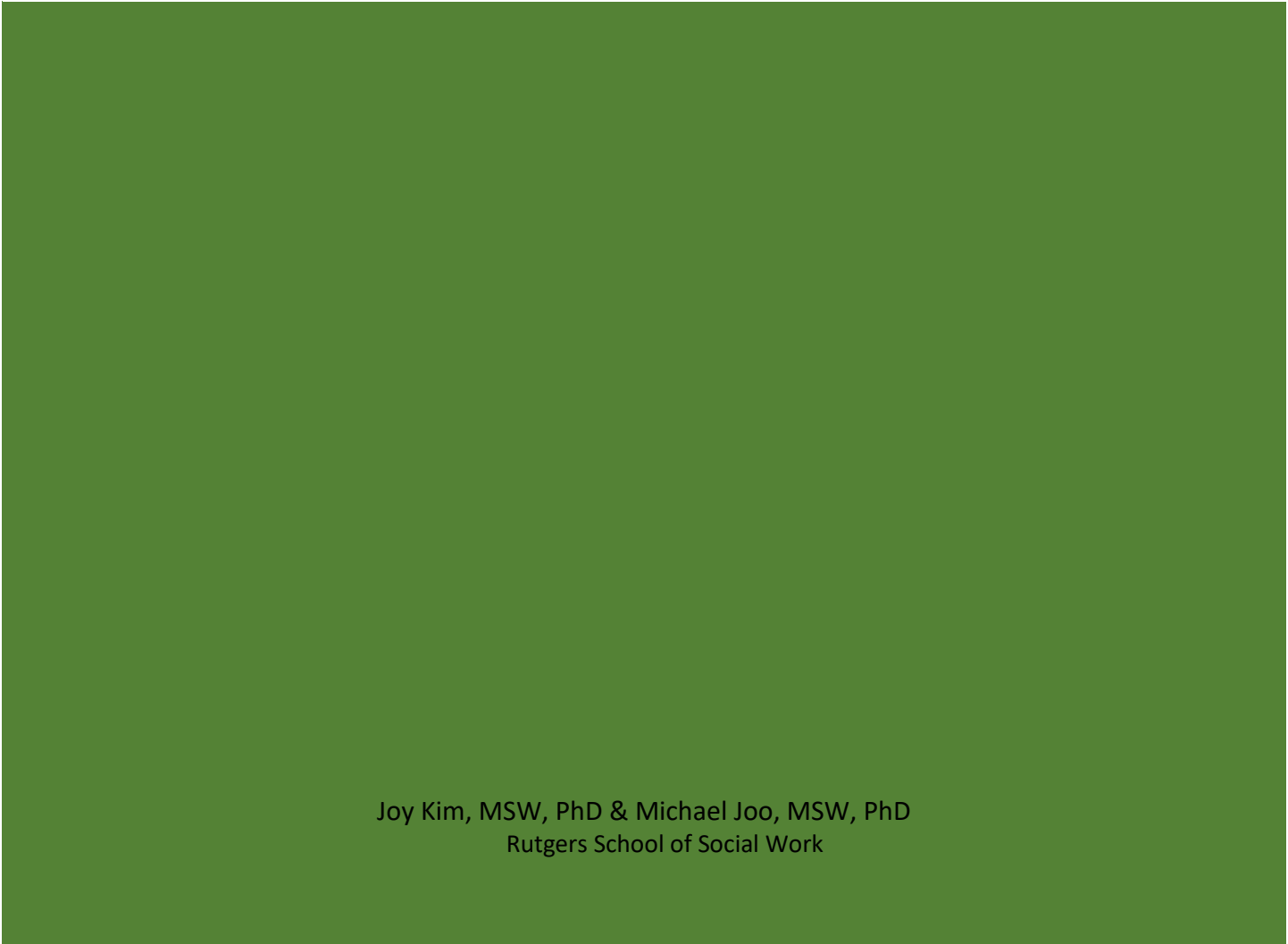# The Determinants of Licensing Exam Outcomes:

The Compounding Effects of Individual, Institutional, and Community Factors

Prepared for
Association of Social Work Boards (ASWB)

Exam Report No. 2

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Contents

Executive Summary

The *2022 ASWB Exam Pass Rate Analysis* showed demographic disparities in exam pass rates by race/ethnicity, age, and primary language (ASWB, 2022). However, it did not provide insight into *why* pass rates varied significantly by demographic groups. The social science literature consistently documents significant racial/ethnic disparities in licensing exam pass rates across numerous professions. This report, the second in the Exam Report Series, intends to provide an overview of research findings from the literature of other professions to understand the factors that may contribute to the disparate pass rates in social work. Some of the takeaways of this review include the following:

- ✓ Licensing exam outcomes are affected by individual, institutional, and community factors that are associated with examinees' socioeconomic background.
    Individual factors: Examinees who are younger, have a high GPA and high scores on admission tests, do not delay in taking the exam once eligible, and can study sufficient hours are more likely to pass a licensing exam.
    Institutional factors: Examinees who attended institutions with selective admission, strong faculty, and a well-resourced large program are more likely to succeed on a licensing exam.
    Community factors: Examinees who live in a more integrated and socioeconomically equal community are more likely to pass a licensing exam.
- ✓ Historically marginalized groups are more likely to experience negative effects from these contributing factors. However, when these multiple negative effects are taken into consideration, the effect of race/ethnicity on licensing exam outcomes is diminished.

