Beyond Crisis Response: Characterizing First Responder Interest in Mental Health Services

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Abstract

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Compared to the general public, first responders are at increased risk for mental health conditions such as depression and PTSD. Emergency medical services (EMS) organizations have identified the increased need for mental health programs to support first responders. Worksite mental health programs must be tailored to the needs and preferences of employees in order to be effective. The goal of this research is to identify predisposing variables to characterize first responder interest in workplace mental health services. Secondary data analysis was performed on the 2018 Seattle-King County Wellness survey, which was administered to nearly 1,000 first responders. Bivariate and multivariable logistic regression was performed for three outcome variables: mindfulness training, 1-1 counseling with a mental health provider, and programs that focus on coworkers showing signs of stress. In general, first responders report high interest in these three programs (57.2%, 67.4%, and 76.0% respectively). The strongest association across

all three programs was attitude towards mental health services. Perceived need characteristics, such as PTSD and functional impairment, are associated with increased interest in different types of worksite mental health services. The results indicate that first responders likely view mental health services as viable forms of secondary and tertiary intervention, rather than a form of prevention and mental health promotion. Health communications efforts may need to specifically address negative attitudes towards mental health services in order to increase first responder interest. EMS organizations may find that leveraging the strong bond formed between first responders to be a useful strategy for reframing workplace mental health services.

INTRODUCTION

Mental health disorders are the leading causes of disability around the world (GBD Collaborators, 2018). Compared to the general public, first responders are at heightened risk of developing mental health conditions such as depression and PTSD (Abbot et al., 2015). This increased risk is in part due to the duty-related traumatic exposures first responders face (Jones, 2018; Luber, 2014). First responders are chronically exposed to both physical and psychological threats and are frequently placed in situations in which they experience direct or vicarious trauma (Nemecek, 2018). Frequent and ongoing exposure to traumatic events is associated with burnout, fatigue, general anxiety, vicarious trauma, substance abuse, and occupational stress (Brady, 2015; Nemecek, 2018). This, in combination with the nature of their work which may include long shifts, threats to personal safety, poor sleep, and physical demands (SAMHSA, 2018), increases first responders' risk for ongoing mental health conditions and suicide (Brady, 2015).

A survey of over 4,000 first responders conducted by Newland and colleagues (2015) revealed that 37% of respondents had contemplated suicide, which is 10 times the rate among American adults. The study also revealed that nearly 7% of respondents had attempted suicide at least once, as compared to just 0.5% of American adults (Newland et al., 2015). McIntosh and colleagues (2012) estimate the suicide rate among first responders is 30.5 per 100,000.

Given this increased risk, emergency medical services (EMS) organizations have identified the need for increased mental health programs for their first responders (Delbridge et al., 2015; Jones, 2020). *Critical Incident Stress Debriefing (CISD)* has been utilized for decades to educate first responders on stress reactions and to provide strategies for management following traumatic incidents in the field (Robinson, 2004; Tuckey 2007).

CISD has received criticism for its lack of evidence (Delbridge et al., 2015) and standardized approach (Nash & Watson, 2012). As such, alternate forms of stress management among first responders have emerged. *Peer support programs* provide an opportunity for first responders to become trained to serve as companions to an emotionally distressed team member (Wallace, 2016). *One-on-one (1-1) counseling* with a mental health professional is frequently offered through individual departments or the organization's Employee Assistance Program (EAP), which allows for an individualized and tailored intervention (Luber, 2014). Perhaps most recently, researchers have proposed *mindfulness training* as a promising intervention to improve first responder mental health and resiliency (Kaplan et al., 2017). Unlike CISD and other common interventions for first responders (e.g., chaplaincy, crisis hotlines, etc.) that are administered after a traumatic experience, these three programs emphasize prevention and mental health promotion.

Regardless of the delivery method, worksite mental health programs must be tailored to the needs and preferences of first responders in order to be effective (CDC Workplace Health Model, 2016; Jones, 2020; Quevillon et al., 2016). There is minimal published data on participation rates among first responders for mental health interventions (Jones, 2020). What's more, there is limited research on the participation of worksite mental health programs and suicide prevention programs in general.

Worksite health promotion programs (WHPs) in general have a decades-long history of inconsistent and low participation. In their review, Glasgow and colleagues (1993) saw participation in WHPs ranging from 20-76%. Robroek and colleagues' 2009 systematic review concluded that WHP participation is generally less than 50%. According to the Exploration, Preparation, Implementation, Sustainment (EPIS) framework (Aarons et al., 2011)

implementation and sustainability of a program is partially determined by the participants' perceptions of the program itself (Moullin et al., 2019). In order to improve participation – and therefore effectiveness – of workplace mental health programs, it is imperative that employee preferences are included in the development of programs (Jones, 2020) and that communication about the programs is tailored to the intended user.

