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Profiling and predicting help-seeking behaviour among trauma-exposed UK firefighters

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ABSTRACT

Background: Firefighters often do not avail of psychological support services within fire services. Hence, investigating help-seeking behaviour is crucial to determine viable support options.
Objective: This study attempted to characterize help-seeking behaviour among UK firefighters by profiling and identifying patterns of help-seeking.
Methods: An online survey was administered to 1282 UK firefighters who were asked which help-seeking options they availed of within and outside professional settings. The analysis was conducted in two linked phases. First, latent class analysis was used to identify the fewest profiles that most accurately described help-seeking behaviour. Second, multinomial logistic regression analysis was employed to describe class composition using demographic and years in service variables, while ANOVA was employed to identify variation in alcohol consumption and openness to discussing emotions across help-seeking classes.
Results: Five distinct help-seeking classes were identified. Class 1 (9.2%) represented firefighters who availed of all forms of support. Class 2, the smallest class (6.9%) represented firefighters who independently sought External Professional Psychological Support. Class 3 (12.2%) represented those who mainly sought Friends Support. Class 4, the largest class (48.7%) represented those who mainly sought Spousal Support. Class 5 (23%) represented firefighters who sought all avenues of Social Support. Regression analyses indicated that the External Psychological Support class was more likely to be single with fewer years in service. Firefighters longest in service were less likely to seek Social Support, and those who relied on Spousal support had the lowest alcohol consumption.
Conclusion: Variations in help-seeking behaviour among UK firefighters were found. Firefighters who sought spousal support had the lowest alcohol consumption rates, indicating a protected profile. Firefighters who only sought friends and informal colleagues' support had the highest alcohol consumption rates and the most difficulty in discussing feelings, indicating a potential at-risk profile. Recognizing these differences in help-seeking patterns is important for targeting interventions.

Perfilando y prediciendo el comportamiento de búsqueda de ayuda de los bomberos del reino unido expuestos al trauma

Antecedentes: los bomberos a menudo no hacen uso de los servicios de apoyo psicológico dentro de los servicios de bomberos. Por lo tanto, investigar el comportamiento de búsqueda de ayuda es crucial para determinar la viabilidad de las opciones de apoyo.
Objetivo: Este estudio intentó caracterizar el comportamiento de búsqueda de ayuda entre los bomberos del Reino Unido mediante la elaboración de perfiles e identificación de patrones de búsqueda de ayuda.
Métodos: se administró una encuesta en línea a 1282 bomberos del Reino Unido, a quienes se les preguntó qué opciones de búsqueda de ayuda tenían dentro y fuera de los entornos profesionales. El análisis se realizó en dos fases vinculadas. Primero, se utilizó el análisis de clase latente para identificar la menor cantidad de perfiles que describían con mayor precisión el comportamiento de búsqueda de ayuda. En segundo lugar, se empleó el análisis de regresión logística multinomial para describir la composición de la clase usando variables demográficas y de años en servicio, mientras que ANOVA se empleó para identificar la variación en el consumo de alcohol y la apertura para discutir las emociones a través de las clases de búsqueda de ayuda.
Resultados: Se identificaron cinco clases distintas de búsqueda de ayuda. La clase 1 (9.2%) representó a los bomberos que hicieron uso de todas las formas de apoyo. La clase 2, la clase más pequeña (6.9%) representaba a los bomberos que buscaban el apoyo psicológico profesional externo de forma independiente. La clase 3 (12.2%) representaba a aquellos que buscaban principalmente apoyo de amigos y la clase 4, la clase más grande (48.7%) se caracterizaba por los bomberos que buscaban principalmente apoyo del conyugue. La clase 5 (23%) representaba a los bomberos que buscaban todas las vías de apoyo social. Los análisis de regresión indicaron que la clase de Apoyo Psicológico Externo tenía más probabilidades de ser soltero/a con menos

HIGHLIGHTS
• Firefighters often do not avail of "in-house" psychological support services. Hence, this study investigates help-seeking behaviour among UK firefighters by profiling and identifying help-seeking patterns such that viable support options can be targeted accordingly.

años de servicio. Los bomberos que llevaban más tiempo en servicio tenían menos probabilidad de buscar apoyo social en comparación con aquellos en servicio durante 0-10 años.

Conclusión: Se encontraron variaciones en el comportamiento de búsqueda de ayuda entre los bomberos del Reino Unido. Los bomberos que buscaron apoyo del conyugue tuvieron las tasas de consumo de alcohol más bajas, lo que indica un perfil protegido. Bomberos que solo buscaban el apoyo de amigos y el apoyo informal de los colegas tuvieron las tasas más altas de consumo de alcohol y la mayor dificultad para discutir los sentimientos, lo que indica un perfil de riesgo. Reconocer las diferencias en los patrones de búsqueda de ayuda es importante para focalizar las intervenciones.