    Figure E-1 depicts the three levels of determinants of licensing exam outcomes from a person-in-environment perspective.

Figure E-1. Factors that Affect Licensing Exam Outcomes
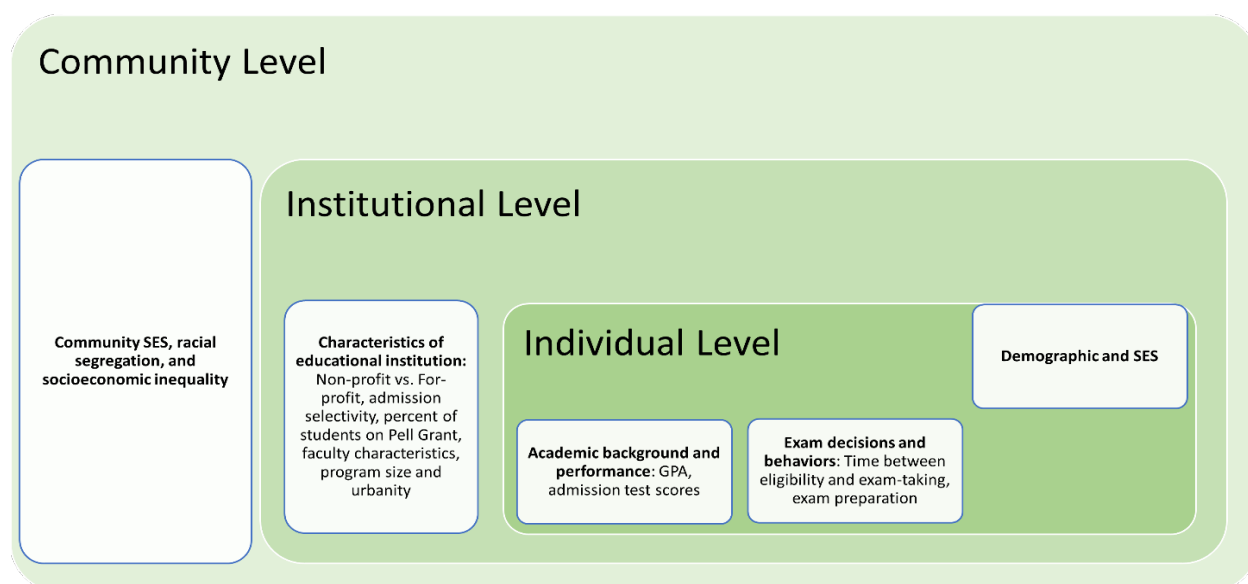
Background and Purpose

Many professions certify workers with adequate knowledge, skills, and ethics so that consumers can distinguish those who are qualified to practice their profession competently and ethically from those who may not be. Most certifications are done by assessing the professional candidates' competencies, typically in standardized exams, along with other methods of assessment, including supervised practice or clinical assessments. Many professions, such as teaching, law, medicine, nursing, accounting, and psychology, certify their professionals using standardized exams, usually developed by analyzing incumbent practitioners' practices. **Passing a certification exam is one of the most critical steps for professional candidates to obtain a license.** While the purpose of such exams is clear from a consumer's perspective, the exams have been questioned for professional candidates in part because members of some demographic groups (e.g., those from historically marginalized groups, older individuals, and those who use English as a second language) pass the exams at lower rates than others.

Table 1 summarizes racial and other demographic disparities in first-attempt certification/licensing exam outcomes documented in *national studies or reports* for selected licensed professions in the United States. As the table shows, numerous professions report demographic disparities — especially racial/ethnic disparities — in exam outcomes. The social work profession is one of many professions with demographically disparate exam pass rates. The Association of Social Work Boards (2022) reported that between 2018 and 2021, the first-time pass rate for the Clinical social work licensing exam was 84% for white examinees. On the other hand, Black examinees had a pass rate of 45%, Hispanic/Latino examinees had a pass rate of 65%, and Asian examinees had a pass rate of 72%.

There have been debates at national and state levels following the report's publication about the use of ASWB exams for licensing and its impacts on social workers with historically marginalized backgrounds. **However, there have been limited efforts to identify the reasons behind the unequal exam outcomes. In the next section, as part of this second report in the Exam Report Series, we will make such an effort by reviewing the exam pass rates of other regulated professions**. We will specifically focus on professions that provide national pass rates by race/ethnicity, either in published works or on official licensing/professional agencies' websites.

We then provide a review of what those professions found as the potential determinants of disparate exam outcomes. To the extent possible, our review focuses on studies that tested theoretical hypotheses and generated original empirical evidence based on inferential statistical analyses of large national samples. We also focus on studies that examined examinees' outcomes rather than school-level outcomes on licensing exams. Our review excludes univariate analyses of pass rates, review articles, or commentaries that did not offer original empirical evidence on potential determinants. Also note that throughout this report, the word *significant* is used when it refers to statistical significance. Similarly, the word *affect* is used when a factor is found to be significantly related to licensing exam outcomes in a

multivariate analysis whose findings are generalizable to the population of a particular licensed profession.

