important in recruitment in rural areas. Volunteer firefighters work in their spare time, alongside their main professional activity. To be eligible, volunteers must be between 16 and 55 years of age, have regular administrative status and meet medical and physical fitness requirements. Volunteers are assigned to the fire stations closest to their homes and receive regular training. Volunteers and professionals do the same work, provide the same service to the public and wear the same uniform. There is no particular sign to distinguish them during an intervention. Different ranks are awarded depending on the duties performed.

The fire station plays an important role in the social and fraternal ties that bind firefighters together. In addition to its functional role as a permanent operational facility and reserve of available resources, it is also a place where firefighters can meet up and socialise. They can share moments reserved for commitment (post-intervention debriefing, operational exercises, training, sports training) as well as time devoted more to relaxation through various social events. These special activities help to build the group cohesion that is essential to operational effectiveness. In addition, the fire station is open to society and is a place where new volunteer firefighters can be recruited.

The status of volunteer firefighter is governed by national legislation. However, the organisation of the fire and rescue services is entrusted to the départements (territorial collectivities) and may therefore vary slightly from one territory to another, insofar as they draw up their own guidelines in addition to national ones.

## The status of volunteer fire fighters

The activity of a volunteer firefighter should be understood as an occupation rather than a profession (Meyer & Allen, 1993). French volunteer firefighters are neither members of a a charitable organisation nor employees. Charitable activities can be stopped by the individual at any time, whilst employment refers to an activity governed by a contract and carried out by an individual in exchange for remuneration. Volunteering is at the interface of the two. It constitutes a unique form of commitment that encompasses both disinterested aspects such as the underlying spirit of initiative, and elements specific to employment, such as remuneration (Chevrier & Dartiguenave, 2008). In this perspective, the collaboration between the volunteer firefighter and the organisation is intended to be selfless, but a strong connection nonetheless binds the two parties (Chevreuil, 2010). In France, volunteer firefighters are not remunerated, but rather compensated for the hours they spend on call-outs. They receive allowances of around €9 an hour for their shifts depending on their grade. Volunteer firefighters do not generally sign up for the remuneration, but for some the financial remuneration provides an essential additional income.

The voluntary fire service plays a central role. Although many countries use this type of system to carry out emergency missions, not all do so in similar proportions. In Europe alone there are major disparities.[1] In Germany, for example, 97% of firefighters are volunteers. Their allowance varies from one Land to another, but is generally lower than that of French firefighters at around €3.50 per hour. In Belgium, volunteer fire fighters account for only 63% of the workforce, but receive a higher allowance of around €11 an hour. In summary, the French volunteer firefighter is somewhere in between.

The French model is rather demanding of its volunteer firefighters, who must demonstrate their skills and availability to carry out all the missions entrusted to them. They must regularly be on call or on duty, which means that they must be physically present in the fire station, in the same way as a professional firefighter. On average, volunteer firefighters are responsible for 45% of night duty and 38% of day duty hours (data from the Ministry of Interior for 2021). This type of duty, which has developed considerably in recent years, has become necessary in order to supplement the ranks of professional firefighters at a lower cost, and to respond to the transformation of territories and society.

## Commitment to initial training and professionalisation development

Training firefighters is essential to prepare them for the stressful and challenging emergency environment in which they will operate (Horn et al., 2019). When they sign up, volunteer firefighters generally do not have the necessary skills. They are therefore obliged to undergo initial training which contributes to the lifelong education (Billett, 2023) of individuals. However, they do not attend training purely out of obligation (Carré et al., 2024). They also engage in it to develop knowledge, to meet peers or to familiarise themselves with the environment (intrinsic motivations). Moreover, they are aware of the importance of training (Chevrier & Dartiguenave, 2008) and their motivation to get involved is strong, not least because of their choice of status, based on voluntary work (Curado et al., 2015).

In France, initial training is organised around national and departmental standards. It lasts around thirty days, can be spread over the first three years, and generally lasts at least a year. It is divided into five modules combining theory and practice, and corresponding to the different types of response encountered. Pending full validation, which enables all missions to be carried out, volunteer firefighters can take part in operations as and when they have assimilated the training modules required for a particular type of intervention.