As such, the main objective of our research was to identify predisposing variables that characterize first responder interest in various workplace mental health services. Understanding the role in which first responder's personal characteristics, perceived need factors, and perceptions of organizational culture impacts their likelihood to engage in worksite mental health services will allow EMS organizations to better tailor programs to their employees. This approach may also be leveraged by other public sectors with employees working on the front lines of the COVID-19 response and recovery efforts, who are likely at increased risk for mental health issues (Shanafelt et al., 2020).

METHODS

Aim

The objective of this study was to assess the influence of the predisposing variables on the likelihood that respondents would report interest in mindfulness training, 1-1 counseling with a mental health professional, and programs that focus on how to help a coworker showing signs of stress.

Data Source

Secondary data analysis was performed on data from the 2018 Seattle-King County Wellness Survey (Appendix A). The data set was produced by the King County Fire Chiefs

Association (KCFCA) Mental Wellness Subcommittee to assess the resources needed to improve wellness of county first-responders. The survey received an estimated 20% response rate (N=984) with responses varying from 0%-51% across agencies. Respondents included Fire and EMS personnel, 9-1-1 call receivers and dispatchers, as well as administrative and support staff. The 42-question survey was administered electronically and included both closed and open-ended questions. This study was IRB exempt as it is an analysis of a needs assessment and is not intended to generate generalizable knowledge.

Outcome variable

Interest in mental health programs

To assess interest in different types of mental wellness programs, respondents were asked, "If your agency offered mental wellness programs, which of the following programs would you likely use?" Respondents could answer with "Yes," "No," or "Not familiar with the term" for 14 different mental wellness programs.

Mental health programs

We selected three of the 14 programs to assess: "Mindfulness Training," "1-1 counseling with a mental health professional", and "Programs that focus on how to help a coworker showing signs of stress." These three programs were selected for conceptual reasons, including that they put the onus on the individual employee to access the service, vary from each other in extent of involvement, and range from self-help, professional-help, and providing help to others. Unlike other common first responder mental health services (e.g., CISD, crisis hotlines, and substance abuse programs) these three programs emphasize mental health promotion and prevention.

Independent Variables

The selection of independent predictor variables was guided by current literature on workplace mental health programs and can be categorized as personal characteristic variables, perceived need variables, and perception of organizational factor variables (Figure 1). The categorization of these variables is reflective of the Behavioral Model of Health Services Use (Andersen, 1995).

Personal Characteristic Variables

To study the personal characteristics associated with interest in mental health services, we used age coded as 18-29, 30-44, 45-59, and 60+; gender (male, female); race recoded as binary (white, POC); years of service coded as <5, 6-15, 16-25, 25+; and role in fire department (firefighter/EMT, paramedic, officer). To maintain homogeneity, 9-1-1 receivers and dispatchers, administrators, and support staff were not included in the analysis.

Perceived Need Variables

To study the perceived need associated with interest in mental health services, we created composite variables to measure symptoms of depression (Cronbach alpha > 0.70), PTSD (Cronbach alpha > 0.80) and occupational stress (Cronbach alpha = 0.676). These three composite variables allowed for symptom measurement and were not intended to serve as diagnostic assessments. Functional impairment was measured by how the extent to which mental health problems impede on the respondent's ability to do their work, take care of things at home, or get along with other people (Not at all difficult, Somewhat difficult, Very difficult, Extremely difficult). The latter two categories were recoded into one category due to small sample size. To measure perceived overall health, respondents were asked "Overall how would you rate your health" and could respond (Excellent, Very good, Good, Fair, Poor). Attitudes towards mental health services were measured by the question, "If I were experiencing an emotional crisis, my

first thought would be to seek professional help." Respondents could select "Agree," "Disagree" or "Neither agree nor disagree." These were recoded to reflect positive, negative, or unsure attitudes towards mental health services.

Perception of Organizational Factors Variable

We created a composite variable (Cronbach alpha = 0.821) to study the perception of organizational factors with interest in mental health services. The five questions included in the variable were 1) Does your agency consider mental wellness important? 2) Do you feel comfortable talking about mental wellness concerns with your coworkers? 3) Do you think your coworkers will think you are 'weak' if you bring up mental wellness concerns at work? 4) Do you think your supervisor will treat you differently if you bring up mental wellness concerns at work? 5) Do you think bringing up mental wellness concerns at work will impact your career negatively? Respondents could select "Yes," "No," and "Not sure."

