THE FINANCIAL IMPLICATIONS OF ESTABLISHING JOB QUALIFICATIONS FOR FEDERAL LAW ENFORCEMENT POSITIONS

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ABSTRACT

This study aims to show that defining job qualifications for law enforcement officers will allow agencies to hire the best candidates, reduce turnover, reduce recruiting expenses, and save taxpayers money. In managing any workforce, knowing what standards to apply when making crucial employment decisions such as hiring, terminations, and promotions are imperative. A job analysis can help determine what qualifications are essential, if not critical, for successful job performance. This study analyzes U.S. federal law enforcement positions using data from the fiscal year (FY) 2018 to evaluate and establish job qualifications relevant for successful job performance for these positions. In the fiscal year 2018, the Federal Occupational Health (FOH), affiliated with the U.S. Department of Health and Human Services, administered a survey to evaluate job qualifications for federal law enforcement positions. The sample used for this research consisted of 117 current U.S. government federal law enforcement officials. The sample was chosen by a simple random sampling of the target population. The target population consisted of all U.S. government federal law enforcement officials who were officially on duty during F.Y. 2018.

Studies show business organizations that pursue job analysis and solidify job qualifications as a planning strategy for human resource management tend to have a competitive advantage over organizations that do not make such provisions. The positive return could result from potential decreases in recruitment and retention-related costs. It is expensive to recruit, train and effectively deploy federal law enforcement officials. The direct financial costs include the loss of the performance and expertise of the law enforcement officers and the recruitment, screening, and training costs of replacement hires. A conservative estimate of replacement cost of a law enforcement officer comes from Wilson et al. (2010), who calculated that the average cost of selecting, hiring, and training a new officer was about $59,000 ($104,885 in 2022 adjusted for inflation). The problem is exacerbated by a low retention rate caused by prematurely departing officials who realize they are not "cut out" for the lifestyle that a career in federal law enforcement entails. Further, conducting this research project in foreign locales to analyze the worldwide applicability of this study's results could potentially serve as a research extension to the current study.

Keywords: Job Analysis, Factor Analysis, Cronbach's Alpha, Law Enforcement, Survey Data.

INTRODUCTION

All central governments have some federal law enforcement positions. These agencies investigate crimes beyond the jurisdictions of local law enforcement positions and have national implications, such as acts of terrorism Johnson. Individuals interested in pursuing a career in

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federal law enforcement apply for the position in question, like any occupation. As with any other profession, individuals interested in pursuing a law enforcement career at the federal level must possess a specific skill set. However, since all law enforcement positions in any country at any level often involve extreme physical exertion and dealing with unsavory characters, individuals interested in pursuing a law enforcement career must meet rigorous physical and medical standards (Prien, 2004).

In the United States, entry into federal law enforcement positions is highly competitive, with thousands of applicants for a small handful of jobs. The H.R. departments of the various law enforcement agencies have the immense responsibility of sifting through a multitude of applications and selecting a small fraction of the applicants who can advance further in the application process (Brannick et al., 2002).

When examining applications, H.R. departments rely on standards established over an extended period based on various factors and on-the-job experiences of individuals in such positions. However, these job qualifications are not necessarily "*etched in stone*" and are periodically reviewed and revised as needed. These revisions are generally the result of feedback received from individuals, in the position in question, in the form of survey data or focus group sessions (Wood, 2017).

In fiscal year (F.Y.) 2018, which constitutes the period from October 1, 2017, to September 30, 2018, Federal Occupational Health (FOH), an organization affiliated with the U.S. Department of Health and Human Services, administered a survey to evaluate job qualifications for federal law enforcement positions. The project was initiated at the request of certain agencies within the U.S. federal bureaucracy. The purpose of this study is to analyze the survey data statistically. Hence, the research objective can formally be stated as follows:

To analyze and evaluate job qualifications for federal law enforcement positions and the resulting financial implications

LITERATURE REVIEW

This study aims to show that defining job qualifications for law enforcement officers will allow agencies to hire the best candidates, reduce turnover, reduce recruiting expenses, and save taxpayers money. Within law enforcement, agencies spend a lot of resources on recruiting to attract a diversity of qualified applicants (Doerner, 1995). Investing in qualified personnel within law enforcement also requires adequate screening and training of potential police officers (McElroy et al., 2005). Employee turnover leads to high costs for agencies. The direct financial costs include the loss of the performance and expertise of the law enforcement officers and the recruitment, screening, and training costs of replacement hires (Evans et al., 2000; Weisberg & Kirschenbaum, 1991). Recruiting and hiring costs are much higher for police agencies than for any other type of organizations (Wareham et al., 2015). Although data on the actual costs of replacing law enforcement officers is limited, at the low end, Harris & Baldwin (1999) estimated that in 1999, it cost about $14,300 to replace a single officer (adjusting for inflation, that figure would be $25,420 in 2022). At the high end, Frost (2006) estimated that in 2003, it cost about $100,000 to train an officer in Los Angeles and about $250,000 to hire and train a new law enforcement officer for the U.S. Government ($177,773 and $444,434 respectively in 2022 adjusted for inflation). A more typical estimate comes from Wilson et al. (2010), who calculated that the average cost of selecting, hiring, and training a new officer was about $59,000 ($104,885 in 2022 adjusted for inflation).