剖析和预测有创伤暴露的英国消防员的求助行为

背景: 消防员通常不利用消防部门的心理支持服务。因此，考查求助行为对于确定可行的支持选项至关重要。

目标: 本研究试图通过剖析和识别求助模式来刻画英国消防员的求助行为。

方法: 对1282名英国消防员进行了一次在线调查，询问他们在专业环境内外使用的求助选项。分析分两个连续阶段进行。首先，使用潜在类别分析来识别能最准确地描述求助行为的最少剖面。其次，采用多项式逻辑回归分析，使用人口统计学和服务年数变量来描述类别组成，同时在求助类别间使用ANOVA来确定饮酒量和讨论情感的开放程度的差异。

结果: 确定了五个不同的求助类别。第1类 (9.2%) 代表使用各种形式支持的消防员。第2类为最小类别 (6.9%)，代表独立寻求外部专业心理支持的消防员。第3类 (12.2%) 代表主要寻求朋友支持的人，而第4类则是最大类别 (48.7%)，其特征是主要寻求配偶支持的消防员。第5类 (23%) 代表寻求所有社会支持途径的消防员。回归分析表明，外部心理支持类别更有可能是单身的，服役期较短的。相较于服役0-10年的消防员，服役时间最长的消防员，寻求社会支持的可能性更小。

结论: 发现英国消防员的求助行为有所不同。寻求配偶支持的消防员的饮酒率最低，表明是受保护的剖面。仅寻求朋友支持和同事非正式支持的消防员的饮酒率最高，并且在谈论感情方面最困难，表明是风险剖面。认识到求助模式的差异对于定位干预目标非常重要。

1. Introduction

Firefighters are at a high risk of developing post-traumatic stress symptoms (Del Ben, Scotti, Chen, & Fortson, 2006; Heinrichs et al., 2005), suicidal ideations (Hom, Stanley, Ringer, & Joiner, 2016), sleep disturbances (Vargas de Barros, Martins, Saitz, Bastos, & Ronzani, 2013) and excessive alcohol use (Carey, Al-Zaiti, Dean, Sessanna, & Finnell, 2011), typically due to the nature of their job which involves exposure to traumatic incidents. Some of the risk factors for PTSD among firefighters include higher occupational stress (Meyer et al., 2012; Murphy, Beaton, Pike, & Johnson, 1999), lower perceived social support (Regehr, 2009), self-blame and substance use for coping (Meyer et al., 2012) and lack of personal control and alienation from others (Regehr, Hill, & Glancy, 2000). To mitigate psychological distress, a variety of support interventions such as Trauma Risk Management (TRiM) and Critical Incident Stress Management (CISM) are commonly provisioned within fire services across the USA and Europe irrespective of conflicting literature surrounding its efficacy (Bisson et al., 1997; Arendt & Elklit, 2001; Everly, Boyle, & Lating, 1999; Rose, Bisson, Churchill, & Wessely, 2002). However, firefighters often do not avail of 'in-house' professional support services as it is not mandatory. Limited evidence exists detailing why emergency personnel often refrain from seeking help.

1.1. Barriers to help-seeking

A meta-analysis including 14 studies on mental health stigma and barriers to care among emergency personnel revealed that fear of breach in confidentiality and negative impact on career were the most frequently cited concerns (Haugen, McCrillis, Smid, & Nijdam, 2017). A recent study on firefighters demonstrated similar results, with stigma and fear of confidentiality breach as the most commonly recognized barriers to professional help-seeking (Gulliver et al., 2019). One distinctive barrier to help-seeking among the firefighter population was a lack of professional clinical support accustomed to the firefighter culture (Gulliver et al., 2019). Another study on firefighters reporting histories of suicide ideation, plans or attempts indicated that worries about reputation and embarrassment were the only barriers to help-seeking that distinguished service users from nonusers (Hom et al., 2016). Other barriers included fear of being perceived as 'weak' and fear of losing respect of colleagues (Hom et al., 2016; Thurnell-Read & Parker, 2008; Yarnal, Dowler, & Hutchinson, 2004).

Furthermore, even among emergency personnel willing to seek help, the most commonly recognized barriers to care were finding the time to schedule support interventions and not knowing where to get help from (Haugen et al., 2017). While these factors may help explain why available professional support is not utilized by firefighters, it may also be the case that firefighters rely on support structures outside of their work environment.

1.2. Help-seeking among firefighters

It has been suggested that firefighters commonly seek support from social networks outside of work, such as through spouses, friends and family. However, available

evidence is sparse. One study demonstrated that the association between firefighters' suicidal ideation and occupation stress may be decreased by social support (Carpenter et al., 2015). A recent study on firefighters' preference of support services indicated that despite professional support service availability, 67% preferred to talk to a spouse/family member and 60% preferred seeking private professional help (Gulliver et al., 2019). Another study showed that because of the camaraderie and unique work culture within firehouses, firefighters often preferred to talk to colleagues who understood their distinct stressors (Jeannette & Scoboria, 2008).

Nevertheless, there is some evidence of professional support seeking among firefighters. A study exploring the efficacy of professional post-incident interventions among Canadian firefighters (n = 142) demonstrated that firefighters preferred individual debriefing to CISD in low to moderate intensity scenarios. For high intensity scenarios, all intervention options (CISD, individual debriefing and informal discussions) were rated as highly preferable (Jeannette & Scoboria, 2008). Another study on Australian firefighters' (n = 747) showed a preference of individual and informal talk sessions rather than formal debriefing sessions; however, firefighters who had previous experience with stressful incidents were more likely to prefer formal debriefing sessions (Moran & Colless, 1995). In terms of alternate support and coping mechanisms firefighters may use, research shows that the demanding nature of firefighting is correlated with potential dependence on alcohol, which, in turn, is associated with higher psychological distress (Brown, Mulhern, & Joseph, 2002; Haddock, Day, Poston, Jahnke, & Jitnarin, 2015).