Initial training is generally the first real immersion in the environment for volunteer fire fighters. In this sense, it is designed to support the process of professionalisation of this population: it enables the learner to develop skills and discover the commitment required, but it also offers a first clear image of the activity and opportunities for socialisation. The professionalisation of volunteers is part of a wider process of professionalisation of the fire service, based on the historical context of the activity, and is supported and encouraged by the authorities. The professionalisation of this population refers back to the work of McClelland (1990), who stresses the importance of historical and social conditions in the process of professionalisation. Since firefighting is organised by the state and local authorities, this is a case of 'professionaliation from above', in the words of McClelland (1990, p. 107). This type of professionalisation can be seen in other sectors, such as the police (Holdaway, 2017) and teachers (Buyruk, 2014).

Initial training is validated by participation in the various training modules. However, it also involves a significant investment in the fire station, particularly as it is organised and implemented over a long period of time. Firstly, the volunteer has to attend the fire station to develop the knowledge that is expected before the start of the training modules. This includes theoretical knowledge and getting to know the equipment and machinery. In effect, the training modules essentially involve simulations of work situations based on a skills-based approach (Prokopenko et al., 2020). Once the volunteer firefighter has passed the first initial training module, he or she can go on an intervention as an observer accompanying the usual personnel attending. This step is not compulsory, but is encouraged to facilitate the validation of subsequent modules. As soon as they have passed the essential modules enabling them to carry out certain types of intervention, volunteer fire fighters must start taking on-call duty and make themselves available in the same way as their colleagues. More generally, the fire station is a center for the development of social relationships, crucial for the activity and well-being of volunteers (Mitani et al., 2006). Finally, it plays an important role in this extensive initial training, alternating between training sessions and work periods.

## Dropping out of training

Böhn and Deutscher (2022) consider dropping out as the abandonment of training before obtaining a qualification, through premature breach of contract. In the case of volunteer firefighters, it refers to individuals who signed a commitment and started their initial training, but resigned during the course before completing it in its entirety (although learners were able to complete certain modules). The resignation rate is high among volunteer firefighters at the start of their commitment, with around 35% of them ending it before the end of the first year (Roques & Passerault, 2014) which is mainly devoted to initial training. This population chooses to join and is generally highly motivated from the outset. Initial training is seen as important and necessary, but at the same time is considered too long and difficult to establish a balance between a successful professional activity and family life (Chevrier & Dartiguenave, 2008).

   While a great deal of research has been carried out on student drop-out rates at university, few recent studies have been devoted to the drop-out rate in this specific type of training, which is also part of continuing vocational training. The most similar studies concern students who drop out during their vocational training (Böhn & Deutscher, 2022; Schmid & Stalder, 2012). The work of Shank and MacCracken (1993) which goes back further, is nevertheless similar to the problem of this research. They looked at adults who had undergone vocational training in Ohio, and developed a model for predicting training drop-out based on adapted independent variables. Their results show a link between dropping out of training and financial problems, problems with social and academic integration, and sometimes physical disability.

   However, the situation of volunteer firefighters is different. Volunteering is not their main occupation, and training is not carried out on a full-time basis. In addition, the effects of the training environment on volunteer firefighter drop-outs have already been analysed using a qualitative approach (Born, 2023): if too many obstacles arise during initial training, individuals become demotivated and discouraged, and prefer to end their involvement. However, any consequences will be reduced since this choice will have no impact on the individual's professional career. What is more, the homogeneity of the ranks and the retention problems observed mean that particular attention needs to be paid to the profile of volunteer firefighters who drop out. The training environment could be taken into account at a later stage.

## Methods

### Data

The data was collected in a densely populated department in eastern France which has almost 5,000 firefighters, 86% of whom are volunteers. Volunteerism is very strong in this region, and around 400 new volunteer fire fighters are recruited every year. The region is divided into five companies. A company groups together several fire stations, providing an intermediate territorial network. Companies A, B and C tend to be urban, while companies D and E tend to be rural.[2]

   The initial sample was divided into two groups: volunteer firefighters who had completed their initial training between 1 January 2018 and 30 June 2021 and who were still in service at the time of the survey (group 1), and individuals who had joined between 1 January 2018 and 31 December 2020, who had begun their initial training, but who had terminated their commitment before completing it in full, and by 30 April 2021 in the

latest (group 2). Group 1 comprised 485 individuals, but only 330 of them completed the questionnaire, giving a response rate of 68%. Group 2 comprised 93 individuals, but only 42 of them agreed to be interviewed, giving a response rate of 45%.