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In addition, finding qualified applicants for law enforcement positions is challenging because many applicants are eliminated through the costly and time-consuming screening process, which includes various tests, interviews, and background investigations (National Institute of Justice, 2004). Due to heightened operating costs, organizational leaders are forced to examine the costs of doing business and additional ways to reduce those costs (King, 2015). Many agencies fail to see the need to invest in their human capital (De Paola & Scoppa, 2007). According to Sackett & Laczo (2003), proper human resource management practice positively affects organizational performance. Anyakoha (2019) studies how business organizations that pursue job analysis and solidify job qualifications as a planning strategy for human resource management tend to have a competitive advantage over organizations that do not make such provisions. Osibanjo et al. (2012) opined that job analysis information and procedures have effectively been used to provide information about jobs and also characteristics for jobs, thus helping recruiters to know the features they are looking out for in prospective employees and also for job seekers to ascertain if they are qualified for the job that they seek. In another related study, Wilson (2004) also mentioned that it is vital to periodically administer surveys to ensure that workers are continually motivated and improve in their work environment and that measures be taken to improve upon identified deficiencies.

The Human Capital Theory of job analysis postulates that workers within an organization may be used interchangeably and that workers bring a tangible asset to an organization through their learned skills, innate talent, and relationships (Schneider & Konz, 1999). This theory thus views the individual worker as an asset or a liability to the organization. Therefore, business firms must employ individuals with the aptitudes and capabilities of the job description and who meet proper job qualifications. Job analysis is vital to achieving a business firm's strategic plans and objectives. According to Anyim et al. (2011), job qualifications help identify key employee competencies required in different positions and training needs to be met, thus consistently equipping workers with the skills necessary for doing the job effectively.

Despite the increased importance of job qualifications, there has not been enough empirical research done on this topical area (Anyakoha, 2019). Specifically, prior studies have not nailed down specific job qualifications desirable for law enforcement positions or the resulting financial implications; the current study endeavors to fill this gap in the literature.

RESEARCH DESIGN

This section of the paper discusses the research design utilized to obtain the study's results. This section is divided into three subsections: Sampling, Descriptive Statistics, and Reliability and Validity of Job Qualifications, respectively.

Sampling

The sample used for this research consisted of 117 current U.S. government federal law enforcement officials. The sample was selected by a simple random sampling of the target population. The target population consisted of all U.S. government federal law enforcement officials who were officially on duty during F.Y. 2018.

F.Y. 2018 was selected since it is the most recent F.Y. for which data was available. The survey that constituted the dataset for this study is not conducted annually. Before F.Y. 2018, it was previously administered during F.Y. 2013 and has not been administered since the onset of the pandemic.

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The survey instrument for the job analysis was developed to evaluate the physical and mental job requirements for federal law enforcement positions. The survey used in this study was constructed using a standard survey that has been used previously for such purposes. The job qualifications categories and related questions were developed by subject matter experts and are commonly accepted to be relevant to federal law enforcement positions. The standardized survey was then adapted to fit the current research project.

The survey instrument consisted of 100 job qualifications questions in the following seven categories: work schedule, work environment, weapons/defensive tactics, senses, vision, hearing, and musculoskeletal/cardiovascular. Each category contains a set of requirements conceptualized as related to the category. These were the key questions that formed the basis for much of the analysis in this manuscript. The number of questions per category varies from a minimum of eight for work schedules and a maximum of twenty-four for musculoskeletal/cardiovascular.

The response set was constructed using a Likert scale, a widely used approach for survey research. The respondents had to answer the survey questions on a scale of 1 (strongly disagree) to 5 (strongly agree) based on their degree of agreement with the question. Responses 2 to 4 were: disagree, neutral, and agree, respectively.

In addition to the key job qualifications questions, the survey also attempted to shed light on the lifestyle of federal law enforcement officials. Nine questions were designed to ascertain whether or not the target population led healthy lifestyles. Smoking habits, amount of exercise, alcohol consumption, cholesterol, and blood pressure were some of the issues covered in these questions. The survey also asked the respondents to provide information on seven demographic questions; standard demographic items such as age, gender, and ethnicity were in this set of questions.

No survey instrument can cover all the relevant issues. As is customary when employing this research design, the last question was open-ended. Respondents could address any issue they felt the researchers needed to have and were not covered by the questionnaire. In this question, respondents were also free to discuss their views of the questionnaire in general.

Survey Monkey was used to administer the survey online. The survey instrument did not allow respondents to skip a question. In other words, a respondent could not proceed to a question until the previous question had been answered. After completing the survey, the respondent had to submit it electronically. As mentioned previously, a total of 117 individuals completed the survey.