Other Professions' Licensing Exam Pass Rates

In the 10 professional certification exams we reviewed, including social work's ASWB exams, for which pass rates were available by demographic groups, there were consistently significant racial/ethnic disparities in exam pass rates. Examinees from historically marginalized groups, especially Black examinees, had significantly lower pass rates than white examinees.

We have reviewed the racial disparities in licensing exam pass rates for 10 licensed professions, including social work. The pass rates for these professions are detailed in Table 1 below. In this section, we discuss these professions' pass rates in detail to provide context for the extent of the disparities in social work's ASWB exams.

First, the **Architect Registration Examination (ARE 5.0)** is a six-division exam for architectural licensure required by all state licensing boards in the country. The National Council of Architectural Registration Boards (NCARB) develops the examination. ARE 5.0 uses five question types, including multiple-choice, check-all-that-apply, and quantitative-fill-in-the-blank questions. According to the 2021 NCARB report, ARE 5.0 exam pass rates demonstrated substantial racial/ethnic disparities. Black examinees' pass rates were consistently the lowest in all six divisions of the exam compared to other racial/ethnic groups, as shown in Table 1 with men's scores. For example, for the first division of the exam, Practice Management, the pass rate was 73% for white examinees, 35% for Black examinees, 51% for Hispanic/Latino examinees, and 52% for Asian examinees. Although not shown in Table 1, men were also reported to have higher pass rates in all exam divisions than women. However, for Black examinees, women had higher pass rates than their male counterparts in four exam divisions (NCARB, 2022).

Second, to be a nationally **certified school psychologist (NCSP),** an individual must meet the National Association of School Psychologists (NASP) credentialing standards, part of which is to take and pass the Praxis School Psychologist Exam #5403 (previously #5402). Significant differences were reported in the Praxis #5402 and Praxis #5403 pass rates by race/ethnicity (Affrunti & Rossen, 2023). As shown in Table 1, examinees from historically marginalized groups consistently had lower pass rates than white examinees. For example, compare the pass rate for white examinees (96%) to that of Black examinees (76%) for Praxis Exam #5402.

Third, the **Uniform Certified Public Accountant (CPA) exam** is a four-section certification exam with multiple-choice questions and task-based simulations developed by the American

Institute of CPAs (AICPA). The National Association of State Boards of Accountancy (NASBA) acts as a clearinghouse to which all state Boards of Accountancy submit their CPA candidates' information. The AICPA Examination Review Board is charged with ensuring that the exam items measure what they intend to measure in a consistent way (i.e., the validity and reliability of the exam). NASBA published *Candidate Performance on the Uniform CPA Examination,* a report on the official exam analysis results, until 2019 when a new exam version was introduced. The report provided annual pass rates by jurisdiction, university, and examinee age. According to the report, younger students outperform older examinees. However, the report does not publish pass rates by race/ethnicity (NASBA, 2019, 2024). Nevertheless, a team of researchers led by Espahbodi (2023) studied the national CPA exam pass rates by race/ethnicity and gender using 2005–2016 NASBA data. Their descriptive findings demonstrate a significant racial disparity in the overall pass rate: 47.71% for white candidates, 20.25% for Black candidates, and 31.90% for Hispanic/Latino candidates. In addition, they found a gender disparity in pass rates, with 47.49% of men passing the exam compared to 41.31% of women.

Fourth, the **Uniform Bar Examination (UBE)** is a standardized bar exam developed by the National Conference of Bar Examiners (NCBE). The UBE consists of three parts: (1) The Multistate Bar Examination (MBE), weighted 50%, is made up of 200 multiple-choice questions used by almost all states to determine competence to practice law. (2) The Multistate Essay Examination (MEE), weighted 30%, is used to determine effective communication in writing. (3) The Multistate Performance Test (MPT), weighted 20%, is designed to assess examinees' ability to solve a fictional client's problem. Because each jurisdiction sets its passing score, the NCBE publishes the average exam scores, score distributions, and overall pass rates by jurisdiction (NCBE, 2024). The bar pass rates by race/ethnicity are collected by the American Bar Association (ABA) from law school reports. According to the most recent ABA report, the first-time bar exam pass rate was 83% for white examinees, 57% for Black examinees, 69% for Hispanic/Latino examinees, and 75% for Asian examinees (ABA, 2023). Consistent with other professions, there were significant disparities in bar pass rates by race/ethnicity.

Fifth, elementary teacher candidates are certified with the **Praxis Elementary Education: Multiple Subjects** to enter the teaching profession. Eighteen states require the Praxis test, which is optional in five other states, making it the most widely used test of the 23 elementary content tests on the market (National Council on Teacher Quality [NCTQ], 2019). Teacher candidates must separately pass four content area subjects — reading/language arts, mathematics, science, and social studies — to pass the certification. The composite pass rates varied considerably by race/ethnicity. While 75% of white candidates passed the tests, only 38% of Black candidates and 57% of Hispanic/Latino candidates passed them (NCTQ, 2019). To explain the low pass rates and pass rate disparities, the NCTQ report pointed out that the nation's 817 elementary teacher preparation programs did not adequately cover the subject content identified in the licensing tests.

