

CHDA CERTIFICATION EXAM SUCCESS FACTORS

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Headline: CHDA Certification Exam Success Factors

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Abstract

This study explored possible success factors for passing the Certified Health Data Analyst Administration (CHDA) certification exam. According to the American Health Information Management Association (AHIMA), in 2019, only 10 percent of first-time test-takers passed the CHDA exam. Literature review offered insight into factors related to passing certification exams. Sources included existing, relevant peer-reviewed, and published literature since 1990 within 87 educational and health/medicine databases and 62 other articles and journal databases available at the University of South Dakota library. A correlational design was used in the study. Data was retrieved from AHIMA, cleaned, and data analysis was completed using binary logistic regression analysis. The CHDA study results indicate that candidates between ages 30 and 49 are less likely to pass the exam than those ages 50 and above, and those candidates with a master's degree are more likely to pass the exam than those with an associate or bachelor's degree. This new information will help improve the exam pass rates, provide a foundation for CHDA exam research, and add new knowledge in the HIM professional body of research.

Keywords

certification exam success factors, certified health data analyst, health information management

Introduction

The purpose of this study is to identify success factors for passing the Certified Health Data Analyst Administration (CHDA) exam. The CHDA credential has been available for 10 years and is intended to communicate the ability to effectively analyze healthcare data.¹ It was developed to respond to the workforce needs of healthcare providers following the implementation of electronic health records (EHRs). Healthcare providers need to use large volumes of EHR data to make better decisions^{2,3} and are developing business intelligence departments to incorporate interactive dashboards and other data analytics reporting capabilities.⁴⁻⁷

Background

The healthcare data analyst role is pivotal in helping healthcare organizations use data in new ways (e.g., research).⁸⁻¹⁰ The analyst commonly works with interdisciplinary teams to solve problems using health information management (HIM) skills and familiarity with healthcare datasets. According to Spears,¹¹ "the qualities of an excellent data analyst should include core competencies such as

understanding relational databases; having knowledge of structured query language (SQL) and basic statistics; being able to tell the story of data through visualization techniques; understanding project management principles; and competencies including soft skills, such as curiosity, analytical thinking, flexibility, principled, passionate, and able to communicate effectively" (p. 36).

Literature Review

Predictors for passing certification HIM credentialing exams included cumulative grade point average (GPA), overall GPA, and course grades; while other disciplines studied additional factors of success, including completion of preparatory courses; age; grit; deliberately practicing; participating in a mentoring program; and GRE performance.¹²⁻²³

The conceptual theoretical model for this study reflected the four unique characteristics of the advanced practice certification exam test-taker (**Figure 1**): prior work experience, current work setting, prior credentials and prior learning.

The HIM advanced practice certification exam model framework depicts the primary success factors tested during the study to determine impact on passing the CHDA certification exam. With there being no prior studies on the CHDA exam, the research team thought best to start at the point of data collection, the application to sit for the exam, to create a foundation for future studies.

Methodology

The study design was quantitative with an ex post facto, correlational approach.²⁴ Data included 11 years of information that was collected from first-time test-takers on the American Health Information Management Association (AHIMA) CHDA certification exam from January 1, 2009, to December 31, 2019.

Data Collection

Upon approval by the University of South Dakota Institutional Review Board, the study began. Individual consent was not required for use of pre-existing, archival data. There were 1,032 first-time CHDA takers (January 1, 2009, through December 31, 2019) in the dataset. Cases with age 70 or greater were considered outliers by statistical and practical definition and were removed. Data from 214 cases were missing or unknown and were removed from the study during the data-cleaning process, with 818 cases used for data analysis.

Predictor variables included age, (current) highest education, prior credentials, (current) work setting, and (current) job category. The criterion variable was a dichotomous pass-or-fail result on the certification exam, which was also collected from AHIMA. Age was segmented into the following response categories: Less than 20; 20-29; 30-39; 40-49; and over 50.²⁵

Data Analysis

Data analysis was carried out using the SPSS Grad Pack 26.0.²⁶⁻²⁸ Categorical variables were automatically re-coded to allow comparisons across all variables in the study in one block. Pass rates for each year were validated by comparison of published AHIMA reports. Descriptive statistics were created for each variable to include percent, valid and cumulative percent of responses for all years of combined data after data was cleaned. Data analysis continued with binary logistic regression.^{60,61} Regression coefficient estimates, model fit, confidence intervals, and odds ratios were calculated. The level of significance (α) for the study was set to 0.05; the power to detect an effect at 0.80, and a medium effect size of 0.5 was chosen prior to receipt of data. G*Power analysis showed that a sample of 721 students was required for the study to achieve the desired effect.^{29,30}

Stepwise regression models were calculated to ensure the best fitting model was selected. The categorical study variables with multiple response levels were automatically recoded by SPSS26 to allow comparison across the study variables in one block. The Omnibus Test of Model Coefficients and Hosmer and Lemeshow Test results were compared. Classification tables were reviewed for all three models. The standard model indicated the highest predicted percentage correct (60.4 percent) for passing the exam with an overall correct prediction rate of 63.7 percent. The Hosmer and Lemeshow Test values for the standard regression model showed a good model fit, $\chi^2(8, N = 818) = 4.369, p = .822$. The -2 Log likelihood (1020.471^a), Cox & Snell R-Square (.125), and Nagelkerke R-Square (.167) results indicated consistency with the standard model selection. Hypothesis testing of individual predictors followed model selection.