After the surveys were submitted, they were coded into a format necessary for statistical analysis. The survey results, which constituted the data for this study, were then imported into SPSS (Statistical Package for the Social Sciences). The survey results are based on analyzing this dataset using statistical applications in SPSS.

Descriptive Statistics

There are two components to the methodology used in this study. The first component, descriptive statistics, provides information on the distribution of values for each question in the survey. The second component involves statistics, which analyzes the reliability and validity of the job qualifications data (questions 1 to 100). Descriptive statistics is one of the most basic statistical tools. Many research studies start with descriptive statistics before conducting more sophisticated statistical analyses. Descriptive statistics include the mean, median, mode, and standard deviation. The mean and mode were computed for the present study for each question.

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In addition to the mean and mode for each question, the overall mean for each category was computed, which gives the average response for a specific category when all the questions in that category are compiled together. Finally, the overall mean was calculated across all 100 key job qualification questions, which yields the average response for all the questions in the survey.

Reliability and Validity of Job Qualifications

Several techniques were used to analyze the job qualifications data (questions 1-100). Reliability involves assessing data accuracy through an analysis of various dimensions of reliability, such as stability, equivalence, and internal consistency. The relevant dimension for this analysis is internal consistency which represents the extent to which the various questions are related. Reliability is analyzed using Cronbach's alpha statistic. In the remainder of this manuscript, Cronbach's alpha measures how well a set of variables (questions) measure a single underlying construct (a job qualification category). The calculation of alpha is based on inter-item correlations. The higher the average inter-item correlation, the higher the value of Cronbach's alpha. An alpha value of .80 or higher is considered an acceptable measure of internal consistency in most applications and is the benchmark used in this study (Taber, 2018).

Factor analysis was used to analyze the validity of the job qualifications data. It is especially relevant when there are many variables (questions) to contend with, as in the case of the present study. Factor analysis is used to identify the variables that best represent the factor. A factor (one of the job qualifications categories) is a condensed statement of the relationship between a set of variables. When setting up the factor analysis for this study, the seven categories that constituted questions 1-100 were treated as the seven factors.

Factor loadings are the correlation between each variable (question) and the factor. Questions with a high factor loading were considered closely associated with a given factor, and those with a low factor loading were deemed weakly associated with the factor. A common practice is to use a factor loading of .6 or higher to indicate a high loading and .3 or higher to indicate a moderately high loading (Watkins, 2018).

A threshold factor loading of .6 or higher is the convention used in this manuscript. For example, the first factor (work schedule) has eight questions. If questions 3, 4, and 7 had a factor loading above 0.6 and the rest had a factor loading less than 0.6, then the content covered by questions 3,4, and 7 would be considered the most important as far as work schedule is concerned. This procedure was repeated for the remaining six factors (job qualification categories).

As mentioned previously, each of the job qualifications categories represents a factor. However, some of the categories are either too broadly defined or have too many questions within that category. Hence, on the survey, some job qualifications categories were divided into multiple factors, with some category questions pertaining to each.

This section of the manuscript described the methodology employed in this research project. The results of deploying the methodology mentioned above are described in the succeeding section.

RESEARCH RESULTS

This section is divided into three parts. The first part summarizes demographic data about the 117 respondents. The second section provides descriptive and factor analysis statistics for questions 1-100 on job requirements. The final section presents the results for the healthy

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lifestyle items, which represent questions 110-116. Towards the end of the survey, the open-ended question did not yield any insightful results and is not included in this manuscript.

Demographic data are located below in Table 1. Out of 117 respondents, 80 are male. Of the total respondents, 69 are Caucasian, 16 are African American, 10 are Asian, 7 are Hispanic, and 2 are Native American. Thirteen respondents chose the *"other"* category. Most (79) respondents have a bachelor's degree, 32 possess a master's, and 5 have doctorate degrees. One respondent only has an associate's degree. These results indicate that most U.S. government federal law enforcement agents are male, Caucasian, and possess a college degree. The average age of the 117 respondents is 40.85 years. The mean number of years in their current position is 4.44 years, and they have, on average, 13.85 years of experience in law enforcement.

Table 1
MEAN AND FREQUENCY FOR DEMOGRAPHIC DATA (QUESTIONS 110-116)

Gender	Frequency	Ethnicity	Frequency	Education	Frequency
Male	80	African American	16	Associate	1
Female	37	Asian	10	Bachelor's	79
		Caucasian	69	Master's	32
		Hispanic	7	Doctorate	5
		Native American	2		
		Other	13		
Mean age of respondents: 40.85					
Mean number of years in current job: 4.44					
Mean number of years in law enforcement: 13.85					

Work Schedule

Table 2 below shows the results for this job qualification category. This area covers the first eight questions on the survey. The means for these eight questions ranged from a minimum of 3.69 to a maximum of 4.45. There is the most robust agreement with the question about working extended hours. There is the least agreement for question 5 (sudden detail to different geographic areas) and question 8 (working over holidays and weekends). Although these questions have the lowest means, they still lean closer towards agreement than disagreement.