Group 1 was surveyed by questionnaire with the aim of understanding the different profiles of volunteer firefighters, as well as their commitment at this stage and their perception of initial training. The questionnaire was distributed online between February and July 2021. Group 2 was interviewed by semi-directive interview between March and June 2021, with the aim of understanding how they may have perceived their initial training, and the reasons for their resignation. Prior to the interviews, profile data was collected from the interviewees. This data was used to run the binomial logistic regression presented in the rest of this paper. An interview guide was used to support the semi-structured interviews. With the respondents' permission the interviews were systematically recorded and transcribed. Because of the pandemic in progress at the time of the survey, the interviews were conducted exclusively by telephone.

## Analysis

This research is based firstly on the profile of the respondents, which should make it possible to check whether some are more likely than others to end their involvement during initial training, and secondly on the reasons for dropping out given by individuals who have interrupted their involvement and training. For the first part of the analysis, the profile data collected by questionnaire and interview were combined in a common database (372 observations). The two groups in the sample were distinguished by whether or not they broke off their commitment during their initial training. Some of the variables were too small in number and were therefore grouped together. This is particularly the case for the sociol-professional category of the respondent and his/her parents. Thus, farmers, craftsmen, shopkeepers, company directors, executives and higher intellectual professions were considered to be advantaged; individuals with an intermediate profession were considered to be intermediate; and finally, employees, manual workers and the economically inactive were considered to be disadvantaged. The sociol-professional category of students was determined from the sociol-professional category of their parents. Where there was a difference between father and mother, the higher of the two was retained.

The data was first analysed using binomial logistic regression with Jamovi software. To select the most relevant variables for inclusion in the regression, a step-by-step top-down selection was carried out using R software. As the presence of missing data is not permitted in this type of analysis, an imputation of missing data concerning the sociol-professional category of the respondent and his/her parents was carried out on the basis of the k-Nearest Neighbors algorithm. Given the small numbers involved, it did not seem appropriate to exclude individuals from the analysis because of a lack of data for three of the twelve variables tested.

The results were then supplemented by a manual thematic analysis of the semi-structured interviews conducted with the dropouts. Following several readings of the available corpus, a number of themes were selected for analysis. They relate in particular to the organisation of the training, the trainers, the impact of the training and the commitment on family and professional life, also the atmosphere in the barracks. In this research the analysis focuses on the profiles identified as those most likely to drop out.

## Ethical considerations

The research was guided by a comprehensive ethical framework. Firstly, all interviewees were given a clear explanation of the research process, as well as an assurance of the confidentiality and anonymity of the information collected. Given that some firefighters expressed reluctance towards research in general and distrust of their superiors, it was essential to assure them that they would not be disciplined by their superiors for their responses to the questionnaires or their comments during the interviews.

For the transcription of the semi-structured interviews the names of the interviewees were anonymised by attributing to each the letter A, followed by a number.

## Participants

The profile of respondents was measured using twelve variables: gender, age, family situation, number of children, type of housing, educational attainment, respondent's sociol-professional category, sociol-professional category of respondent's father and mother, residential area, assigned company and presence of firefighters in social circle. The results are presented below (Table 1).

The profile of the volunteer firefighters in the sample corresponds fairly closely to the profile drawn up by other researchers (Pudal, 2011, 2016; Retière, 1994): a majority of men, young and from working-class backgrounds. Moreover, most of them are single, have no children and live in urban areas, i.e. towns with more than 2,000 inhabitants. These characteristics are common to both groups in the sample. However, in terms of gender, women are more represented in group 2. National statistics for volunteer firefighters show that women resign more quickly than men. Their commitment lasts on average 7 years and 4 months, compared with 11 years and 2 months for men (data from the Ministry of Interior for 2021).