Interestingly, a study on help-seeking behaviour among police officers revealed an array of help-seeking options and explored connections between openness to disclosing emotions and help-seeking (Heffren & Hausdorf, 2016). This study showed a direct correlation between police officers who felt comfortable disclosing upsetting personal information and seeking help. The study also demonstrated that most officers (56%) sought help from family members and 37% sought help from friends outside of work (Heffren & Hausdorf, 2016, p. 426). To date, there has been one study on US and Canadian firefighters that captures preferences of support services with a focus on barriers to help-seeking (Gulliver et al., 2019); however, such research has not been conducted on the UK (UK) firefighter population. Moreover, to our knowledge, no known research has explored the connection between firefighters' help-seeking patterns with alcohol use and openness to disclosing emotions.

1.3. Rationale and hypothesis

The current study thus aimed to address this gap utilizing data from a nation-wide, self-report survey of UK firefighters. In general, the study sought to: (i) identify main help-seeking behaviours of firefighters after incidents they found traumatic, and determine if there were homogeneous groups of firefighters who were characterized by the same help-seeking profiles, and (ii) identify what personal and professional characteristics best described these help-seeking groups. It was predicted that multiple help-seeking profiles would emerge among the UK firefighters, and more specifically that: (a) a distinct group of firefighters would predominantly avail of formal professional support, (b) another group would predominantly avail of informal support within work setting from colleagues, whereas (c) a third group would predominantly avail of support outside of work. It was also predicted that (iii) help-seeking groups (class) membership would vary depending on firefighter age, sex, marital status, education and years in service, and that alcohol consumption and openness to discussing emotions would vary across groups.

2. Method

Data collection commenced in August 2015 and was completed by May 2017. Invitations to participate in the survey were sent to current and retired firefighters from the UK by email that included a link to an online questionnaire. The emails were sent by the Fire Brigades Union, Retained Firefighters Union, Fire Service Benevolent Fund and the Chief Fire Officers Association. Inclusion criteria were that participants were over the age of 18 and were currently, or had previously, been employed by the Fire and Rescue Service in England, Scotland, Wales and Northern Ireland. Potential participants were informed about the nature of the survey using an online information sheet and were required to actively consent by clicking a 'Yes' button. The project received ethical approval from the Ulster University's Institutional Review Board. Submitted surveys were collated by the Qualtrics software package and responses were maintained as per university and the EU Data Protection Act and GDPR guidelines. This data was gathered for doctoral research designed to explore traumatic stress of UK firefighters by the lead author and former firefighter John Langtry, who sadly passed before the analysis. This is the first analysis of this data.

2.1. Sample

The dataset consisted of 1,282 participants, with a mean age of 30.48 (SD = 8.83), out of which 95.9% were male and 86.7% were in some form of current relationship (married or living with a partner). The largest age group was 41-50-year-olds (41.7%). Majority of the sample (47%) had been in service for 21–30 years and 10.6% had served for 0–10 years. Full demographics can be found in Table 1.

Table 1. Demographic information (N = 1,282).

Characteristic	N	Percent
Sex:		
Female	53	4.1%
Male	1229	95.9%
Age:		
18–30	55	4.3%
31–40	205	16.0%
41–50	535	41.7%
51–60	376	29.3%
60+	111	8.7%
Marital status:		
Single	60	4.7%
Currently in relationship	1111	86.7%
Divorced, widowed, separated	111	8.7%
Education level:		
No education	68	5.3%
Secondary School	690	53.8%
First year university (HNC)	244	19.0%
Bachelors or higher	280	21.8%
Years in service:		
0–10 years	136	10.6%
11–20 years	388	30.3%
21–30 years	603	47.0%
31+ years	155	12.1%

2.2. Measures

One question with two components was used from the data for the current study. The main question was: '*If you have experienced an incident that could be described as particularly traumatic, or one that has left you feeling different to how you would normally feel after routine incidents, what help did you use a) within work-setting and b) outside of work-setting?*' A total of 18 types of help-seeking options were utilized for the study, inclusive of options for both components. Participants who selected option 19, 'No help received', were excluded from the study (2.3%). To reduce the number of variables for the analysis, some of the help-seeking items were collated and recoded to a final total of 12 options. This is demonstrated in Table 2. Responses to all help-seeking options for both questions were coded 1 (Yes, availed of this support) or 0 (No, did not avail of this support). Participants could select multiple help-seeking options.

2.3. Variables used to describe class membership

Seven variables were used to describe the data. They included the demographic variables sex (Male (1), Female (0)) and age, which was recoded into five age range categories of 18–30, 31–40, 41–50, 51–60 and 60+. Marital status was recoded into three categories: (1) single, (2) currently in a relationship, and (3) post-relationship (divorced, widowed or separated). Level of education was recoded into four categories, (1) no specific qualification (2) secondary school, (3) HND or first year of college and, (4) higher education (bachelors, masters or higher). The number of years in service was recoded into four categories for each decade of service: (1) 0–10, (2) 11–20, (3) 21–30 and (4) 31+ years. Total range for years in service was 0 to 42 years (*M* = 22, *SD* = 7.98).

Two five-point Likert scale questions developed for the study were used to assess openness to disclosing emotions: (1) I am finding it easy to discuss my feelings, and (2) I have difficulty knowing what I feel and describing my feelings; with options ranging from 'strongly agree' to 'strongly disagree'.