Statistical Analysis

Descriptive statistics were calculated to describe the sample population (Table 1). Binary logistic regression modelling was applied to the interest dependent variable for each of the three mental wellness programs in IBM SPSS.19. First, frequency distributions were calculated for the three programs of interest (Table 1). Bivariate analyses were conducted for each independent variable, in which the OR, 95% confidence interval, and p-value were calculated (Table 2). The significant variables (age, gender, depression, PTSD, occupational stress, functional impairment, and attitudes towards mental health services) were included in a multivariable model, in which the OR, 95% confidence interval, and p-value were calculated (Table 3). A pseudo measure of the proportion of variance explained by a logistic regression model, Nagelkerke R^2, was calculated for each multivariable model.

An exploratory analysis was conducted to identify any association between "zone" and the outcome variables to account for the fact that first responders come from different agencies within the county. We did not find an association and decided not to include this variable in the analysis.

RESULTS

Respondent characteristics

Table 1 shows the sample characteristics. Of the 804 respondents, a large majority (91.7%) identified as male and as white (87.8%). Over half of respondents were firefighters or EMTs (60.6%). Age varied widely, with only 7% of respondents aged 18-29 and 6.3% aged 60 or older. Interestingly, age was not heavily correlated with years of service. 11.1% respondents served for 5 or less years and 31% had served more than 25 years at the time of the survey.

In general, respondents reported mixed perceptions of organizational factors, with the average response skewed slightly positive on the 15-point scale (mean=8.53, SD=3.24).

Respondents reported lower than the mean on depression (mean=3.29 on an 8-point scale, SD=1.34) and PTSD (mean=15.40 on a 40-point scale, SD= 6.36) but higher than the mean for occupational stress (mean=5.64 on an 8-point scale, SD=1.09). Respondents also reported low functional impairment, with only 6.6% reporting that their mental health made their ability to do their work, take care of things at home, or get along with other people very difficult or extremely difficult. Similarly, only 7.4% of respondents stated that their overall health was fair or poor. Over half of respondents (53.1%) reported a negative attitude towards mental health services and 22.5% were unsure.

Interest in Worksite Mental Health Services

Each program evaluated in this study had a 50% interest rate or higher among respondents. Programs that focus on how to help a coworker who is showing signs of stress received the highest interest among respondents, with 76% (n=530) stating that they would likely use the program if it were offered by their agency. 67.4% of respondents expressed interest in 1-1 counseling with a mental health professional, and 57.2% of respondents expressed interest in mindfulness training. Interestingly, 10.5% (n=74) of respondents were unfamiliar with the term "mindfulness training" whereas the other two programs had much lower unfamiliar responses (1.3% for coworker-centric programs, and 0.6% for counseling programs).

Determinants of Interest in Employer-Offered Mental Health Programs

Bivariate analysis identified 7 of the 12 independent variables as having significant effect on the likelihood that an individual would be interested in one of the three mental health programs (Table 2). These seven variables were age, gender, depression, PTSD, functional impairment, occupational stress, and attitudes towards mental health services. A binary logistic regression was performed for each of the three mental health programs to ascertain the effects of these 7 variables on interest in each of the programs (Table 3). The strongest association across all three programs was attitude towards mental health services.

Mindfulness Training

The binary logistic regression model was statistically significant, $X^2 = 55.147$ (df = 11, p-value < 0.001). The model explained 13.7% (Nagelkerke R^2) of the variance in interest in mindfulness and correctly classified 69.1% of cases. Females were 2.88 times more likely to express interest in mindfulness training than males. Individuals self-reporting functional impairments making their life "somewhat difficult" were 2.05 times more likely to express

interest in mindfulness training than those who reported no difficulty. Individuals with negative attitudes towards mental health services were 3 times less likely to be interested in mindfulness training than those with positive attitudes towards mental health services.

1-1 Counseling with a Mental Health Professional

The binary logistic regression model was statistically significant, $X^2 = 66.158$ (df = 11, p-value <0.001). The model explained 15.4% (Nagelkerke R^2) of the variance in interest in 1-1 counseling and correctly classified 71.3% of cases. Higher PTSD symptom scores were associated with an increased likelihood of interest in 1-1 counseling. The odds of being interested in 1-1 counseling among those with negative attitudes towards mental health is 3 times lower than those with positive attitudes towards mental health services.