Sixth**,** racial/ethnic disparities in licensing exam pass rates were also documented in the psychology and pharmacy professional exams, but with a small sample of one state or an individual school. The **Examination for Professional Practice in Psychology (EPPP)** is a licensure

requirement across 62 psychology boards. Sharpless (2021) obtained the data from the Connecticut State Board of Examiners of Psychologists and found that the failure rates differed by race/ethnicity. White candidates' failure rate was 5.75%, but Black and Hispanic/Latino candidates' failure rates were 23.33% and 18.60%, respectively. Moreover, PsyDs failed at a higher rate than PhDs (14.56% vs. 5.16%). Chisholm-Burns et al. (2017) reported that on the **North American Pharmacist Licensure Examination (NAPLEX),** white candidates scored consistently higher than Black candidates in Tennessee (Out of a possible score of 150, white candidates scored an average of 107 versus 93.4 for Black candidates.) The authors concluded that the NAPLEX total scaled score was significantly correlated with race/ethnicity.

Table 1. Racial Disparities in Licensing Exam Pass Rates (%) by Professional Exam

	Exam	Source	Note	Asian	Black	Hispanic /Latino	White
1	Social Work	Association of Social Work Boards (2022)	Clinical[1]	72	45	65	84
			Masters[1]	71	45	63	86
			Bachelors[1]	60	33	53	76
2	Architect Registration Examination (ARE) 5.0	National Council of Architectural Registration Boards (NCARB) (2022)	Men's scores in six exam divisions	52	35	51	73
				49	30	39	59
				43	26	39	66
				53	26	42	69
				55	43	56	71
				45	20	36	59
3	Praxis School Psychologist Exam	Affrunti & Rossen (2023)	Praxis 5402	94-97[2]	76	80-81[2]	96
			Praxis 5403	86-96	84	82-89	98
4	Certified Public Accountant (CPA) Exam	Espahbodi et al. (2023)	Overall pass of all four sections between 2005 and 2016	Not available	20	32	48
5	Uniform Bar Exam (UBE)	American Bar Association (2023)	Summary bar pass rate	75	57	69	83
6	Praxis Elementary Education: Multiple Subjects	National Council on Teacher Quality (2019)	Composite pass rates for all four subjects	Not available	38	57	75
7	Examination for Professional Practice in Psychology (EPPP)	Sharpless (2021)	One state study (Connecticut)	97	77	81	94
8	American Board of Surgery (ABS)	Yeo et al. (2020)	Qualifying Exam (written exam)	White trainees who took the exam were nearly twice as likely to pass on the first try compared with trainees from historically marginalized groups.			

	Exam		Certifying Exam (oral exam)	Hispanic trainees were almost five times more likely not to attempt the exam compared with non-Hispanic trainees.
				Hispanic trainees were more than two times less likely to pass it on the first try.
				Single women examinees were more than 10 times more likely to pass the exam on the first try than married women with children.
9	United States Medical Licensing Examination (USMLE)	Rubright et al. (2019)	Step 1 score	Black examinees scored lower than white examinees by 16.52. Hispanic examinees scored lower than white examinees by 12.10.
			Step 2 score	Black examinees scored lower than white examinees by 15.97. Hispanic examinees scored lower than white examinees by 10.55.
			Step 3 score	Black examinees scored lower than white examinees by 15.94. Hispanic examinees scored lower than white examinees by 9.18.
10	National Physical Therapy Exam (NPTE)	Federation of State Boards of Physical Therapy (2023)	Domestic vs. Foreign graduates	Graduates of the U.S. program passed at 84%. Graduates of foreign programs passed at 40%.

1. The rates were first-time pass rates for 2018–2021.
2. Multiple Hispanic and Asian groups were reported in Affrunti & Rossen (2023).

Last, although national pass rates by race/ethnicity are not made available for the **American Board of Surgery Exam**, the **U.S. Medical Licensure Exam**, and the **National Physical Therapy Exam** by their respective professional organizations, empirical studies on those exams revealed demographically disparate exam outcomes. The bottom rows of Table 1 summarize that white examinees were more likely than examinees from historically marginalized groups to pass both qualifying and certifying exams of the American Board of Surgery (Yeo et al., 2020). Similarly, Rubright et al. (2019) reported that examinees from historically marginalized groups and those who use English as a second language scored lower on all components of the United States Medical Licensing Examination than white students and those who use English as a primary language, respectively (Rubright et al., 2019). Additionally, for the National Physical Therapy Exam, graduates of the U.S. programs were reported to pass the exam at 84%, a significantly higher rate than the pass rate of 40% for the graduates of foreign programs (Federation of State Boards of Physical Therapy, 2023).

Determinants of Licensing Exam Outcomes

The literature suggests that many professions, especially law (e.g., Devito et al., 2022), medicine (Rubright et al., 2019), teaching (Nettles et al., 2011), and accounting (Espahbodi et al., 2023), have experienced racially disparate licensing exam pass rates for decades. Researchers of those professions have amassed rigorous empirical evidence to understand why such significant disparities exist across demographic groups, particularly by race/ethnicity.