*Table 1.* Profile of the respondents.

| Variables | Modalities | Group 1 (n=330) | | Group 2 (n=42) | |
|---|---|---|---|---|---|
| | | Frequency | % of total | Frequency | % of total |
| Gender | Male | 238 | 72.1 % | 24 | 57.1 % |
| | Female | 92 | 27.9 % | 18 | 42.9 % |
| Age | From 16 to 25 years old | 200 | 60.6 % | 25 | 59.5 % |
| | From 26 to 35 years old | 66 | 20.0 % | 13 | 31.0 % |
| | From 36 to 45 years old | 50 | 15.2 % | 2 | 4.8 % |
| | From 46 to 55 years old | 14 | 4.2 % | 2 | 4.8 % |
| Family Situation | Single | 211 | 63.9 % | 28 | 66.7 % |
| | Married or in a marital Relationship | 106 | 32.1 % | 13 | 31.0 % |
| | Separated or Divorced | 13 | 3.9 % | 1 | 2.4 % |

| | | | | | |
|---|---|---|---|---|---|
| Number of Children | 0 | 247 | 74.8 % | 31 | 73.8 % |
| | 1 | 28 | 8.5 % | 7 | 16.7 % |
| | 2 | 36 | 10.9 % | 2 | 4.8 % |
| | 3 or more | 19 | 5.8 % | 2 | 4.8 % |
| Type of Housing | Personal Residence | 174 | 52.7 % | 22 | 52.4 % |
| | Living with Others | 156 | 47.3 % | 20 | 47.6 % |
| Educational Attainment | Below Bachelor's degree | 72 | 21.8 % | 11 | 26.2 % |
| | Bachelor's degree | 150 | 45.5 % | 22 | 52.4 % |
| | Above Bachelor's degree | 108 | 32.7 % | 9 | 21.4 % |
| Socioeconomic Category of the Respondent | Advantaged | 77 | 23.3 % | 4 | 9.5 % |
| | Intermediate | 61 | 18.5 % | 9 | 21.4 % |
| | Disadvantaged | 192 | 58.2 % | 29 | 69.0 % |
| Socioeconomic Category of the Father | Advantaged | 86 | 26.1 % | 9 | 21.4 % |
| | Intermediate | 46 | 13.9 % | 3 | 7.1 % |
| | Disadvantaged | 198 | 60.0 % | 30 | 71.4 % |
| Socioeconomic Category of the Mother | Advantaged | 40 | 12.1 % | 2 | 4.8 % |
| | Intermediate | 36 | 10.9 % | 5 | 11.9 % |
| | Disadvantaged | 254 | 77.0 % | 35 | 83.3 % |
| Residential Area | Rural municipality | 142 | 43.0 % | 10 | 23.8 % |
| | Urban unit | 188 | 57.0 % | 32 | 76.2 % |
| Assigned Company | Company A | 60 | 18.2 % | 7 | 16.7 % |
| | Company B | 58 | 17.6 % | 13 | 31.0 % |
| | Company C | 89 | 27.0 % | 14 | 33.3 % |
| | Company D | 76 | 23.0 % | 6 | 14.3 % |
| | Company E | 47 | 14.2 % | 2 | 4.8 % |
| Presence of Firefighters in the Social Circle | Yes | 134 | 40.6 % | 31 | 73.8 % |
| | No | 196 | 59.4 % | 11 | 26.2 % |

## Results

The binomial logistic regression presented here is designed to predict the drop-out rate from initial training as a volunteer fire fighter, based on the individual's profile. The most relevant variables resulting from step-by-step top-down selection are the individual's sociol-professional category, gender, residential area, and the presence of volunteer firefighters in the social circle. When the twelve initial variables were introduced, the model had an AIC of 260.22. After selection, the AIC was 242.36. The retained variables were included as explanatory variables in the regression.

The model seems robust ($p<0.001$), as confirmed by the variance inflation factors (VIF), whose value is between 1.00 and 1.01 for all the variables introduced. The main results of the regression are listed below (Table 2).

*Table 2.* Logistic model estimating the probability of breaking an engagement as a function of individual characteristics.

| Reference Category | Active Category | Estimation | Significance[1] | Odds ratio | 95% Confidence Interval |
|---|---|---|---|---|---|
| Nagelkerke R² : 0.16 | | | < 0.001 | | |
| Constant | | -1.27 | *** | 0.28 | 0.16 – 0.51 |
| Male | Female | 0.77 | ** | 2.17 | 1.08 – 4.35 |
| Unprivileged Socio-Professional Category | Privileged Socio-Professional Category | -0.98 | * | 0.38 | 0.13 – 1.14 |
| | Intermediate | 0.10 | n.s. | 1.11 | 0.47 – 2.59 |
| Presence of Firefighters in Social Circle | Absence of Firefighters in Social Circle | -1.46 | *** | 0.23 | 0.11 – 0.49 |
| Urban Area | Rural Area | -0.97 | ** | 0.38 | 0.18 – 0.82 |

1 * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level; n.s. = not significant as it exceeds the 10% threshold.