The modes for questions 1-8 range from 4 to 5. Five questions have a mode of 4, and three questions have a mode of 5. Hence, *"agree"* and *"strongly agree"* have the highest frequency across the 117 respondents. The overall mean for the first eight questions is 4.08, between *"agree"* and *"strongly agree.*" These results indicate a moderate agreement with the issues covered by questions 1-8. Regarding reliability, the alpha statistic has a value of 0.9138, showing high internal consistency among the 8 questions.

The factor analysis results indicate that each of the eight questions supports the single underlying factor of the Work Schedule. Factor loadings range from 0.669 to 0.833. The question with the highest factor loading is *"work under stringent guidelines."* The question with the lowest factor loading is work involving delayed or missed meals. All factor loadings exceed .6, indicating that all eight questions are strongly related to the Work Schedule factor Table 2.

Table 2
MEAN, MODE, AND FACTOR LOADINGS FOR WORK SCHEDULE QUESTIONS

Question	Factor Loading	Mean	Mode
1 – Work extended hours	0.799	4.45	5
2 – Extensive travel	0.792	4.16	5

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3 – Shift work	0.752	3.97	4
4 – Work involves missed meals	0.669	4.11	4
5 – Sudden delay	0.794	3.70	5
6 – Stringent timelines	0.833	4.09	4
7 – Tightly scheduled meetings	0.695	3.89	4
8 – Work over holidays/weekends	0.790	3.69	4

Work Environment

Table 3 shows the results for this job qualification category. The modes for questions 9-24 range from 3 to 5. Three questions have a mode of 3, eleven questions have a mode of 4, and two questions have a mode of 5. Hence *"agree"* has the highest frequency of responses.

The overall mean for questions 9-24 is 3.76. Although the results tend to lean towards an agreement, there is less agreement with the issues covered by questions 9-24 as opposed to questions 1-8. The alpha statistic has a value of .9298, which indicates high internal consistency among the 16 questions.

Since work environment is a loosely used term that covers a wide range of issues, three factors are deemed relevant. These three factors are physical activity, law enforcement, and mental stress. All three factors are shown in separate columns in Table 3.

The factor analysis results indicate that 12 of the 16 questions support the three underlying factors for the Work Environment. The first factor has six job qualification questions (9, 10, 11, 15, 19, and 20) with a factor loading greater than .6. Based on the content of the questions, the first factor is titled Physical Activity.

The second factor includes four job qualification questions (12, 21, 22, and 23) with factor loadings greater than .6. Since the standards relate to detaining or questioning individuals, the second factor is titled Law Enforcement.

The final factor has two job qualification questions (16 and 18) with factor loadings greater than .6. The two questions deal with the mental pressures of federal law enforcement positions. Accordingly, the third factor is titled Mental Stress.

Four questions (13, 14, 17, and 24) have factor loadings less than .6. Therefore, these questions are weak indicators of the three underlying factors that support the Work Environment.

Table 3
MEAN, MODE, AND FACTOR LOADINGS FOR WORK ENVIRONMENT QUESTIONS (THREE FACTORS)

Question	Physical Activity	Law Enforcement	Mental Stress	Mean	Mode
9 – Work in tight spaces	0.748	0.246	0.269	3.36	4
10 – Use respirator or gas mask	0.737	0.151	0.209	3.10	3
11 – Withstand exposure to allergens	0.706	0.057	0.304	3.00	3
12 – Use bodily armor	0.249	0.611	0.186	4.41	5
13 – Perform pursuit or evasive driving	0.484	0.581	0.081	3.81	4
14 – Work outside in adverse conditions	0.519	0.362	0.352	3.95	4
15 – Perform projects requiring outside work	0.651	0.371	0.217	3.74	4
16 – Job tasks with multiple work sites	0.234	0.256	0.715	4.21	4
17 – Work alone	0.151	0.123	0.494	4.21	4
18 - Work in setting involving high tension	0.182	0.165	0.897	4.18	4
19 – Work at heights > 15 feet	0.677	0.357	0.116	3.21	3
20 – Walk or run on uneven surfaces	0.604	0.529	0.256	3.74	4
21 – Conduct vehicle stops	0.575	0.604	0.064	3.36	4

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22 – Stop, question, detain individuals	0.167	0.804	0.300	4.16	5
23 – Encounter individuals with angry attitude	0.153	0.724	0.350	4.19	4
24 – Provide protection services	0.533	0.494	0.01	3.55	4

Weapons/Defensive Tactics

Table 4 shows the results for this job qualification category. The weapons/defensive tactics section covers questions 25-36. The means for these questions range from a minimum of 3.75 to a maximum of 4.58. The strongest agreement is with question 32 (use weapons such as a handgun). There is the least agreement with question 26 (use shoulder weapons). The highest and the lowest level of agreement pertain to the use of weapons.