The Alcohol Use Disorder Identification Test (AUDIT) was used to measure alcohol consumption and dependence (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). It is a 10-item screening tool developed by the World Health Organization (WHO). The scale has three questions on alcohol consumption (Qs 1 to 3), three questions on drinking behaviour and dependence (Qs 4 to 6) and four questions on the consequences or problems related to drinking (Qs 7 to 10). Questions 1 to 8 are scored on a five-point scale from 0, 1, 2, 3, and 4 while questions 9 & 10 are scored on a three-point scale from 0, 2 and 4. A score of 8 or more is considered to indicate hazardous or harmful alcohol use. The AUDIT has been validated across genders and in a wide range of racial/ethnic groups and is well suited for use in primary care settings. The AUDIT exhibited good internal reliability when used as a single scale in the current study (α = .82). The mean AUDIT score for the sample was 8.08 (SD = 5.77; min = 1/max = 38).

2.4. Analyses

Analyses were conducted in two linked phases. First Latent Class Analysis (LCA) was employed as the most suitable technique for modelling the categorical framing of the data. When observed data are categorical and measured at a nominal level, LCA provides an ideal framework for delineating the latent structure of the observed variables. The levels of a categorical latent variable are called classes. That is, cases (e.g. firefighters) measured on several variables (e.g. nominal help-seeking variables) differ from one another only in their response pattern to those variables. This is known as the assumption of conditional independence, and it means that within each class, each variable is statistically independent of every other variable. If cases share the same response pattern then it can be assumed that this association is the result of something that is 'latent' to those responses (e.g. help-seeking proclivity/behaviour), and as such, these groups of response patterns collectively represent latent classes (i.e. latent, underlying help-seeking typologies/profiles). The goodness of fit was assessed for five models. The optimal number of latent classes was selected based on several statistical fit indices. These were: The likelihood ratio chi-square (LRχ^2), the Akaike information criterion (AIC), the Bayesian information criterion (BIC), the sample-size adjusted BIC (SSABIC), the Lo-Mendell-Rubin's adjusted likelihood ratio test (LRT) and its significance (*p* value), and entropy. The AIC, BIC and SSABIC are goodness-of-fit measures used to compare competing models; lower observed values

Table 2. Types of help-seeking.

	Help-seeking options	Collation	N (%)
1)	Referred by manager to Occupational Health Dept. (or equivalent) within fire service dept.		93 (7.2%)
2)	Self-referred to Occupational Health Dept. (or equivalent) within fire service dept.		116 (9%)
3)	Self-referred to own GP/Doctor		130 (10.1%)
4)	Sought support from spouse		972 (75.8%)
5)	Sought support from siblings		118 (9.2%)
6)	Sought support from parents		158 (12.3%)
7)	Sought support from friends outside of work		470 (36.6%)
8)	Self-referred to external psychological support services		143 (11.1%)
9a)	Items 9,10, 11 collated to: *Informal one-to-one talk with a colleague and/or manager*	9) Talked the incident over with a colleague 10) Talked the incident over with line manager on a one-to-one basis 11) Talked the incident over with a different manager on a one-to-one basis	680 (53%)
10a)	Items 12, 13, 14 collated to: *Informal talk with a group of colleagues and/or manager(s)*	12) Talked about the incident with a group of colleagues (informally over tea/coffee) 13) Group discussion of the incident with line manager & other colleagues (over tea) 14) Group discussion with colleagues and a different manager (over tea)	798 (62.2%)
11a)	Items 15, 16 collated to: *Formal individual discussion with manager*	15) Formal discussion with line manager (closed door one-to-one conversation) 16) Formal discussion with other manager (closed door one-to-one conversation)	37 (2.9%)
12a)	Items 17, 18 collated to: *Formal group discussion (eg. psychological debriefing)*	17) Formal group discussion with line manager and colleagues (eg. Psychological debriefing, TRiM session) 18) Formal group discussion with colleagues and other managers involved (eg. Psychological debriefing, TRiM session)	88 (6.9%)

Participants could pick multiple help-seeking options.

indicate better fit. The LRT statistic is used to compare models with differing numbers of latent classes; a non-significant value ($p > 0.05$) suggests that the model with one class less should be accepted. Entropy is a standardized measure of how accurately participants are classified, with values closer to 1 indicating better classification. The LCA was conducted using Mplus version 7.11 (Muthen & Muthen, 1998).

The second phase of the analyses used multinomial logistic regression to assess associations between a range of demographic variables (age, sex, marital status, education level and service time) as predictor variables and class membership as the criterion variable. Scores on the AUDIT and questions on openness to discussing emotions between the latent classes were estimated using one-way ANOVA.

3. Results

Table 3 shows the fit indices from the latent class analyses. The 5-class solution was considered to be the best model. The AIC information statistic was considerably lower for the 5-class solution than for the 2-class, 3-class and 4-class solutions. More importantly, the BIC information statistic was lowest in the 5-class solution, with the BIC increasing in the 6-class solution. The sample size adjusted BIC (SSABIC) was significantly lower from the 4-class to the 5-class solution; however, it did not decrease by much on the 6-class solution. Moreover, the Lo-Mendell-Rubin's LRT indicated that the 6-class solution was not significantly better than the 5-class solution therefore the 5-class solution was preferred, based on parsimony. The entropy value (0.769) indicated a satisfactory classification of participants.