Programs that focus on how to help a coworker showing signs of stress

The binary logistic regression model was statistically significant, $X^2 = 28.865$ (df =11, p-value = 0.002). The model explained 7.6% (Nagelkerke R^2) of the variance in interest in programs to support coworkers exhibiting stress and correctly classified 78.8% of cases. The odds of being interested in coworker-centric programs among those with negative attitudes towards mental health services is 2 times lower than those with positive attitudes towards mental health services. The other predictor variables were not significant in the multivariable regression.

DISCUSSION

A promising strategy to improve participation among first responders in worksite mental health services is to tailor services to their preferences and needs (Jones, 2020), and to communicate those services in a way that resonates with the first responder. By understanding which predisposing characteristics increase or decrease first responder's interest in worksite

health services, EMS organizations can better tailor their communication and recruitment strategies to encourage participation. In this study, we examined associations between first responder predisposing characteristics and their interest in three different worksite mental health services. The results of our study suggest that perceived need characteristics, such as PTSD and functional impairment, are associated with interest in different types of worksite mental health services. Our findings also identify attitudes towards mental health services as most strongly associated with interest across all three services.

Given that first responders are at high risk for mental health conditions and suicide, employers may find it reassuring that first responders who self-report higher rates of PTSD and functional impairment are more likely to be interested in participating in worksite mental health services. Our results suggest that first responders experiencing some level of functional impairment from their mental wellness (e.g., moderate difficulty in ability to do their work, take care of things at home, or get along with other people) are more likely to be interested in mindfulness training than those who report no impairment. First responders with higher PTSD symptom scores are more likely to be interested in 1-1 counseling services with a mental health professional than those with lower self-reported PTSD symptom scores. This suggest that these mental health services are likely to be utilized for secondary and tertiary intervention, rather than preventing the onset of a mental health condition. This view reflects the history of EMS mental health services, such as CISD, which emphasize post-incident interventions rather than preventative and early interventions (Nash & Wallace, 2012).

Regehr and colleagues' 2002 study revealed that first responders associated seeking help for mental health with risking one's reputation, being perceived as weak, and being passed up for job opportunities. Interestingly, our findings suggest that the stigma associated with mental

health disorders may not be associated with first responders' interest in worksite mental health services.

Rather, our results identify an individual's attitude towards mental health services as the strongest predictor for interest in any of the three programs. Of the 804 respondents, over half (53.1%) reported a negative attitude towards mental health services, whereas only a quarter (24.4%) reported positive attitudes. This finding is consistent with previous research that identified individuals with military and first responder backgrounds as unlikely to seek out care from a mental health professional in a medical setting (Wallace, 2016). Individuals with negative attitudes towards mental health services were 3 times less likely to be interested in mindfulness training and 1-1 counseling, and 2 times less likely to interested in programs that support coworkers showing signs of stress.

Also of note is our finding that programs that support coworkers who are showing signs of stress generated the most interest among first responders (76% as compared to 67% and 57% for mindfulness training and 1-1 counseling respectively). EMS organizations and leadership may find that leveraging the strong bond formed between first responders (Bailey, 2010) serves as a useful strategy in marketing worksite mental health services.

The strong camaraderie among first responders is thought to be due, in part, to the frequent emotional and physical trauma experienced in the field (Purdy, 2002). The nature of the first responder job leads to each individual being highly dependent on their team members for physical and mental safety. As such, the behavioral and mental health issues in the crew may affect the individual, and vice versa. Novara and colleagues (2015) write that first responders are at risk for "psychological imbalances secondary to vicarious trauma of the job, and in fact, these

workers represented a different sector of suffering: they represented the *indirect* victims" (Novara et al., 2015).

Limitations

This study has several limitations which should be considered in the interpretation of the results. Conducting secondary analysis presents several limitations, as the analysis was limited to the data collected in the original needs assessment Survey responses may be subject to self-report and social-desirability bias. In particular, respondents may have underreported PTSD and depressive symptoms, as well as the extent to which their mental health impacts their functionality.

Additionally, the homogeneity of the respondents led to small sample sizes for all non-White races, so the variable was recoded to be dichotomous, potentially hiding intricacies of the role of race and interest in workplace mental health services. The homogeneity of respondents is likely due to the underrepresentation of people of color in the EMS workforce (Crowe et al., 2020).

Strengths

This study addresses the lack of research in first responder interest in the prevention-oriented mental health services. The findings of this study may help direct EMS and other front-line responder organizations towards mental health promotion programs that better fit the needs and interests of their employees.