Researchers of the law and medical surgery professions have accumulated evidence from national longitudinal studies (e.g., Yeo et al., 2020; Wightman, 1998). Espahbodi and colleagues (2023) offer a comprehensive investigation of the accounting profession by merging exam data with measures of socioeconomic inequalities at the institutional and community levels. A close look at the evidence suggests that the factors that affect licensing exam pass rates can be organized into three categories: (1) individual factors, (2) institutional factors, and (3) community factors.

Individual factors include examinees' sociodemographic characteristics, such as age, race/ethnicity, and gender, as well as academic background and performance, particularly performance on admission tests and GPA. Individual factors also include exam decisions (when to take the exam once eligible) and preparation (e.g., time and resources devoted to studying for the exam) that are related to examinees' socioeconomic class. **Institutional factors** refer to the characteristics of educational institutions that examinees attend to acquire profession-specific education and training. Those factors include the type of institutions, institutions' admission selectivity, faculty qualification, and the characteristics of student bodies. **Community factors** refer to the opportunities and disadvantages in socioeconomically integrated or segregated neighborhoods where examinees grew up and lived. Altogether, the evidence suggests that **licensing exam disparities are influenced by these three factors, which are shaped by broad socioeconomic inequalities.**

The next section provides a detailed overview of each of the three factors. Once again, the discussion focuses on original empirical evidence based on inferential analyses of national data rather than simple descriptive analyses and analyses of one-school or one-state samples. (School or program-level studies are noted in the discussions.)

Individual Factors

Individual examinees' sociodemographic characteristics, admission test scores, GPAs, decisions about when to take the exam, and amount of exam preparation are important determinants of exam outcomes.

Sociodemographic Characteristics

Many licensed professions report that licensing exam outcomes are significantly affected by **examinees' age**. In an analysis of the Uniform Certified Public Accountant (CPA) Examination, Trinkle et al. (2016) found that younger examinees were more likely to succeed on the exam than older examinees. As examinees' age increased by one year, the probability of passing each section of the exam declined by 1.3% to 2.2%. Espahbodi et al. (2023) found that older CPA exam candidates are less likely to pass the four sections of the exam and more likely to drop

after the first attempt or the first section taken. They posited that the negative age effect is in part related to increased work-life responsibilities that burden many nontraditional or older students. Other researchers who examined CPA exam success also found a negative effect of examinee age on exam outcome (Bline et al., 2016; Mittestaedt & Morris, 2017; Trinkle et al., 2016). For the certified registered nurse anesthetist exam, Hoversten (2011) found that age predicted passing scores most reliably; younger students were more likely to pass than older students. Nguyen et al. (2021) reported that delaying the American Board of Surgery certification exam beyond one year after medical residency graduation significantly reduced the first-time pass rate. Similarly, Nayer and Grover Takahashi (2017) examined physiotherapists' pass rates in Ontario, Canada, by combining practitioners' data, Physiotherapy Competence Examination (PCE) data, and noncompliance disciplinary data. They found that older candidates achieved lower scores and lower pass rates on both the written and clinical components of the PCE than younger candidates.

Besides age, **race/ethnicity and gender** were found to be significantly related to licensing exam outcomes even after holding the effects of other factors constant. According to Nettles et al. (2011), for Praxis I and II exams for elementary school teachers, Black candidates had lower exam scores even after controlling for examinees' educational attainment, their parents' educational attainment, undergraduate major, and selectivity of attending institution.

Yeo et al. (2020) examined the association between **race/ethnicity** and the American Surgery Board certification process, which is comprised of qualifying and certifying exams. They found that Black examinees were less likely to pass the exams. The negative relationship was more robust in the passage of the certifying examination, an in-person oral examination of case-based scenarios, compared with the multiple-choice qualifying examination. Some experts in the profession suggest that the administration and grading of the in-person certifying exam may be susceptible to implicit bias, as it is impossible to prevent examiners from forming a perception of examinees' races. However, research by Ong et al. (2019) disputed the suspicion about the grading bias and concluded that the exam pass was not influenced by the gender of examinees or examiners. Rubright et al. (2019), who examined U.S. Medical Licensing Examination outcomes, also found that the effect of race was significant for each licensure step. However, the racial effect was reduced when examinees' academic performance (undergraduate GPA and college admission test scores) was factored into the analyses. This is an essential piece of evidence worth noting, as it is consistent with the findings supported by Wightman (1998) discussed below.

Evidence suggests that many other sociodemographic characteristics also affect licensing exam outcomes. Trinkle et al. (2016) conducted a survival analysis of CPA exam data between 2005 and 2013 that included nearly 260,000 unique examinees. They found a significant effect of **gender** on the exam outcome. Male examinees were more likely to pass three of four individual exam sections and 7% more likely to pass the entire exam than female examinees. Yeo et al. (2020) provide evidence from a rigorous longitudinal study about the relationship between demographic variables and licensing exam outcomes. They followed up with a 2007–8 national sample of U.S. general surgery interns for 10 years until the end of 2017 to understand

how sociodemographic background and medical school experiences affected the American Surgery Board (ASB) certification exam pass rates. It was the first study using longitudinal data from a national sample of general surgery trainees (N=1,048). They found that being Hispanic/Latino and having children were related to failing the certification exam and that white examinees, compared to those from historically marginalized backgrounds, were more likely to pass the exam. They observed that gender and marital status at the time of internship also had a significant association with whether an examinee passed the exams. Those who were married with children were more likely to fail either examination than their married but childless and single counterparts. Single women without children were 10 times more likely than those with children to pass the exams on their first attempt.