Five distinct help-seeking classes were identified (see Figure 1). For ease of analysis, each class was depicted on separate graphs (Figure 2).

Class 1 (Figure 2, Graph 1) consisted of 9.2% of the population and was characterized by high probabilities of seeking informal help from spouses and colleagues and/or managers. This class also had moderate probabilities of self-referring to occupational health, their own doctor and external psychological support. Additionally, this class also showed low probabilities of seeking family support and formal individual and group supports (e.g. psychological debriefings) within professional setting. With no obvious support preferences, this class was classified as the 'General Support' class.

Conversely, class 2, the smallest group (6.9%) showed a distinctly high probability of self-referral for external psychological support (Figure 2, Graph 2), for example, seeking counselling privately. This class also showed low probabilities of referring themselves to occupational health, their own doctors and speaking to colleagues informally. However, this group showed no probability of seeking family or professional support within work-

Table 3. Fit indices for the latent class analyses.

Model	LRx² (df)	AIC	BIC	SSABIC	LRT p	Entropy
Two Class	1332.754 (4051)	11988.377	12117.398	12037.986	416.004 p < 0.001	0.733
Three Class	1036.754 (4039)	11706.324	11902.436	11781.729	304.779 p < 0.001	0.781
Four Class	861.918 (4027)	11527.686	11790.889	11628.888	202.463 p > 0.05	0.771
Five Class	**800.158 (4020)**	**11410.501**	**11740.795**	**11537.499**	**141.663 p < 0.05**	**0.769**
Six Class	715.968 (4007)	11350.210	11747.595	11503.004	85.374 p > 0.05	0.760

LRx² = likelihood ratio chi-square; AIC = Akaike information criterion; BIC = Bayesian information criterion; SSABIC = sample size adjusted BIC; LRT = Lo-Mendell-Rubin's adjusted likelihood ratio test; Best fitting model in bold
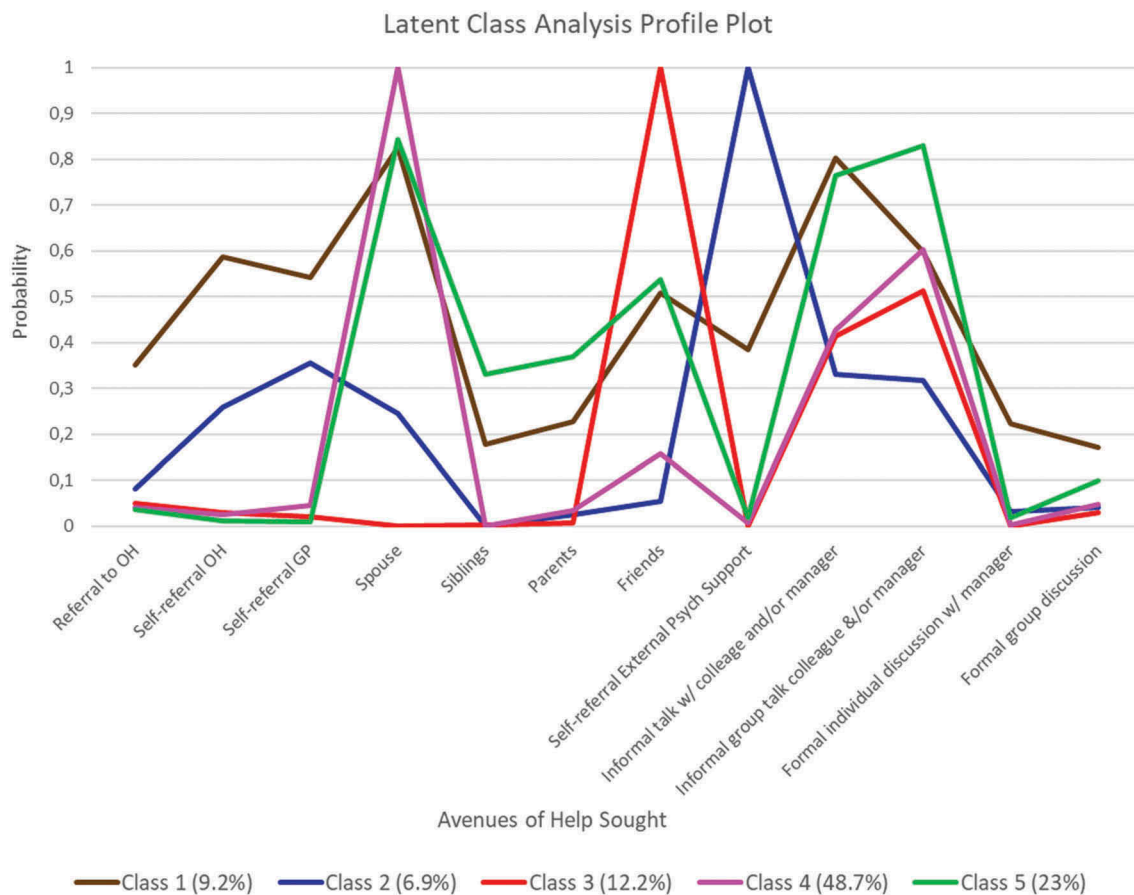
Figure 1. Latent class analysis profile plot.

settings. Hence, it was classified as the 'Self-referral to External Psychological support' class. Latent class 3 (12.2%) was distinctly characterized by a high probability of seeking help from friends outside of work and a moderate probability of help-seeking from colleagues informally (Figure 2, Graph 3). However, this class did not show any probability of seeking any professional support (within or outside work-setting) or support from spouse/family members. Hence, this class was classified as the 'Friends Support' class.