It appears first of all that a woman is more than twice as likely to break off her commitment as a man (2.17). The thematic analysis of the interviews shows that women are affected by the organisation of training and the availability required for meeting commitments, particularly because of their family responsibilities. When they have children, it is difficult for them to find enough time to follow the various training modules, which are organised over full weeks or several weekends in a row. At the same time, they have to take shifts at the fire station.

I didn't see my son anymore. On Saturdays, I worked [...]. On Saturday afternoons I would normally collect my son, but if I was still a firefighter, [...] I wouldn't collect him until Sunday evening, and on Monday he'd go back to school. It's no longer a family life (Participant A6).

I thought it would be a bit easier, not the training itself, I'm talking about following the training, compared to family life and the constraints of everything else. It caused me a lot of problems (Participant A31).

The organisation of initial training is generally designed to meet the availability of young people, still in high school or university, who make up a very large proportion of new recruits. This organisation is less compatible with older women who are involved in family and professional life.

Women also have great difficulty integrating into the barracks. Of the 18 women surveyed, 11 (61%) said they had encountered problems of sexism in their barracks. This was not the case for the men surveyed. It was generally a matter of heavy-handed jokes or criticism of women's ability to do a man's job.

When I did my sports tests, there was also a man [...], there was staring, [...] there was also flirting, even by text message. (Participant A17)

You know, I've had a few dirty jokes. [...] You're a woman, so basically there were things you couldn't do. [...] You could tell that women were inferior to them. (Participant A24)

Sometimes, discrimination is also observed in the tasks assigned. One respondent explained, for example, that in her fire station, housework was generally entrusted to women. In addition, two women interviewed had been particularly harassed and had called in the gendarmerie. Overall, it seems difficult for women to integrate into this still very male-dominated environment. They still have difficulty finding their place and earning respect. Some discuss this with their center managers, but their reaction is disappointing: they take little or no action, and the women concerned end up preferring to end their involvement.

In addition, sociol-professional category is only predictive of breaking off commitment during initial training in one case, and only at the 10% threshold: advantaged individuals are almost three times less likely than disadvantaged individuals to break off their commitment (1/0.38). Like women, individuals from advantaged social classes are in the minority in the overall sample. However, unlike the women, they are almost absent from group 2, which concerns drop-outs. The four advantaged individuals in this group are still pupils or students. They are aged between 17 and 21. There are two women and two men. Two live in rural areas. The thematic analysis of the interviews shows that the reasons for their involvement differ: A16 signed up to discover a new environment; A34 signed up to follow a family tradition; A36 saw it as an opportunity to play sport and increase his income; A41 signed up following a communication campaign by his fire station. All four are satisfied with their overall experience in the fire service.

It really was my second family and we were always together, I don't know how to put it, it was always supportive. Well [...] it boosted my self-confidence. (Participant A34)

They were satisfied with the initial training, both in terms of content and the group of learners and trainers. They described a pleasant atmosphere and interesting content. It was more rewarding than I expected. (Participant A16)

> I was very happy with all the knowledge I had learned. [...] I remember we had a very good group atmosphere. (Participant A36)

At the fire station, their experience was also fairly positive, except for one of them who noted tensions between volunteer and professional fire fighters. He had a hard time with this situation, which he did not understand.

> There was a kind of rivalry [...] the volunteer firefighters were bickering with the professional firefighters [...] I didn't understand what was going on. [...] I didn't necessarily understand, it made me a bit angry. (Participant A16)

They decided to end their involvement for a variety of reasons: Participant A16 left because of tensions between volunteers and professionals in his fire station; Participant A34 ended her involvement following a sexist incident that traumatised her; Participant A36 left because she had not managed to find her place in a rural fire station that did few interventions and was not very sporty; Participant A41 mentioned a lack of time and a geographical distance related to his studies. The four advantaged individuals in group 2 would like to return to their commitment one day.