Academic Background and Performance

There appears to be a consensus among researchers in multiple professions and large-scale (some longitudinal) empirical studies that licensing exam outcomes are most affected by examinees' **academic performance, as measured by admission test scores and GPAs**. Multiple studies have found that examinees' academic performance was the most critical determinant of exam outcomes.

To explain racial disparities in Praxis I exams, Nettles et al. (2011) studied undergraduate GPA, candidates' educational attainment, socioeconomic status, and enrollment status in a teacher education program. The authors found a positive correlation between higher GPAs and increased mean Praxis I scores. Interestingly, however, they also observed that as GPAs increased, so did the gaps in scores between white and Black candidates. In a study of 45,154 U.S. Medical Licensing Examination (USMLE) examinees from 172 medical schools, Rubright et al. (2019) examined racial differences in exam outcomes while controlling for examinees' academic performance and backgrounds. According to their analysis, the difference between white and Black examinees in the USMLE Step 1 exam score was 16.52. However, the difference was reduced to 5.10 after they controlled for GPA and scores in the medical school entrance exam (MCAT) in the statistical analyses. Individuals with above-average GPA, composite MCAT, and Step 1 scores were predicted to have higher USMLE Step 1 exam scores. However, examinees with above-average age were predicted to perform poorly on the USMLE. The most important finding from this study is that adding the GPA and MCAT scores to the analyses reduced performance differences for Asian, Black, Hispanic/Latino examinees, as well as examinees who use English as a second language. For example, whereas Black test-takers scored 16 points lower on average than white test-takers across all Step examinations, the difference in scores was reduced to four or five points when GPA and MCAT scores were included in the analyses. This suggests that academic performance explains much of the demographic differences in licensing exam scores. According to their findings, although racial disparities in the exam scores appear large, the disparities reflect the lower mean MCAT scores and GPAs of underrepresented minority students (Rubright et al., 2019).

Wightman (1998) conducted one of the most comprehensive national longitudinal analyses of bar pass outcomes using data collected by the Law School Admission Council.

According to the author, the study was conceived in response to critics of affirmative action at historically white law schools during the 1980s who argued that the special admission programs for students from historically marginalized groups should be eliminated because the majority of those students could not pass the bar exam. The study collected multiple data points including (1) demographic and personal information of more than 23,000 bar examinees from their law school cohorts from the fall of 1991 for five years, (2) information on examinees' academic performance and school characteristics from their law schools, and (3) examinees' bar exam outcomes from the boards of bar examiners. The author reported that the eventual bar pass rate was lowest for Black examinees (77.6%) and highest for white examinees (96.7%), but that nearly 78% of Black law graduates eventually passed the bar, successfully refuting the affirmative action critics' claim about the function of the special admission programs. As for the factors that contributed to the racial disparities in bar pass rates, Wightman's analyses found that the **strongest predictors of bar exam pass for all examinees were (adjusted) law school GPAs and LSAT scores**.

Unfortunately, Black law school students had lower average law school GPAs and LSAT scores than their white counterparts. Wightman (1998) demonstrated that when the regression analyses included **law school GPAs and LSAT scores**, many other factors that were expected to be important to bar exam passage (undergraduate GPAs, selectivity of undergraduate school, language spoken at home, employment during undergraduate studies, and financial responsibility for others during law school) were *not* significantly related to the bar exam outcome. Still, the author found age to be a significant factor in bar pass for historically marginalized groups.

Wightman (1998) also noted that the regression analyses did not fully account for racial/ethnic disparities in bar exam passage. To improve the explanatory power of the regression model, the author developed an SES index to measure family income when the examinees were in high school, as well as the education and occupations of the examinees' parents. However, when the SES index was added to the regression analyses, the unique contribution of examinees' SES to bar exam outcome was found to be minimal. The author concluded that "whatever toll SES might play in education achievement may have already taken its toll" *before* the licensing exam (p. 41).

Klein and Bolus (1997) and Ripkey and Case (2007) also examined the correlation between bar pass outcomes and law students' academic performance, such as LSAT scores and GPA. The researchers found that examinees' academic performance *before* they entered law school already demonstrated racial and ethnic disparities. They stated that racial disparities in bar pass rates for all components of the exam (including the MBE, essays, performance tests, and total scores) mirror racial disparities in LSAT scores. In a school-level analysis of the Uniform Bar Exam pass rate, Devito et al. (2022) controlled for median LSAT scores and the proportion of Black students taking the exam, so that the contribution of each factor to the bar pass rate was observable. They found that while a one-point increase in median LSAT score was associated with as much as a 9.5 percentage point increase in the bar pass rate, a 1 percentage point

increase in the proportion of students who are Black was associated with only a 1.06 percentage point decrease in bar passage rates after controlling for median LSAT score.