IMPLICATIONS AND CONCLUSION

The global COVID-19 pandemic has placed healthcare workers on the front lines of the pandemic, alongside their first responder colleagues. Here, they are exposed to immense emotional trauma, and face the physical threat of infection on a daily basis (Gold, 2020). The Critical Incidence Stress Management model, commonly used in EMS organizations, outlines the "Terrible Ten," a list of the top ten types of emergency responses that lead to the greatest need for psychological intervention in first responders (Mitchell, 2016). More than half of the "Terrible Ten" can be seen in the global pandemic, including prolonged incidents especially with loss of life, any personal threatening situation, events with excessive media interest, and any high-distressing event (Mitchell, 2016).

The COVID-19 pandemic is exposing first responders and healthcare workers to traumatic experiences, which is likely to lead to increased rates of anxiety, depression, and PTSD. It is likely that we will see an increase in need among first responders and healthcare workers to access mental health services. Our findings suggest that individuals with PTSD and functional impairment are likely to be interested in such services. As such, programs should be prepared to provide secondary and tertiary treatment. Knowing that those with negative attitudes towards mental health services are less likely to be interested in worksite mental health program, organizational leadership should work on reframing communication to reduce the stigma surrounding mental health. Programs and communications that emphasize the preexisting comradery among teams may generate greatest interest among first responders.