The binomial logistic regression also shows that individuals with local knowledge at the time of their involvement are more likely to end their involvement during their initial training. In fact, the risk of an individual with no firefighters in their circle deciding to end their involvement is 4 times lower than for an individual with firefighters in their circle (1/0.23). Nearly three-quarters of group 2 reported the presence of firefighters among their family and friends. Six of them joined the fire brigade as part of a family tradition.

> It's a family thing, because nearly all my family are firefighters. So I grew up with it, and [...] I've been interested in it since I was very young. (Participant A42)

The thematic analysis revealed representations of the activity that were sometimes fantasised and far removed from reality. These representations were based on the accounts of their family and friends, who probably only told them about the strongest and most memorable moments of their involvement. The respondents had built up an image of volunteer firefighting that was quite far removed from the day-to-day life they subsequently experienced at the fire station: more than three-quarters of the interventions corresponded to rescuing victims and helping people, with missions that were sometimes less than sensational. In fact, 7.5% of these operations involve lifting a person, for example, while 16% involve transporting people when private medical transport is unavailable.

> My father was a volunteer fireman, long before I was born, and when he told me all the things he did [...] it was always a sort of fantasy to be able to do the same thing as him. (Participant A34)

> I have a father-in-law who is in the fire brigade, and a half-brother too, so that also made me want to do it, because they told me what was going on, the operations and all that, and that really interested me. (Participant A39)

For four respondents, on the other hand, the desire to join the fire brigade developed from a heroic representation of the activity, based on their own experience as a victim or on fictional accounts. For example, even though they knew firefighters, they explained that something clicked in them that led them to get involved themselves.

> I went to see a film at the cinema, and from there, I don't know, it just clicked. [...] It was a way of making myself useful, and it was the superhero aspect that I liked. (Participant A2)

> I got involved because I was married and in 2017, I lost my husband in a road accident. That triggered something in me and I said to myself that I had time to give, that I could give it to others, by trying to save others as much as possible. (Participant A28)

The rhetoric conveyed by the fire fighters themselves, but also the heroic image of the fire fighter portrayed by society, seems to have a major influence on some people's decisions to enlist. Their disappointment can then be immense when they come up against the reality of the missions, but also the reality of everyday life in the fire stations and the difficulties in organising initial training, for example.

> After a while, the fire station chief asked if we could come at weekends. You had to do more than twenty-four hours, whereas when I first signed up, I was told that you give as much time as you can. (Participant A25)

The statements made by the respondents concerned reveal a degree of disillusionment. Although they had signed up, generally displaying strong motivation and a desire to make themselves useful in their turn, they ultimately came up against an environment that was sometimes harsh and far removed from the idyllic picture widely disseminated in society.

Finally, the regression shows that an individual living in a rural area is almost three times less likely to drop out than an individual living in an urban area (1/0.38). Among urban drop-outs, the most frequently cited reason for breaking off the scheme was reconciling commitment, work and family life (13 respondents). In some cases, it was a change of job or the arrival of a child in their lives that explained their unavailability. Other people had not realised at the outset how time-consuming volunteering could be. Four respondents emphasised the time-consuming nature of the training. They were unable to reconcile it with their personal and professional lives and preferred to stop.

> At work, I didn't have enough time for training and on-call duty. So I gave priority to the professional side. (Participant A11)

> It's really a question of time. Between my job and my growing family life, it was very complicated. (Participant A33)

The organisation of the training over several years and the increasing demands made on volunteers in terms of availability seem to contribute to the drop-out of city dwellers. However, the start of higher education is also a factor in resignation. Four respondents were concerned. University towns are a long way from home, and they generally only return at weekends, so they no longer have time to devote to the volunteer fire service.

The atmosphere at the fire station is also a key factor in retaining volunteers. In towns and cities, fire stations are large and the number of staff is high. Volunteer firefighters often work alongside professional firefighters, which can create tension. New recruits seem to have more difficulty integrating. Among the urban respondents, five had decided to stop their involvement, either because of the general atmosphere at the fire station, or because of a particular event linked to this atmosphere.