The mode for questions 25-36 is 5 across the board. Therefore, "strongly agree" has the highest frequency of responses across the 117 respondents for all twelve questions covered in this area. The overall mean for questions 25-36 is 4.39. There appears to be a more robust agreement with the issues covered by this category compared to the remaining six areas. The alpha statistic has a value of 0.9465, which indicates high internal consistency among the 12 questions.

The factor analysis results indicate that eleven questions support the single underlying factor of Weapons/Defensive Tactics. The factor loadings for the eleven questions range from .674 to .911. The highest factor loading pertains to confiscating a weapon from a subject during pat-down. The lowest factor loading pertains to arresting/apprehending a suspect without law enforcement support. Question 26, use of shoulder weapons, has a factor loading of less the .6 and therefore is a weak indicator of the Weapons/Defensive Tactics factor.

Table 4
MEAN, MODE, AND FACTOR LOADINGS FOR WEAPONS/DEFENSIVE TACTICS QUESTIONS (ONE FACTOR)

Question	Factor Loading	Mean	Mode
25 – Use firearm	0.748	4.53	5
26 – Use shoulder weapons	0.570	3.75	5
27 – Use non-lethal defensive tactics	0.733	4.42	5
28 – Apply handcuffs	0.911	4.53	5
29 – Handle resisting suspect	0.910	4.44	5
30 – Arrest/apprehend suspect	0.674	4.08	5
31 – Place handcuffs on resisting subject	0.905	4.42	5
32 – Use weapon (handgun)	0.870	4.58	5
33 – Make sudden shoot/no shoot decision	0.871	4.47	5
34 – Correctly identify bad guy/good guy	0.855	4.44	5
35 – Load weapon under urgent/emergent conditions	0.832	4.49	5
36 – Confiscate weapon from subject during pat down	0.917	4.50	5

Senses

Table 5 shows the results for this job qualification category. This section covers questions 37-44. The means for these questions range from a minimum of 3.26 to a maximum of 4.02. There is the strongest agreement with question 40 (the ability to identify critical objects such as guns in the dark by touch). There is the least agreement with question 44 (ability to appreciate differences in taste). The modes for questions 37-44 range from 3 to 4. All but the last question have a mode of 4. The overall mean for questions 37-44 is 3.66. The alpha statistic has a value of .9490, which indicates high internal consistency among the 12 questions.

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The factor analysis results indicate that each of the eight questions supports the single underlying factor of Senses. Factor loadings range from 0.734 to 0.916. The job qualification with the highest factor loading is the ability to sense temperature changes. The job qualification with the lowest factor loading is the ability to identify a critical object (gun, baton) in the dark by touch. All factor loadings exceed .6, which means that each is strongly related to the Senses factor.

Table 5
MEAN, MODE, AND FACTOR LOADINGS FOR SENSES QUESTIONS (ONE FACTOR)

Question	Factor Loading	Mean	Mode
37 – Use sense of smell	0.817	3.81	4
38 – Detecting important odors	0.838	3.52	4
39 – Identify alcohol/illicit drugs from residual odors	0.864	3.62	4
40 – Ability to identify critical object in dark by touch	0.734	4.02	4
41 – Ability to sense temperature changes	0.916	3.58	4
42 – Ability to feel vibration	0.887	3.61	4
43 – Ability to maintain balance in dark	0.797	3.86	4
44 – Ability to appreciate differences in taste	0.840	3.26	3

Vision

Table 6 shows the results for this job qualification category. This section covers questions 45-67. The means for these questions range from a minimum of 2.84 to a maximum of 4.44. There is the strongest agreement with questions 47 (explore house during a search warrant) and 51 (quickly identify and report perpetrator pulling weapon). There is the least agreement with questions 64 (use weapon without use of corrective lenses) and 67 (escape from perpetrator after losing corrective lenses).

The modes for questions 45-67 range from 3-5. The four questions with a mode of 3 all pertain to the use of corrective lenses. Seventeen questions have a mode of 4, and two questions have a mode of 5. The overall mean for questions 45-67 is 3.98. There is a moderate level of agreement in this category. The alpha statistic has a value of .9573, which indicates high internal consistency among the 23 questions.

The factor analysis results indicate that 21 of the 23 questions support two underlying vision factors. The first factor has 18 job requirements (questions 45-51and 53-63) with a factor loading greater than .6. The first factor is Visual Identification. The second factor has three job requirements (questions 64, 65, and 66) with factor loadings greater than .6. These standards relate to corrective lenses in the context of using weapons, driving, or identifying suspects, and, as a result, the second factor is titled Corrective Lenses. Two questions (52 and 67) have factor loadings less than .6 and are weak indicators of the two underlying factors that support vision.