Results

Recall that we posited a relationship between first-time test-taker age and passing the CHDA certification exam. Logistic regression results are depicted in [Table 1](#) and indicate that age category 30-39 results and age category 40-49 results were inversely significant. Individuals 30-49 years old were less likely to pass the exam compared with test-takers aged 50 and above.

Our second question considered the relationship between first-time test-taker highest educational degree and passing the CHDA certification exam. Results are shown in [Table 2](#) and indicated statistically significant inverse relationships for those who had a master's degree. Test-takers with a master's degree were more likely to pass the exam than those with an associate or baccalaureate degree.

The third question considered the relationship between first-time test-taker work setting and passing the CHDA certification exam. Analysis showed no relationship between passing the CHDA exam and the work setting of the test-takers compared to those who were unemployed (shown in [Table 3](#)). Those who were unemployed in the study were as likely to pass the exam as those working in any of the job settings evaluated.

The fourth question concerned the relationship between first-time test-taker additional credentials and passing the CHDA certification exam. The regression results for AHIMA credentials (CCA, CCS, CCS-P, CDIP, RHIT, CHPS, RHIA, CHTS-TS, CHTS-CP, CHTS-TR, CHTS-PW, CHTS-IM, CHTS-IS, and CPHI) as predictors of first-time success showed inversely significant results for participants who had the CCA credential. The results are shown in [Table 4](#). Having an entry-level or advanced practice HIM credential did not increase the likelihood of passing the CHDA exam. Having the CCA credential decreased the likelihood of passing the exam.

Serendipitous Results

Job level category data was analyzed (see [Table 5](#)) to determine if there was a relationship between first-time test-taker current job level and passing the CHDA certification exam. Binary logistic regression showed no relationship to passing the CHDA exam. The job titles evaluated in the study, in comparison to those who were unemployed, showed that having a job in the HIM field did not increase the likelihood of passing the exam.

The probability of passing the CHDA exam was calculated based on the odds ratio and is shown in [Table 6](#) for comparison with actual results. Based on the model accuracy rate of 63.7 percent, the probability for passing the exam was higher than the test-takers actually experienced. The test-takers with a doctorate degree were expected to be more likely to pass the exam than those with a master's degree. Test-takers working in the HIM field were expected to be more likely to pass the exam than those who were unemployed. The test-takers with credentials including CCS, RHIA, CHTS-CP, CHTS-PW, CHTS-IS, and CPHI were expected to be more likely to pass the exam than the actual results experienced in the study.

Summary of Results

This study was conducted to identify success factors for passing the CHDA exam. In 2018, the pass rate for the CHDA certification exam was 26 percent. This study utilized a quantitative, ex post facto, correlational approach.³¹ Data included 11 years of information collected from first-time test-takers on the AHIMA CHDA certification exam from January 1, 2009, to December 31, 2019. The data was analyzed to discern factors for success on the CHDA exam.

While the amount of research conducted on the topic in the HIM field is limited, many disciplines have completed studies identifying factors for success consistent with HIM studies, including cumulative GPA; overall GPA; course grades; and completion of preparatory courses and frequent testing.³²⁻³⁴

Binomial logistic regression was used to explore the relationship between first-time examinee age, (current) highest educational degree, (current) work setting, and having additional credentials with passing the CHDA certification exam. Eligibility for the exam was modified at least one time during the years studied, with the associate degree having been removed from eligibility criteria by the

Commission on Certification for Health Informatics and Information Management (CCHIIM). Current job category data was included in the data received from AHIMA and was included in data analysis, as well as several additional other HIM credentials for which exams have been discontinued. Highest educational degree, work setting, job category, and credentials variables included test-taker current information rather than information on date of the exam since the member database is always available for updates by members. The age variable was re-calculated by the research team to reflect the age at exam testing. The exam has been modified throughout the time frame of the data used for the study.

Results indicated that candidates between ages 30 and 49 were less likely to pass the exam compared to those age 50 and above. Those with the highest level of an associate or bachelors' degree were less likely to pass the CHDA exam compared with those who held a master's degree or above. Candidates that earned a CCA credential also had lower chances of passing the exam. Candidates current job level did not have a significant relationship with passing the exam compared with those who were unemployed.

Summary

Years of experience data for first-time test-takers was unavailable and may have revealed important information about the necessary amount and type of experience required to pass the exam. Having only an associate degree or bachelor's degree appears to decrease the odds of passing the exam, indicating more education is required. There is question about the alignment of learning resources available to test-takers to learn exam content at the depth required on the exam.

The historically low pass rates on the CHDA exam may have limited the identification of statistically significant factors for exam success in this study. Fifty-four percent of first-time test-takers failed the exam during the 11-year study time frame. Higher pass rates may show statistically significant findings within the variables studied. Thus, a replication study including data with higher pass rates (70 percent) on the exam, consistent with AHIMA exam pass rates, may reveal additional predictors.