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Figure 1: Conceptual Model

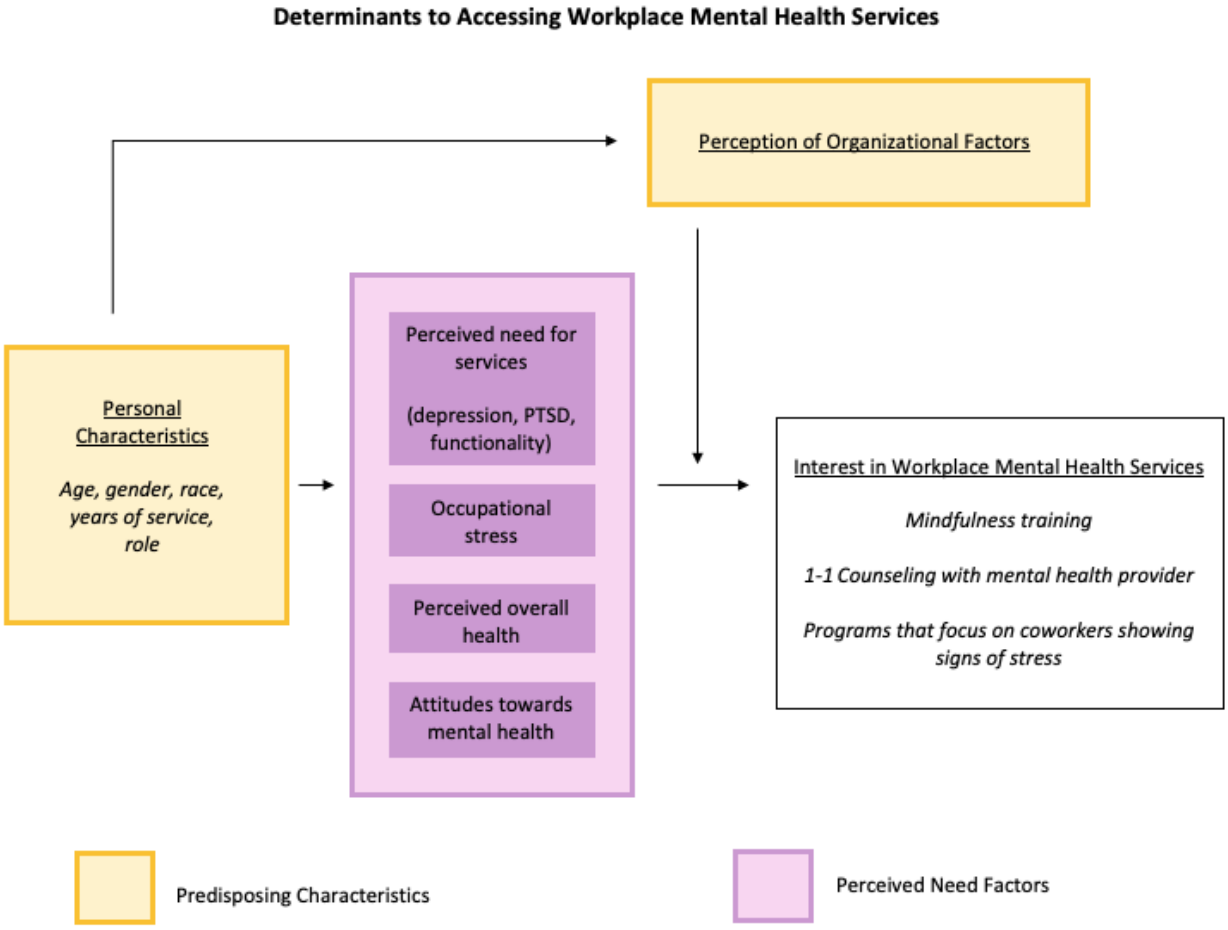

Table 1: Sample Characteristics

CATEGORY IN CONCEPTUAL MODEL	INDIVIDUAL VARIABLE	DESCRIPTIVE STATISTICS		
		N(%)	Mean	St Dev
OUTCOME VARIABLE: INTEREST IN PROGRAM	**Mindfulness Training**			
	Yes	403 (57.2)	-	-
	No	225 (32.1)	-	-
	Unfamiliar with term	74 (10.5)	-	-
	1-1 Counseling with a Mental Health Professional			
	Yes	466 (67.4)	-	-
	No	221 (32.0)	-	-
	Unfamiliar with term	4 (0.6)	-	-
	Programs that focus on how to help a coworker who is showing signs of stress			
	Yes	530 (76.0)	-	-
	No	158 (22.7)	-	-
	Unfamiliar with term	9 (1.3)	-	-
PERSONAL CHARACTERISTICS	**Age**			
	18-29	56 (7)	-	-
	30-44	287 (36.1)	-	-
	45-59	403 (50.1)	-	-
	60+	50 (6.3)	-	-
	Gender			
	Male	729 (91.7)	-	-
	Female	66 (8.3)	-	-
	Race			
	White	694 (87.8)	-	-
	Non-white	96 (12.2)	-	-
	Years of Service			
	<5	89 (11.1)	-	-
	Between 6-15	212 (26.5)	-	-
	Between 16-25	251 (31.4)	-	-
	25+	248 (31.0)	-	-
	Role			
	Firefighter/EMT	487 (60.6)	-	-
	Paramedic	80 (10.0)	-	-
	Officer	237 (29.5)	-	-
PERCEPTIONS OF ORGANIZATIONAL FACTORS	Composite score 5-15 (5 negative perceptions, 15 very positive perceptions)	793	8.53	3.24
PERCEIVED NEED FACTORS	**Depression (2-8 point scale)**	793	3.29	1.34
	PTSD (8-40 point scale)	763	15.40	6.36
	Functionality			
	Not at all difficult	289 (40.6)	-	-
	Somewhat difficult	376 (52.8)	-	-
	Very/Extremely difficult	47 (6.6)	-	-
	Occupational Stress (2-8 point scale)	796	5.64	1.09
	Perceived Overall Health			
	Excellent	117 (14.6)	-	-
	Very good	339 (42.4)	-	-
	Good	284 (35.5)	-	-
	Fair/Poor	59 (7.4)	-	-
	Attitudes Towards Mental Health Services			
	Positive	195 (24.4)	-	-
	Not sure	180 (22.5)	-	-
	Negative	425 (53.1)	-	-