Table 6
MEAN, MODE, AND FACTOR LOADINGS FOR VISION QUESTIONS (TWO FACTORS)

Question	Visual Identification	Corrective Lenses	Mean	Mode
45 – Use vision to identify suspects at distance	0.733	0.224	4.15	4
46 – Visually inspect crime scene	0.789	0.102	4.28	4
47 – Explore house during search warrant	0.644	0.079	4.44	5
48 – Observe/control crowd during surveillance	0.709	0.202	4.03	4
49 – I.D. suspect in lineup or photo	0.779	0.252	4.21	4
50 – I.D. license plate/vehicle	0.848	0.127	4.32	4

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51 – Quickly identify perpetrator pulling weapon	0.776	0.197	4.44	5
52 – Distinguish basic colors	0.562	0.261	4.02	4
53 – Load weapon in reduced light	0.814	0.232	4.37	4
54 – Read map	0.791	0.057	4.32	4
55 – Search suspect	0.872	0.116	4.38	4
56 – Read fine detail in correspondence	0.666	0.331	4.08	4
57 – Read gauges, dials, etc.	0.716	0.334	4.00	4
58 – Estimate distance between cars	0.743	0.355	3.97	4
59 – Estimate distance from perpetrator	0.828	0.261	4.17	4
60 – Aim at distant target	0.723	0.298	4.14	4
61 – Handle situation where two or more perpetrators are involved	0.791	0.224	4.15	4
62 – Perform surveillance of crowds	0.674	0.370	3.74	4
63 – Perform surveillance from car	0.838	0.234	4.16	4
64 – Use weapons with use of corrective lenses	0.211	0.757	2.84	3
65 – Drive government vehicle after losing lenses	0.097	0.899	2.97	3
66 – I.D. suspect after removing corrective lenses	0.161	0.936	2.85	3
67 – Escape from perpetrator after losing lenses	0.501	0.539	3.46	3

Hearing

Table 7 shows the results for this job qualification category. This section covers questions 68-76. The means for these questions range from a minimum of 3.84 to a maximum of 4.38. The strongest agreement is with question 68 (understand and communicate effectively during private conversation). There is the least agreement with questions 70 (understand quiet speaker with moderate background noise) and 71 (understand verbal warning with loud background noise).

The mode for questions 68-76 is 4 for every question, which indicates that "*agree*" has the highest frequency of responses. The overall mean for questions 68-76 is 3.98. There appears to be a moderate level of agreement with the issues covered by this category. Regarding reliability, the alpha statistic has a value of 0.9553, indicating high internal consistency among the nine questions.

The factor analysis results indicate that each of the nine questions supports the single underlying factor of hearing. Factor loadings range from 0.625 to 0.916. The job qualification with the highest factor loading is to monitor radio transmission with mild background noise. The qualification with the lowest factor loading is understanding and communicating effectively during a private conversation. All factor loadings exceed .6, meaning that each question is strongly related to the Hearing factor.

Table 7
MEAN, MODE, AND FACTOR LOADINGS FOR HEARING QUESTIONS (ONE FACTOR)

Question	Factor Loading	Mean	Mode
68 – Understand and communicate effectively	0.625	4.38	4
69 – Understand human speech when whispered	0.801	3.91	4
70 – Understand quiet speaker with moderate background noise	0.896	3.84	4
71 - Understand verbal warning with loud background noise	0.868	3.85	4
72 – Understand phone conversation with mild background noise	0.898	3.97	4
73 – Monitor radio transmission with mild background noise	0.916	3.93	4
74 – Communicate effectively with other law enforcement when you cannot visually i.d. them	0.856	4.04	4
75 – Distinguish types of sound	0.798	4.03	4

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Musculoskeletal/Cardiovascular

Table 8 shows the results for this job qualification category. This section covers questions 77-100. The means for these questions range from a minimum of 3.24 to a maximum of 4.19. There is the strongest agreement with questions 77 (physically subdue resisting suspect) and 96 (maintain clear mental status, unaffected by medication/recreational drugs). There is the least agreement with question 85 (pull yourself up a 5-foot wall while pursuing the suspect).

The modes for questions 77-100 range from 3 to 5. Two questions have a mode of 3, twenty-one questions have a mode of 4, and one question has a mode of 5. The overall mean for questions 77-100 is 3.7. The alpha statistic has a value of 0.9703, which indicates high internal consistency among the 24 questions.

The factor analysis results indicate that 21 of the 24 questions support two underlying factors. The first factor has 13 job qualifications (questions 79-92) with a factor loading greater than .6. All questions relate to physical strength, running, or agility. Therefore, the first factor is titled Physical Characteristics. The second factor has eight job characteristics (questions 93-100) with factor loadings greater than .6. The questions relate to emotional and personality characteristics; therefore, the second factor is titled Mental Characteristics. Three questions (77, 78, and 89) have factor loadings less than .6. Hence, these questions are weak indicators of the two underlying factors that support this section.