Class 4, the largest group (48.7%) was characterized by the highest probability of seeking help from spouses (Figure 2, Graph 4). It showed a moderate probability of help-seeking from colleagues informally and very low

probability from friends. This class also showed nearly zero probability of seeking professional support, within or outside work-setting, hence classifying it as the 'Spousal Support' class. Class 5, the second largest group (23%) showed various inclinations (Figure 2, Graph 5), characterized by high probabilities of seeking help from spouses and colleagues informally. This class also demonstrated moderate probabilities of seeking help from siblings, parents, and friends outside of work. Notably, however, this class was not associated with any probability of seeking professional support within or outside the work-setting. Nevertheless, they appeared to utilize all forms of social support, hence was identified as the 'Social Support' class.

Figure 2. Separate graph for each latent class.

3.1. Associations between latent classes and demographic variables

A multinomial regression model was employed to analyse the associations between the demographic variables (age, sex, marital status, education and service time) and the latent classes. A variable representing class membership was the dependent variable, while the demographic variables were used as explanatory variables. The likelihood ratio χ^2 for the multinomial logistic regression model was significant ($\chi^2 = 182.81$, $df = 52$, $p < .001$). The 'General Support' class (Figure 2, Graph 1) was

selected as the reference class because this was the only class where participants sought help from all avenues. The findings from the regression analysis are displayed in Table 4.

Regression findings on Table 4 indicate that single firefighters were six times more likely than divorced, widowed or separated colleagues (post-relationship) to seek Self-referral for External Psychological Support (Class 2), when compared to General Support (Class 1). Firefighters currently in relationships were three times more likely to seek Spousal Support (Class 4) and two times more likely to seek Social Support (Class 5) compared to those in post-relationship. Firefighters with least years in service (0–10 years) were seven times more likely to get Self-referral for External Psychological Support and six times more likely to seek Social Support in comparison to colleagues who had served for 31+ years.

Table 4 also shows that compared to firefighters aged 60+ all other age groups were less likely to seek Self-referral for External Psychological Support. There was also a significantly lower probability of age groups 41–50 and 51–60 to seek Spousal Support when compared to the older firefighters (60+). Female firefighters were less likely to seek Friends Support (Class 3) and Spousal Support in comparison to male colleagues. There were no significant differences between classes with respect to education level.

3.2. Difference in alcohol use and openness to discussing emotions among the help-seeking classes

A one-way within-groups ANOVA was conducted to see if there were any differences among the latent classes in alcohol use and openness to disclosing emotions. Tables S1 and S2 (see supplementary material) provide a summary of the descriptive statistics. One-way ANOVA tests indicated that there were significant differences between groups of latent classes for total AUDIT scores [$F(4, 1192) = 4.20$, $p = 0.002$], alcohol consumption [$F(4, 1192) = 2.63$, $p = 0.033$] and alcohol dependence [$F(4, 1192) = 3.65$, $p = 0.006$]. Bonferroni post-hoc tests indicated that firefighters who were in Friends Support class ($M = 9.23$, $SD = 6.23$) had the highest alcohol consumption rates and differed significantly from the Spousal Support class ($M = 7.53$, $SD = 5.44$), who scored the lowest. For alcohol dependence, General Support class showed most dependency ($M = 1.15$, $SD = 2.15$), with a significant difference to Spousal Support class ($M = 0.63$, $SD = 1.33$), which demonstrated least alcohol dependency.

One-way ANOVA between groups of latent classes indicated a significant difference for openness to discussing feelings [$F(4, 1282) = 6.38$, $p = 0.000$] and having difficulty knowing and describing feelings [$F(4, 904) = 12.17$, $p = 0.000$]. For openness to

discussing feelings, Bonferroni post-hoc tests indicated further differences between classes. The class that scored lowest in openness to discussing feelings, the Friends Support class ($M = 2.47$, $SD = 0.98$), differed significantly from firefighters who sought Spousal Support ($M = 2.74$, $SD = 0.95$) and Social Support ($M = 2.86$, $SD = 0.87$). The class that scored the highest on openness to discussing feelings, the General Support class ($M = 2.96$, $SD = 0.98$) differed significantly to those who Self-referred for External Psychological Support ($M = 2.56$, $SD = 1.16$).

Regarding difficulty knowing and describing feelings, Self-referral for External Psychological Support class scored the highest, indicating most difficulty knowing and describing feelings, and it differed significantly to those who sought Friends Support ($M = 2.47$, $SD = 1.29$), Spousal Support ($M = 2.14$, $SD = 1.11$), and Social Support ($M = 2.86$, $SD = 0.87$). There was also a significant difference between Spousal Support class to the General Support class ($M = 2.56$, $SD = 1.26$). The Social Support class also scored the lowest in difficulty knowing and describing feelings.