Table 2: Bivariate Analysis Results

CATEGORY IN CONCEPTUAL MODEL	INDIVIDUAL VARIABLE	OR AND 95% CI FOR INTEREST IN SPECIFIC TYPE OF PROGRAM					
		N	Mindfulness Training	N	1-1 Counseling with a mental health professional	N	Programs that focus on how to help a coworker showing signs of stress
PERSONAL CHARACTERISTICS	**Age**						
	18-29	45	--	45	--	44	--
	30-44	241	0.935 (.476,1.834)	251	0.900 (.387, 2.094)	244	0.755 (0.344, 1.659)
	45-59	303	0.929 (.479, 1.804)	343	1.511 (0.780, 2.927)	356	0.980 (.451, 2.129)
	60+	34	0.395 (.158, .988)*	43	1.701 (0.889, 3.254)	40	0.534 (.199, 1.433)
	Gender						
	Male	565	--	628	--	625	--
	Female	58	2.585 (1.312, 5.094)*	54	1.395 (.742, 2.621)	59	1.318 (.667, 2.605)
	Race						
	White	544	--	594	--	592	--
	Non-white	75	1.263 (.750, 2.127)	82	1.515 (0.890, 2.580)	85	1.298 (.730, 2.311
	Years of Service						
	<5	70	--	71	--	70	--
	Between 6-15	180	1.084 (.608, 1.932)	181	0.876 (.489, 1.569)	179	1.137 (.585, 2.211
	Between 16-25	198	1.086 (.614, 1.922)	221	0.971 (.549, 1.719)	224	0.829 (.440, 1.559)
	25+	178	0.818 (.461, 1.451)	212	1.186 (.665, 2.117)	213	1.076 (.564, 2.053)
	Role						
	Firefighter/EMT	380	--	416	--	413	--
	Paramedic	63	1.240 (.701, 2.193)	66	1.620 (.890, 2.946)	70	.957 (.530, 1.729)
	Officer	185	1.040 (.721, 1.50)	205	1.930 (.816, 1.673)	205	1.123 (.750, 1.682)
PERCEPTIONS OF ORGANIZATIONAL FACTORS	Composite score 5-15 (5 negative perceptions, 15 very positive perceptions)	620	0.990 (.941, 1.042)	677	1.018 (.969, 1.070)	680	1.026 (.973, 1.088)
PERCEIVED NEED FACTORS	**Depression**	624	1.181 (1.035, 1.348)*	681	1.424 (1.235, 1.643)**	680	1.265 (1.086, 1.472)**
	PTSD	599	1.059 (1.028, 1.091)*	656	1.109 (1.073, 1.147)**	657	1.074 (1.037, 1.113)**
	Functionality						
	Not at all difficult	231	--	248	--	248	--
	Somewhat difficult	294	2.010 (1.398, 2.890)*	324	2.027 (1.418, 2.897)**	323	1.494 (1.003, 2.225)*
	Very/Extremely difficult	38	2.548 (1.154, 5.623)*	41	2.787 (1.236, 6.284)*	41	1.435 (0.630, 3.268)*
	Occupational Stress	624	1.383 (1.170,	682	1.498 (1.265, 1.775)**	683	1.314 (1.100, 1.570)*
	Perceived Overall Health						
	Excellent	92	--	102	--	98	--
	Very good	279	0.680 (.414, 1.117)	297	1.170 (.733, 1.868)	296	.701 (.403, 1.221)
	Good	219	1.122 (.665, 1.892)	237	1.361 (.836, 2.216)	248	1.097 (.611, 1.968)
	Fair/Poor	37	0.893 (0.400, 1.995)	49	2.051 (0.938, 4.483)	45	0.705 (0.310, 1.606)
	Attitudes Towards Mental Health Services						
	Positive	170	--	178	--	176	--
	Not sure	130	.508 (.306, .845)**	150	0.517 (.311, .860)*	147	.737 (.414, 1.310)
	Negative	326	.387 (.254, .591)**	356	0.364 (.237, .560)**	362	0.462 (.289, .739)**

*p-value <0.05 **p-value<0.001

Table 3: Multivariable Analysis Results

CATEGORY IN CONCEPTUAL MODEL	INDIVIDUAL VARIABLE	OR AND 95% CI FOR INTEREST IN SPECIFIC TYPE OF PROGRAM					
		N	Mindfulness Training	N	1-1 Counseling with a mental health professional	N	Programs that focus on how to help a coworker showing signs of stress
PERSONAL CHARACTERISTICS	**Age**						
	18-29	37	--	36	--	35	--
	30-44	206	0.845 (0.38, 1.877)	211	1.004 (0.455, 2.214)	205	0.726 (0.29, 1.814)
	45-59	258	0.719 (0.327, 1.582)	292	1.072 (0.49, 2.343)	302	0.908 (0.368, 2.244)
	60+	26	0.378 (0.123, 1.164)	33	0.837 (0.288, 2.431)	30	0.461 (0.143, 1.487)
	Gender						
	Male	477	--	525	--	521	--
	Female	50	2.888 (1.284, 6.492)*	47	1.753 (0.809, 3.796)	51	1.154 (0.53, 2.513)
PERCEIVED NEED FACTORS	**Depression**	527	0.901 (0.733, 1.108)	572	1.152 (0.934, 1.42)	572	1.076 (0.862, 1.342)
	PTSD	527	0.901 (0.733, 1.108)	572	1.07 (1.017, 1.127)*	572	1.046 (0.991, 1.105)
	Functionality						
	Not at all difficult	214	--	232	--	231	--
	Somewhat difficult	279	2.049 (1.303, 3.221)*	303	1.416 (0.91, 2.201)	304	1.116 (0.689, 1.807)
	Very/Extremely difficult	34	2.075 (0.723, 5.955)	37	0.818 (0.276, 2.424)	37	0.638 (0.214, 1.905)
	Occupational Stress	527	0.862 (0.676, 1.099)	572	0.933 (0.732, 1.189)	572	0.952 (0.737, 1.23)
	Attitudes Towards Mental Health						
	Positive	143	--	148	--	147	--
	Not sure	110	0.606 (0.331, 1.107)	125	0.632 (0.343, 1.165)	123	1.107 (0.551, 2.226)
	Negative	274	0.334 (0.205, 0.546)**	299	0.331 (0.2, 0.548)**	302	0.488 (0.288, 0.827)*