> The atmosphere [...] was friendly at first. [...] I knew most of the people, but in the end, when I joined the fire station, I saw a lot of jealousy between team members and things like that. And then there was pettiness too, we teased each other. [...] When it's going on all the

time, it's a bit heavy. And yes, I didn't take it well, I really didn't take it well, that's what made me leave. (Participant A28)

Team spirit, which is necessary in this activity, can be affected by problems of atmosphere and tensions between individuals. In the end, it is the long-term commitment of volunteer fire fighters that suffers.

For ease of reading, the results of the thematic analysis carried out following the identification of the profiles most likely to drop out are summarised below (Table 3).

*Table 3.* Summary table of the thematic analysis

| Profile of respondents | Theme | Highlights | Reasons for disengagement |
|---|---|---|---|
| Women | Time-consuming aspect of training and commitment | - Family life (especially having children) can be incompatible with the required availability<br><br>- Regular on-call duty at the fire station<br><br>- Training courses are organised at weekends or during school vacations | Difficult to reconcile commitment, private life and professional life |
|  | Fire station atmosphere | - Integration difficulties<br><br>- Sexism<br><br>- Disappointing reactions from some center managers | Difficulty accepting women in the community |
| Privileged individuals | Reasons for joining | - Willingness to discover a new environment<br><br>- Wish to follow in family tradition<br><br>- Willingness to play sports and increase income<br><br>- Response to a communication campaign | |
|  | Satisfaction with commitment | - Satisfactory overall experience<br><br>- Satisfaction with initial training<br><br>- Positive fire station experience | Willingness to re-enlist one day |

| | | | |
|---|---|---|---|
| Individuals with firefighters in their social circle | Representations of the firefighter's activity | - Fantasy representations<br><br>- Gap between representations and reality in the field | Disillusionment |
| Urban dwellers | Time-consuming aspect of commitment and training | - Individuals have many activities outside their commitment<br><br>- Entry into student life for the youngest recruits | Difficult to reconcile commitment, private life and professional life or studies |
| | Fire station atmosphere | - Large urban fire stations<br><br>- Integration difficulties | Difficulties integrating into the fire station |

## Discussion

This research proposes a two-stage analysis, which first showed that gender, social background, entourage and place of living are important predictors of long-term commitment among volunteer firefighters. It then enabled us to focus on a thematic analysis targeting dropout profiles.

Women seem to encounter a number of difficulties integrating into the fire brigade, which is still very male-dominated. This finding is in line with previous research (Gouliquer et al., 2020; Hom et al., 2017; Pfefferkorn, 2006) and suggests a gendered approach to selection among volunteer firefighters (Born, 2023). Beyond the problems of sexism at the fire station, women often have significant family responsibilities. In many households, particularly among the working classes, there is still a gendered division of roles within the couple (Coutrot, 2021; Vagni, 2019). Women have to look after the children, in addition to managing their professional activity. The time they can devote to initial training is therefore limited and its organisation is not adapted to their lifestyle. The fact that female volunteer fire fighters drop out early is in line with the work of Shank and MacCracken (1993), who show that people with major family responsibilities tend to abandon their training.

Moreover, individuals from privileged social classes are in the minority in the sample and more generally in the ranks of volunteer firefighters (Retière, 1994), but their commitment ultimately appears more stable than that of disadvantaged individuals. In other volunteering contexts, Nicourd (2008) and Hayton and Blundell (2021) highlight the low level of participation of disadvantaged social classes in public life for a collective cause. Volunteering with the volunteer fire department is something of an exception, but over the long term, the attachment of advantaged individuals to this type of activity is stronger. This finding can be interpreted as an indication of the relevance and satisfaction that individuals from privileged social classes find in their commitment to the volunteer fire department, thanks in particular to the team spirit omnipresent in the milieu. However, the results show that this commitment is mainly motivated by personal aspirations rather than altruistic motives. As a result, these individuals seem more likely to seek opportunities for personal development than to commit themselves out of altruism or solidarity.

Individuals with prior knowledge of the firefighting environment at the time they joined were more inclined to end their involvement in the first few years, focused on initial training. They sometimes idealised the activity, relying on the stories of their social circle, but were quickly disappointed when they had their own experiences. This result does not go in the same direction as the work of Gazzale (2019), who showed, on the contrary, that the presence of close friends and family in the environment before joining was beneficial for the volunteer firefighter's social development. These factors raise the question of recruitment in France in particular: are information programs sufficiently realistic about the nature of missions? A drop-out rate as early as initial training suggests that word-of-mouth, while important (Lantz & Runefors, 2020), is not enough and needs to be supplemented by clear, official information.