4. Discussion

A latent class analysis revealed five distinct help-seeking classes among UK firefighters (N = 1,282). The results did not support the hypothesis of having a distinct group of firefighters who predominantly availed of formal 'in-house' professional support, in fact, it was the lowest help-seeking option across all classes (see Figure 1). This could be attributed to lack of organizational mental health support services, lack of knowledge of support available, or the stigma of seeking help within professional setting due to fear of ramifications on career progression (Haugen et al., 2017). As hypothesized, the results did indicate that firefighters relied on informal support from colleagues. This was, however, captured across all classes instead of being a distinct class in itself, with highest probability seen in the Social Support class and moderate probabilities across all other classes (Figure 1). Hence, informal colleague support appeared to be an integral avenue of help-seeking among this sample, which corroborates with existing literature indicating that firefighters preferred talking to colleagues who understood their distinct stressors (Jeannette & Scoboria, 2008). As hypothesized, the results also showed distinct firefighter groups that relied on social support outside of work, details of which are discussed below.

Class 1, the General Support class (9.2%) was the only class to seek help from all avenues moderately. This class was characterized by the highest scores in ease of discussing feelings compared to other classes. Interestingly, however, this class also scored highest in alcohol dependency. This dichotomy indicated that

Table 4. Regression coefficients for demographic variables predicting latent classes.

Predictor	Odds ratios (95% confidence intervals)			
	Class 2 self-referral to external psych support	Class 3 friends support	Class 4 spousal support	Class 5 social support
Marital status				
Single	**6.030* (1.177–30.902)**	2.303 (0.551–9.626)	1.574 (0.377–6.576)	3.946 (0.919–16.950)
Relationship	1.966 (0.813–4.753)	0.675 (0.347–1.311)	**3.349***(1.789–6.267)**	**2.648* (1.253–5.596)**
Post relationship	b	b	b	b
Years in service				
0–10 years	**7.314* (1.058–50.571)**	2.146 (0.357–12.887)	4.978 (0.996–24.885)	**6.529* (1.188–35.890)**
11–20 years	1.596 (0.518–4.917)	0.779 (0.286–2.122)	1.233 (0.525–2.894)	1.453 (0.535–3.947)
21–30 years	0.995 (0.386–2.564)	0.813 (0.363–1.822)	0.962 (0.472–1.963)	1.118 (0.475–2.631)
31+ years	b	b	b	b
Age				
18–30	**0.021* (0.001–0.422)**	0.168 (0.015–1.844)	0.201 (0.026–1.41)	2.540 (0.275–23.448)
31-40	**0.166* (0.022–0.606)**	0.898 (0.205–3.933)	0.411 (0.111–1.526)	2.936 (0.592–14.556)
41-50	**0.205* (0.061–0.696)**	0.319 (0.100–1.023)	**0.279* (0.098–0.789)**	1.662 (0.425–6.506)
51-60	**0.257* (0.077–0.856)**	0.560 (0.179–1.748)	**0.347* (0.124–0.973)**	1.507 (0.388–5.856)
60+	b	b	b	b
Sex				
Female	0.818 (0.255–2.624)	**0.185* (0.046–0.754)**	**0.33* (0.134–0.836)**	0.627 (0.241–1.635)
Male	b	b	b	b
Education				
Bachelors or higher	0.880 (0.251–3.091)	1.230 (0.392–3.859)	1.345 (0.507–3.566)	0.738 (0.239–2.279)
First year HNC	1.067 (0.297–3.835)	1.309 (0.405–4.230)	1.759 (0.651–4.757)	1.080 (0.344–3.388)
Secondary	1.355 (0.417–4.408)	1.739 (0.584–5.182)	2.334 (0.916–5.945)	1.539 (0.526–4.509)
No Education	b	b	b	b

Two comparisons were made. Each class was compared to the baseline class 1 'General Support' (seeking help from all avenues), and b = comparison group.

* p < 0.05; *** p < 0.001.

although firefighters belonging to this class may have been relatively more open to discussing distressing feelings, they were also more likely to have been dependent on alcohol, indicating a potential negative coping mechanism, and hence a potentially vulnerable group.

Class 2, the Self-referral for External Psychological Support class (6.9%) showed the lowest probabilities of seeking social support and talking to colleagues compared to all other classes, indicating that they either did not have or did not rely on social support. This class also demonstrated difficulty knowing and describing their feelings, which may partly explain their low probabilities of seeking social support and seeking private professional help instead. Regression findings indicated that single firefighters and those with fewer years in service (0–10) were most likely to belong to this class. This finding is in contrast with research on US and Canadian firefighters which indicated that firefighters with more years in service were more likely to seek private professional service compared to firefighters with fewer years in service (Gulliver et al., 2019). Nevertheless, this group that actively sought professional psychological help was the smallest group, which may not be a coincidence given that help-seeking among emergency personnel is fraught with self-stigma and underlying structural stigma; manifested in fear of judgement from colleagues and negative impact on career progression (Haugen et al., 2017; Hom et al., 2016; Thurnell-Read & Parker, 2008; Vogt, 2011).

Class 3, the Friends Support class (12.2%), comprised of support mostly from friends and moderate support from colleagues informally. This class demonstrated the most difficulty in discussing feelings and had the highest alcohol consumption rates compared to all other classes. Extant research indicates that alcohol consumption among firefighters is higher than the general population, and thus represents an at-risk drinking group (Piazza-Gardner et al., 2014). Research on firefighters and masculinity indicated that not showing emotions was one of the notions considered 'masculine', which essentially acts as a barrier to seeking help (Haugen et al., 2017; Thurnell-Read & Parker, 2008; Vogt, 2011). This class appears to fit both descriptions, indicating a potential at-risk profile.