There is no prior research published on the CHDA exam, and a limited amount of research on HIM factors for success on credentialing exams that apply to an advance practice credentialing exam. Identified success factors important in passing exams for multiple disciplines included GPA, overall GPA, and having the experience of passing a critical exam prior to taking a certification exam. The CHDA exam is not directly associated with a specific educational degree or certificate program offered by universities, making the GPA and overall GPA variables irrelevant for this advanced practice credentialing exam.

As the pass rate on the exam increases, all aspects of the proposed conceptual framework model should be studied further for confirmation or modification and potential addition of other important factors. The study results confirmed that the exam is an advanced practice exam that requires a master's degree or above education level, confirming the prior learning component of the proposed

HIM advanced practice model is a significant indicator for passing the exam. The probability calculations for passing the exam indicate the advanced practice model is accurate in identifying key factors for passing the CHDA exam even though test-taker results were different in this study.

With the low pass rates, the eligibility criteria for the CHDA exam should be re-evaluated to assure alignment with the workplace skill needs. Realignment may include restricting the exam to those candidates who have a master's level education and above. An alternative strategy may be adjusting the exam questions and the psychometrics to provide those who meet current eligibility criteria with a higher likelihood of passing the exam. There is a need for additional support mechanisms by potential test-takers who are less than 50 years old or who have less education than a master's degree. Internship opportunities, mentoring by those performing the job duties of a healthcare data analyst, and additional or adjusted exam preparation materials may need to be incorporated to support the growth of the health data analyst skill set needed by the workplace.

Future research should include a study of the amount and type of work experience needed for the health data analyst role including a better understanding of the variety of work settings hiring these professionals. With the changing healthcare environment, it is likely that the skills of a healthcare data analyst have changed drastically since implementation of EHRs. The content outline and support materials need to be analyzed to determine alignment with the CHDA exam and workforce needs. Additional topics may include the following list:

1. Understanding the training tools and testing strategies utilized to successfully pass the exam.
2. Understanding whether internships or on-the-job training have an impact on passing an advanced practice exam.
3. Understanding the role, utilization, and impact of mentors.
4. Determining whether having non-AHIMA credentials can increase the likelihood of passing the exam.
5. Comparing jobs requiring the RHIA credential and health data analyst jobs to evaluate potential critical gaps in data analysis skills on the RHIA credentialing exam.
6. Studying other variables to assess and modify the advanced practice framework model.
7. Repeat the CHDA study in the future using data after 2019 to re-assess the exam pass rate predictions after adjustments to the exam and the psychometrics have been completed.

There appears to be a significant psychometric, cut score, or other issue evidenced by the extremely low pass rates on the CHDA exam that needs to be investigated further. The workforce is hiring health data analysts, so identifying the issue is critical to further the development of this credential. Ensuring alignment with the Registered Health Information Administrator (RHIA) exam data analytics content should ensure a foundation for skills development for passing the CHDA exam. The high probability that those individuals with the CCS credential and experience can pass the exam causes concern that the exam contains (or at one time contained) too much content focused on diagnosis coding and claims related data analysis questions rather than covering

analysis of the entire healthcare record dataset. There is a very small percentage of AHIMA members with an HI/HIM master's degree or a doctorate degree eligible for this exam. There is a gap between the exam eligibility criteria and the types of individuals that are able to pass the exam. It is important to expand the number of first-time test-takers to ensure it remains financially viable. While it is evident that experience is a requirement to pass the current exam, exactly how much remains unknown. A large portion of first-time test-takers included certified coders, Registered Health Information Technician (RHIT), and RHIA professionals, without success. Perhaps the content within those certification exams needs better alignment with the CHDA exam in order to prepare the foundation for advancement. Probability calculations show those with 50 percent or better probability for passing the exam have at least one of the following characteristics: experience in the HIM field; master's degree; doctorate degree; CCS credential; or an RHIA credential. Eligibility criteria should be modified to better align with candidates that have a predicted probability of 50 percent or better for passing the exam. The eligibility criteria recommended to be removed until the exam has been revised includes the following: RHIT with three years of healthcare data experience.

Limitations

A limitation of the study may be unknown confounds. A future approach may include a qualitative component to identify these confounds. A second limitation may be the amount of time a test-taker has worked in a specific type of current work setting prior to the exam. A third limitation is the use of an ex post facto, correlational design through which causal relationships cannot be firmly asserted.³⁵⁻³⁸ A strategy for future study may be to utilize an experimental or mixed-methods design. However, ethical considerations may make this difficult, if not impossible. Researcher bias may impact the study by selecting six ex post facto variables from the first-time CHDA application without incorporating a qualitative component to the study to identify additional confounding success factors. An additional limitation in the study is receiving test-taker data updated by AHIMA members rather than data collected at the time of the first attempt from the test-taker. The sample size is not a limitation of the study. The sample includes data collected over an 11-year period to attain adequate study power.

The information gained in the research process is applicable only to the AHIMA CHDA certification exam and cannot be directly generalized to other HIM, healthcare, or education professional certification exams.

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Notes

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