Table 8
MEAN, MODE, AND FACTOR LOADINGS FOR MUSCULOSKELETAL/CARDIOVASCULAR QUESTIONS (TWO FACTORS)

Question	Physical	Mental	Mean	Mode
77 – Physically subdue resisting suspect	0.529	0.553	4.18	4
78 – Engage in fisticuffs to defend against aggression	0.591	0.352	3.95	4
79 – Physically control unruly crowd	0.707	0.199	3.28	3
80 – Pursue suspect at maximum speed for 100 yards	0.839	0.318	3.49	4
81 – Subdue unruly suspect after 50 yard chase	0.808	0.345	3.60	4
82 – Rise quickly from reclining position	0.723	0.428	3.74	4
83 – Lift/carry heavy object > 100 pounds 10 yards	0.783	0.382	3.31	4
84 – Push/pull heavy object >100 pounds 30 yards	0.740	0.401	3.28	3
85 – Pull yourself up to 5 feet wall height	0.873	0.264	3.24	4
86 – Run up 5 flights of stairs to escape or pursue suspect	0.868	0.292	3.46	4
87 – Use body force to gain entrance to apartment	0.771	0.183	3.27	4
88 – Ascend 2 flights of stairs and use ram to gain entrance	0.842	0.240	3.36	4
89 – Sit or stand in on position for extended period (5hours)	0.486	0.319	3.52	4
90 – Use upper body strength to pull body weight up to height	0.852	0.272	3.37	4
91 – Use physical agility to navigate circuitous path	0.837	0.280	3.56	4
92 – Use lower body strength to squat, jump or sprint short distances (20 yards)	0.831	0.380	3.58	4
93 – Use cognitive skills to learn new techniques rapidly	0.403	0.705	3.99	4
94 – Maintain mental acuity to respond to sudden change	0.348	0.846	4.10	4
95 – Maintain calm effect to control tense situation	0.337	0.812	4.15	4
96 – Maintain clear mental status	0.239	0.703	4.19	5
97 – Exhibit consistent emotional tone to best address critical tasking	0.304	0.804	4.06	4
98 – Maintain affable and supportive attitude to interact productively with coworkers	0.240	0.810	4.10	4
99 – Maintain good sense of humor	0.192	0.713	4.01	4
100 – Maintain good sleep habits	0.241	0.794	3.89	4

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Lifestyle

Table 9 shows the results for this category. Out of 117 respondents, 6 are current smokers, 6 have a history of smoking within one year, 95 respondents exercise three or more times per week, 12 respondents drink alcoholic beverages three or more times per week, and 39 respondents claim to know that their cholesterol level is greater than 200, 7 respondents know that their blood pressure (B.P.) is more than 140/90 and 110 respondents wear their seatbelts regularly. One can conclude that most federal law enforcement agents lead relatively healthy lifestyles. However, it is difficult to draw firm conclusions about issues such as cholesterol and blood pressure since many federal law enforcement officials, and people in general, may not be aware of these issues.

Table 9
FREQUENCY DATA FOR HEALTHY LIFESTYLE (QUESTIONS 101 – 109)

Healthy Lifestyle Question	Yes	No
Current smoker	6	111
History of smoking	6	111
Exercise (3 or more times a week)	95	22
Exercise (less than thrice a week)	25	92
Drinking (3 or more times a week)	12	105
Drinking (less than thrice a week)	76	41
Cholesterol known to be more than 200	39	78
B.P. known to be more than 140/90	7	110
Wears seat belts habitually	110	7

Summary of Factors

Summary statistics are in Table 10. The overall average for questions 1-100 is 3.90. This average indicates that when all 100 questions are taken together, there is a moderately high level of agreement about the issues covered by these questions. In each category, federal law enforcement officials show the highest level of agreement with questions related to Work Schedules and Weapons/Defensive Tactics. Vision and hearing are the following categories with the highest level of agreement, each having a mean value of 3.98. The lowest level of agreement is with the Work Environment, Senses, and Musculoskeletal/Cardiovascular categories, with mean values of 3.76, 3.66, and 3.70, respectively.

Factor analysis confirmed that the set of job qualification questions for Work Schedule, Weapons/Defensive Tactics, Senses, and Hearing categories are unidimensional and have only one underlying factor. The factor analysis for Work Environment, Vision, and Musculoskeletal/Cardiovascular confirmed the questions for each category represent multiple dimensions and have more than one factor.

The question content for each dimension was used to name the factors. The most intuitive split was Musculoskeletal/ Cardiovascular, in which the questions aligned perfectly with a Physical Characteristics factor and a Mental Characteristics factor. The Work Environment category is best represented by three factors: Physical Activity, Law Enforcement, and Mental Stress. Lastly, vision is best described by two factors: Visual Identification and Corrective Lenses. All the Work Schedule, Senses, and Hearing questions have factor loadings greater than .6 and are considered highly associated with the category. Out of the 100 job qualification questions on the survey instrument, ten have a factor loading of less than .6. Therefore, they are not considered significantly associated with the relevant factor.