Other smaller studies, which used samples from an individual graduate program or state, present similar findings about the importance of academic performance for licensing exam outcomes. Kane et al. (2007) conducted a multivariate analysis of New York bar exam outcomes. They reported that undergraduate GPA and LSAT exam scores, in addition to law school GPAs, explained about 56% of the variance in the bar exam scores. The analyses by Khan-Farooqui (2020) and Novalis et al. (2017) of the National Board of Certification in Occupational Therapy (NBCOT) exam showed that examinees' GPA in the occupational therapy program and pre-admission recommendation letters successfully predicted first-time NBCOT exam pass. This finding was echoed in a study of the nursing profession. Flowers et al. (2022) examined the NCLEX-RN exam pass rates of 92 nursing students who graduated from an urban public university in the spring of 2017. The authors used 10 predictors to examine NCLEX-RN exam success, including scores on the nursing program pre-admission test, science GPA, NCLEX-RN readiness assessment scores, and the end-of-nursing program assessment designed to assess and remediate nursing concepts. The authors' analyses revealed that examinees' science GPA and scores on the NCLEX-RN readiness assessment were the best predictors of NCLEX-RN pass. Based on their findings, the authors recommend a way to identify nursing students who need additional support to pass the licensing exam. Chisholm–Burns et al. (2017), who examined outcomes of the North American Pharmacist Licensure Examination (NAPLEX) using a sample of graduates of the University of Tennessee College of Pharmacy, reported that pharmacy GPA was the most critical determinant of the total scaled score on the exam. According to their regression analysis, pharmacy GPA explained more than 40% of the variance in the exam scores.

Exam Timing and Preparation

Several studies suggest that students who delay taking an exam once they become eligible experience more negative exam outcomes. According to Espahbodi et al. (2023), the longer an examinee waits to attempt the CPA exam, the further removed they are from college coursework, which the CPA exam primarily focuses on. The delay in taking the exam is, therefore, likely to affect examinees' performance negatively. The National Council of State Boards of Nursing, Inc., (NCSBN) examined the relationship between the timing of taking the NCLEX examination and exam outcomes (Eich & O'Neill, 2007). They found that **longer lag times between exam eligibility and exam-taking were associated with lower pass rates**. Relatedly, Nettles et al. (2011), who studied disparities in Praxis I and II exam outcomes between Black and white test-takers, also pointed out that Black teacher candidates take the exam at later ages (over 30 years old) than their white counterparts (about 25 years old).

Similarly, Robinson et al. (2016) examined whether a delay in taking Part I (computer-based exam) or Part II (oral exam) of the American Board of Physical Medicine and Rehabilitation (ABPMR) certification examinations influences the score or passing rates of candidates. Using national data between 2010 and 2014, the authors found that the exam pass rates declined as candidates delayed the examination. Those who did not delay had a pass rate

of 91%, but with a one- and two-year delay, the pass rates declined to 68% and 59%, respectively. The authors recommend that examinees take the exam as soon as they become eligible.

Eich and O'Neill (2007) also observed from the data that large volumes of repeat examinees and internationally educated first-time examinees of the nurse licensing exam (NCLEX) wait longer to take the exam and then perform poorly (Eich & O'Neill, 2007). The delayed exam-taking may be related to the examinees' socioeconomic status. Examinees who have both work and family responsibilities may lack sufficient time and resources to prepare for the exam. **Those without adequate time and resources to prepare for the exam may delay taking it or be more likely to fail**.

Additional evidence comes from a recent study of the Uniform Bar Exam (UBE), commissioned by the New York Board of Law Examiners and conducted by AccessLex Institute (2021) (Note that New York state uses the national UBE with a passing score of its own.) The study was based on a survey of 5,495 bar examinees from July 2016 to February 2018, which collected data about their academic performance, law school experience, bar participation, exam experiences, demographics, finances, and employment status. This study is unique because it examined if examinees' finances and post-exam employment status were related to bar exam success, controlling for their academic performance. The study found that the **key determinant of bar passage was having extensive time to prepare for the exam**. Bar passage increased as the number of weekly study hours increased. Examinees who failed on the first attempt succeeded on the second attempt with increased study time. The second-time examinees who studied 40 or more hours per week during the exam month were 45% more likely to pass the exam than those who studied fewer than 20 hours per week (21% likelihood of passing). As this result came from longitudinal data of repeat examinees, the authors considered the time spent studying for the exam a causal, rather than a correlational, factor of the exam outcome.

Additionally, researchers at the AccessLex Institute found that examinees with greater satisfaction with their law school experience were more likely to pass the bar exam after controlling for other factors such as LSAT score and law school selectivity. While financial support from family, friends, and a law firm was positively related to first-time bar passage, law school debt and unemployment were negatively associated with bar passage. Interestingly, however, law school debt and unemployment had a negative effect only on the first-time — not on second-time — bar passage after accounting for LSAT scores and other factors.

Institutional Factors

Institutional factors — the quality of the educational institution and its faculty, admission selectivity, program size, and geographic location — significantly affect licensing exam pass rates.