Class 4, the Spousal Support class was the largest (48.7%) and was characterized by those who were in current relationships and were relatively older (41-60 + years). Nevertheless, it is statistically logical for this to be the largest class given than 86.7% of the sample were in some form of current relationship and 79.7% were within the age range 41–60+. This class also obtained the lowest total AUDIT scores, alcohol consumption and dependency in comparison to all other classes, indicating spousal support to be a potential protective factor against excessive alcohol use. This finding complements findings from a study on marriage and divorce among US firefighters which concluded that married firefighters were less likely to report higher alcohol use (Haddock, Jahnke, Poston, Jitnarin, & Day, 2016).

Social Support class (Class 5) was the second largest class (23%) and was characterized by seeking all avenues of social support from friends, family and colleagues informally. This class was characterized by most ease in knowing and describing feelings, and hence it is plausible that they could utilize all forms of social support. This finding further validates volumes of evidence in the literature indicating social support and even the perception of social support to be a protective factor for firefighters' wellbeing (Carpenter et al., 2015; Haslam & Mallon, 2003; Regehr, 2009).

Finally, female firefighters were less likely to seek Friends and Spousal Support in comparison to males. The literature on gender difference is sparse and conflicting, one study claimed female firefighters had higher divorce rates (Haddock et al., 2016), another indicated females had better post-traumatic growth (Sattler, Boyd, & Kirsch, 2014). The current study did not have enough data to explore this further.

Overall, this study demonstrated high reliance on spousal support (48.7%) and social support (23%), which corroborates with recent literature which also indicated higher reliance on spouse/family support despite professional support options being available (Gulliver et al., 2019).

5. Limitations

The study findings should be interpreted in relation to the following limitations. The sample included retired firefighters and hence may not be representative of current UK firefighter population. Some forms of help-seeking were not included, such as internet-based therapy, or support from smartphone apps. The frequency of help-seeking, help-seeking history and what form of support was helpful, were not measured. The questions on avenues of help-seeking and openness to disclosing emotions were not derived from previously validated scales, these were devised by the lead researcher. Items recoded into 'formal/informal talk with a colleague' collates talks with a colleague as well as a manager. Marital status and age returned wide confidence intervals. This was most likely a consequence of the relatively small sub-sample sizes used in the analysis. Additional variables such as Post-Traumatic Growth (PTG) would have been helpful to explore help-seeking behaviour in relation to traumatic experiences of the firefighters.

6. Implications

The present study results suggest that UK firefighters within this data sample who have spouses are less likely to drink alcohol as they scored the lowest in both alcohol consumption and dependency. Nevertheless, a qualitative study exploring the impact of firefighting work on spouses revealed that while spouses were proud and supportive of their partners' work, they faced challenges such as shift work patterns and firefighters' reactions to traumatic events affecting their family life (Regehr, Dimitropoulos, Bright, George, & Henderson, 2005). Interventions targeting firefighter spouses, such as educational workshops on sign-posting acute stress and post-traumatic stress symptoms, and managing stress-related symptoms, appear to be logical given the reliance on spousal support. Moreover, vicarious trauma and self-help education for spouses themselves, such as Hildebrand's (1986) self-help programme for spouses, appear to be essential.

Firefighters who only sought Friends Support had the highest alcohol consumption rates and showed the most difficulty discussing feelings. Those who have been in service longest were also less likely to seek social support compared those in service for 0–10 years. A combination of these characteristics denotes an at-risk profile. Research demonstrates a significant linear relationship between years of experience and levels of traumatic stress among firefighters, and increased burnout and compassion fatigue (Pietrantoni & Prati, 2008; Regehr, Hill, Knott, & Sault, 2003). Interestingly, however, research also shows lower self-efficacy and lower perceived social support (within and outside work-setting) in older firefighters compared to new recruits (Regehr et al., 2003), and that those in service longer were less likely to reach out to colleagues (Gulliver et al., 2019). Hence, interventions need to target this at-risk profile of firefighters who have been in service longer, are not currently in relationships, and rely on alcohol perhaps as a coping mechanism. Future research on innovative stigma-focused interventions that tackle barriers to help-seeking appears essential. For example, to tackle self-stigma against mental health problems, educational and contact-driven interventions appear to be effective within the military population (Dickstein, Vogt, Handa, & Litz, 2010), which could potentially be emulated in the emergency service population.

7. Conclusion

This study examined help-seeking behaviour among UK firefighters by profiling and identifying help-seeking patterns. Results indicated that firefighters who sought spousal support had the lowest alcohol dependency rates, indicating a protected profile. Spousal support, informal support from colleagues and other social support appeared to be protective factors, which corroborates with extant literature. The smallest group of firefighters who self-referred for external psychological support were more likely to be single with relatively less years in service. Firefighters who have been in service for 31+ years were less likely to seek social support compared those in service for 0–10 years. Firefighters who relied only on friends and informal support of colleagues had the highest alcohol consumption rates and demonstrated the most difficulty in discussing feelings, indicating an at-risk profile. Future research could focus on innovative interventions that tackle barriers to help-seeking for this at-risk profile.

In conclusion, this study indicated that UK firefighters vary in relation to help-seeking. Recognizing these differences in help-seeking patterns is integral for those responsible for trauma support among fire services, such that interventions are targeted accordingly.

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