*p-value <0.05 **p-value<0.001

Appendix A: Selected Questions from the 2018 Seattle-King County Wellness Survey

- If your agency offered mental wellness programs, which of the following programs would you likely use? (Yes/No/Not familiar with the term)
    - Employee Assistance Program (EAP)
    - Peer support
    - Critical Incident Stress Debriefing (CISD)
    - Substance abuse programs
    - Crisis hotline access
    - Mindfulness training
    - Stress management training
    - Chaplaincy program
    - Mental Wellness awareness training
    - One on one counseling with a mental health professional
    - Stress First Aid program
    - Screening brief intervention and referral to treatment programs
    - Conflict resolution programs
    - Programs that focus on how to help a co-worker who is showing warning signs of stress
- If I were experiencing an emotional crisis, my first thought would be to seek professional help.
    - Agree
    - Disagree
    - Neither agree nor disagree
- A person with an emotional problem is not likely to solve it alone. He or she is more likely to solve it with professional help.
    - Agree
    - Disagree
    - Neither agree nor disagree
- Personal and emotional troubles tend to work out by themselves.
    - Agree
    - Disagree
    - Neither agree nor disagree
- Does your agency permit you to access mental health services on-duty?
    - Yes
    - No
    - Not sure
- Does your agency consider mental wellness important?
    - Yes
    - No
    - Not sure
- Do you feel comfortable talking about mental wellness concerns with your co-workers?
    - Yes
    - No
    - Not sure
- Do you think your co-workers will think you are “weak” if you bring up mental wellness concerns at work?
    - Yes
    - No
    - Not sure
- Do you think your supervisor will treat you differently if you bring up mental wellness concerns at work?
    - Yes
    - No
    - Not sure
- Do you think bringing up mental wellness concerns at work will impact your career negatively?
    - Yes
    - No
    - Not sure
- Stress means a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his/her mind is troubled? Have you felt this kind of stress in the last few months?
    - Never
    - Sometimes
    - Most of the time
    - Always

- How often do you find your work stressful?
    - Never
    - Sometimes
    - Most of the time
    - Always
- In the past year, how often have you experienced little interest or pleasure in doing things?
    - Not at all
    - Several days
    - More than half the days
    - Nearly every day
- In the past year, how often have you felt down, depressed or hopeless?
    - Not at all
    - Several days
    - More than half the days
    - Nearly every day
- In the past year, how often have you had trouble falling asleep or staying asleep or sleeping too much?
    - Not at all
    - Several days
    - More than half the days
    - Nearly every day
- How difficult do these problems make it for you to do your work, take care of things at home, or get along with other people?
    - Not at all difficult
    - Somewhat difficult
    - Very difficult
    - Extremely difficult
- Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and indicate how much you have been bothered by that problem in the past year. (Not at all; a little bit; moderately; quite a bit; extremely)
    - Feeling upset when something reminded you of a stressful experience?
    - Having strong physical reactions when something reminded you of the stressful experience (for example: heart pounding, trouble breathing, sweating)?
    - Avoiding external reminders of the stressful experience (for example people, places, conversations, activities, objects or situations)
    - Having strong negative feelings such as fear, horror, anger, guilt or shame? being "super alert" or watchful or on guard?
    - Having difficulty concentrating?
    - Trouble falling or staying asleep?
    - Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you?
- In general, how would you rate your health?
    - Excellent
    - Very Good
    - Good
    - Fair
    - Poor
- What is your age?
    - Between 18-29
    - Between 30-44
    - Between 45-59
    - Between 60-69
    - 70+
- What is your gender?
    - Male
    - Female
    - Other
- How would you describe your race?
    - White
    - Black or African American
    - Asian Ameriecan
    - American Indian or Alaskan Native

    - Hawaiian/Pacific Islander
    - Other Pacific Islander
    - Multiracial
    - Other
- How many years have you worked in or for the fire service?
    - Less than 5 years
    - Between 6 and 15 years
    - Between 16 and 25 years
    - More than 25 years
- What is your current role in the fire service?
    - Firefighter/ EMT
    - Paramedic
    - Officer
    - Administration
    - Administrative support
    - Dispatcher (primarily work as dispatcher)
    - Call receiver (primarily work as call receiver)
    - Other