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Table 10
SUMMARY FOR EACH JOB QUALIFICATION CATEGORY

Questions	Mean	Number of Factors	Questions with Low Factor Loadings
Section 1 – Work Schedule (Questions 1 – 8)	4.08	1	None
Section 2 – Work Environment (Questions 9 – 24)	3.76	3	13, 14, 17, 24
Section 3 – Weapons/Defensive Tactics (Questions 25 – 36)	4.39	1	26
Section 4 – Senses (Questions 37 – 44)	3.66	1	None
Section 5 – Vision (Questions 45 – 67)	3.98	2	52, 67
Section 6 – Hearing (Questions 68 – 76)	3.98	1	None
Section 7 – Musculoskeletal/Cardiovascular (Questions 77 – 100)	3.70	2	77, 78, 89
All categories combined (Questions 1 – 100)	3.90	11	

FINANCIAL IMPLICATIONS

This manuscript is applicable not only from a Human Resources (H.R.) perspective but also from a financial perspective. Numerous financial implications are associated with evaluating and potentially revising established job qualifications for federal law enforcement positions. This section of the manuscript will discuss the financial implications of this research project.

McFeely & Wigert (2019) show that U.S. business firms lose approximately one trillion dollars every year due to employee turnover, and the astounding part is most of it is self-inflicted. For an organization, annual overall turnover rate in the U.S. in 2017 was 26.3 percent, based on the (Bureau of Labor Statistics, 2022). The cost of replacing an individual employee can range from one-half to two times the employee's annual salary. For instance, a 100-person organization that provides an average salary of $50,000 could have turnover and replacement costs of approximately $660,000 to $2.6 million per year. This example of the private sector is equally valid in the public sector. *"You have to spend money to make money"* is a cliché that has withstood the test of time. The job qualifications evaluation initiative discussed in this manuscript is not exempt from the implications of this cliché.

This initiative entails a front-end cost to the U.S. federal government. These costs include survey deployment and analysis (Urbanek, 1997). Furthermore, survey participants were given paid time off (PTO) for participating in this study. The PTO was contingent upon them completing the surveys and returning them in a timely fashion. Hence, the PTO was designed to ensure that all 117 study participants completed the survey. The PTO constituted another front-end cost to the federal government.

A front-end cost can lead to a back-end return. In this case, those returns would come in the form of higher-quality employees who are likely to remain in federal law enforcement for a more extended period, if not their entire working lives. It is noteworthy that, just like in the corporate world, uncertainty is inherently present in any potential future return. However, the goal of the job qualifications evaluation initiative is that this project will yield a positive return for the federal government (Wood, 2017).

The positive return could result from potential decreases in recruitment and retention-related costs. It is expensive to recruit, train and effectively deploy federal law enforcement officials. The problem is exacerbated by a low retention rate caused by prematurely departing officials who realize they are not *"cut out"* for the lifestyle that a career in federal law enforcement entails (Wood, 2017).

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The issues addressed in the preceding paragraphs could be avoided by recruiting high-quality candidates in the first place. A candidate aptly qualified for any given position is more likely to remain in that position long-term than poorly qualified applicants (Sutanto et al., 2016). Hence, as stated earlier, the front-end cost (conducting this research project) could be offset by a back-end return (significant improvement in recruitment and retention). If this scenario plays out, as anticipated by the researcher, it will result in an overall positive return for the federal government.

It is possible, and perhaps even probable, especially in the short run, that this initiative will depress applications for federal law enforcement positions and may also decrease the morale of individuals already employed in federal law enforcement. In other words, there may be some concern among currently employed federal law enforcement officials that their jobs may be in jeopardy if they don't meet the job qualifications standards outlined in this research project. It may also "scare off" potential new applicants (Sutanto et al., 2016). However, the hope for the "end game" is that the federal government will be able to attract and retain high-quality law enforcement officials in the long run.

CONCLUSIONS

The purpose of this research project has been to evaluate job qualifications for federal law enforcement officials and highlight some of the related financial implications. U.S. federal law enforcement officials, on the federal payroll during F.Y. 2018, constituted the target population for this study. The research objective was analyzed by performing statistical analysis on survey data. Based on statistical tools, such as Factor Analysis and Cronbach's Alpha, desirable qualifications for federal law enforcement were established. Consistent with the research objective, some of the resulting financial implications were highlighted in the preceding section.

All research projects have limitations, and this study is no exception. One potential limitation of this study is that the participants were not anonymous. This lack of anonymity might have contaminated the results and could also explain the lack of meaningful responses to the *"additional comments"* portion of the survey instrument. However, the researcher had no control over the surveying process since FOH administered the surveys in cooperation with federal law enforcement agencies. The researcher only entered the picture when it came time for statistical analysis of the survey data.

This study has some real-world implications. H.R. officials tasked with recruitment and retention of federal law enforcement officials should consider the factors highlighted in this research project as part of the hiring and retention processes. Although this study focused exclusively on U.S. federal law enforcement agencies, the results have some worldwide applicability since many, if not most, countries have at least one federal law enforcement agency. One such example is MI6 in the United Kingdom. Hence, conducting this research project in foreign locales to analyze the worldwide applicability of this study's results could potentially serve as a research extension to the current study.

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