Finally, the results looked at the drop-out rate among city dwellers during initial training. The gap between urban and rural dwellers can be explained first and foremost by different representations of commitment. Indeed, Chevrier and Dartiguenave (2011) have shown that committed individuals in rural areas are likely to be more attached to their territory and to want to participate in the local life of their commune. But there are other explanations too. Needs in urban fire stations are greater than in the countryside, and center managers have to find solutions to ensure they can respond to the needs of the population. At the same time, initial training is time-consuming. This situation gives individuals the impression that the availability they have to offer is exaggerated, given their volunteer status. A departmental fire and rescue service in south-west France, for example, advertises on its website that a volunteer firefighter is required to perform a minimum of 900 hours of activity per year, which represents more than 17 hours per week. Nearly half of the Group 1 respondents in this research devote at least 25 hours a week to their commitment, and a third even more than 35 hours a week after completing their initial training. In Germany, commitment occupies an average of 8.3 hours a week (Mayr, 2017), while this figure rises to 20 hours in Portugal (Dias et al., 2022). Expectations of French firefighters are therefore high, not least because the proportion of firefighters in the population is relatively low compared with the European average (Chevreuil, 2010), with just 357 firefighters per 100,000 inhabitants, compared with 687 in Luxembourg, and even 1,250 in Germany, for example.

When it comes down to it, the fact that the profiles identified drop out during initial volunteer firefighter training is not so much due to the training itself as to the general organisation of the commitment and the environment encountered in the fire station. The overall conditions in which initial training takes place are important. To complete their training, new recruits need to feel welcome, supported and accompanied in the development of their skills. On the contrary, the risk of dropping out is amplified by a feeling of abandonment and lack of benevolence, in an environment that is nevertheless renowned within society for its altruism. In the end, the environment can be experienced as hostile, and the feeling that there is no point in continuing takes over.

## Conclusion

This research was carried out as part of a doctoral thesis, funded by a fire department. The research project was built on a collaboration between the university and the fire department, and was intended to help the latter better understand the retention problems they currently face, particularly among certain profiles such as women and the most highly educated individuals.

Volunteer status remains precarious, and a system essentially based on voluntary work requires measures to support individuals and develop a pleasant environment. This

is necessary to guarantee long-term commitment and avoid the exclusion of certain profiles. The cost to society of dropping out early during initial training is high: new people have to be recruited and trained all the time, but there is no positive effect on overall volunteer numbers. Dropouts have faced difficulties in integrating into a harsh system, where cliquishness is significant (Pudal, 2011, 2016). Their abandonment was almost inevitable. However, solutions do exist and could be applied across the board to help retain volunteers and limit the risk of early drop-out.

Firstly, fire station communication strategies should take into account the high drop-out rate during initial training. Providing candidates with clear information on what is expected of them at the time of recruitment, and paying particular attention to the reasons for enlisting, individual expectations and sources of influence, could help future volunteers to develop expectations that are closer to reality.

Secondly, fire station managers need to foster a harmonious and respectful atmosphere, which is crucial to volunteer retention. Even if human needs are ever greater to ensure a steadily increasing number of interventions, individuals cannot be constantly faced with the challenge of time management and multiple constraints. Too much pressure and the use of injunctions end up discouraging some people who prefer to leave. French volunteer firefighters are among those assigned the widest range of tasks (Chevreuil, 2010). It could be envisaged to recruit and train volunteer firefighters only for specific types of intervention, depending on the time they can devote to the commitment.

At this stage, the regression model has only focused on profile-related factors that can lead to volunteer firefighters dropping out of initial training. Factors linked to the training environment and life at the fire station have deliberately not been taken into account. Nevertheless, following on from the work of Shank and MacCracken (1993), a model could now incorporate them into the analyses. Furthermore, these results focus on France. If loyalty issues can be adhered to in many other countries, it would be worth checking whether these results could be generalised.

## Notes

[1]    The data presented here comes from the ministries responsible for the fire department in the countries in question.

[2]    The data presented here comes from the departmental fire and rescue service for the area under study.

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The author declares no potential conflicts of interest with respect to the research, authorship or publication of this article.

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