Type of Educational Institutions

Studies suggest that **the type of educational institutions that examinees attend is related to their licensing exam outcomes**. Trinkle et al. (2016) found that CPA examinees are more likely to pass the exam if they received a degree from a business school and an accounting program accredited by the Association to Advance Collegiate Schools of Businesses (AACSB). The AACSB accreditation is a supplementary, voluntary, and specialized accreditation that signifies the highest-quality programs (AACSB, 2024). The examinees who received a degree from AACSB-accredited colleges were 11–15% more likely to pass any or all sections of the exam. Those educated in separately AACSB-accredited accounting departments were 19–24% more likely to pass any or all sections of the exam. The CPA examinees were also more likely to pass the exam if they received a degree from a private university rather than a public university.

Mittelstaedt and Morris (2017) used 2005–2014 data from the National Association of State Boards of Accountancy (NASBA) to estimate the effects of educational institutions on CPA examinees' section score, section passage, and passage of all four sections. They found that examinees who graduated from for-profit institutions scored about 5.62 points lower, on average, and had less than half the probability of passing all four sections of the exam compared to graduates of nonprofit institutions (28% versus 66%) after controlling for gender, age, programs' AACSB accreditation status, year, and exam type. They also found that attending an institution not accredited by AACSB is negatively related to success on the CPA exam. They explained that while some private and public nonprofit universities have very competitive admission standards, for-profit institutions generally do not have admission requirements.

According to Espahbodi et al. (2023), the educational institution type affects examinees from historically marginalized groups more significantly than white examinees. In a comprehensive environmental study of racial disparities in CPA exam pass rates, they found that a higher percentage of Black examinees and (to a lesser extent) Hispanic/Latino and female examinees attended non-AACSB schools, for-profit schools, schools with lower average SAT scores, schools with higher percentages of Pell Grant recipients, and schools with annual tuitions less than $20,000. The authors argued that **disadvantages in educational institutions negatively affect Black and Hispanic/Latino examinees' performance on the CPA exams**.

Relatedly, the National Council of State Boards of Nursing (NCSBN) conducted a national study to identify evidence-based quality indicators and warning signs of nursing program performance (Spector et al., 2020). They identified an 80% NCLEX pass rate as one of their quality indicators of nursing program performance. Their analyses revealed that nursing programs with directors with a Ph.D., hybrid course delivery (compared to in-person or online programs), a longer history (compared to newer programs), multiple sites (compared to a single site), and public and not-for-profit status (compared to private for-profit status) were more likely to meet the target NCLEX pass rate. They also found that faculty characteristics were related to pass rates. As director attrition increased, programs were less likely to achieve the target pass rate.

Admission Selectivity and Percentage of Students on Pell Grants

Chaparro (2020) examined program-level determinants of psychology licensing exam (Examination for Professional Practice in Psychology, or EPPP) pass rates using data from 176 doctoral psychology programs. The author included GRE scores, percentage of students from historically marginalized groups, gender, program type (clinical PhD versus PsyD program), admission rate, years to degree completion, and APA internship match rates. The analysis revealed that the only significant determinant of the exam pass rate was the admission rate. **The higher a program's admission rate, the lower its exam pass rate**. Chaparro hypothesized that since graduate program admissions depend on GPA, GRE scores, and recommendation letters, the relationship between admission selectivity and licensing exam pass rates supports the importance of GPA and GRE scores for licensing exam outcomes.

Chaparro's (2020) analysis was at the program level, not the examinee level, and the study did not control for the examinee's academic performance. When Wightman (1998) investigated racial/ethnic disparities in bar pass rates at the examinee level, the author accounted for the effects of selectivity of undergraduate and law school admissions while controlling for examinees' LSAT scores and GPAs in both undergraduate and law school. Wightman found that admission selectivity did not have a unique contribution to bar pass outcome, contrary to Chaparro (2020).

Espahbodi et al. (2023) used the percentage of students who receive Pell Grants in an institution as a proxy for admission selectivity and student body income status. They noted that with the low amount of Pell Grant awards, many grant recipients are concentrated in the least selective, lower tuition (or for-profit) institutions that typically offer inferior education and limited resources for student success. (By contrast, in the most competitive institutions, only approximately 10% of all undergraduates receive Pell Grants.) They found that **attending an institution with higher percentages of Pell Grant recipients is negatively related to passing the CPA exam.** Their regression analysis found that a one-unit increase in the percentage of students receiving Pell Grants decreased the CPA examinees' probability of passing the exam by 0.9 percent.

Faculty Characteristics

Bline et al. (2016) studied the effects of faculty characteristics (specifically, research and teaching specialization and CPA certification status) on graduates' outcomes on the Uniform Certified Public Accountant Examination. The authors merged data from the NASBA (National Association of State Boards of Accountancy) on more than 675,000 first-time exam sittings during the 2005–2013 period with faculty data from examinees' business schools. They controlled for basic demographic characteristics of CPA examinees and the business schools that they attended, including the schools' admission selectivity (e.g., incoming student SAT scores at the institutional level). This study was unique as it simultaneously examined the effects of the individual characteristics of examinees as well as the characteristics of educational institutions on examinees' CPA exam scores on all four sections of the exam. Nevertheless, they did not control for examinees' academic performance, such as GPA. They found that (1) **both faculty teaching and research specialization and research productivity were significantly and positively related to examinees' scores on all four sections of the exam** and (2) **the higher the percentage of CPA-certified faculty in a program, the better the programs' examinees perform on the exam**. They also demonstrated that examinees from highly ranked research schools tend to score higher on the exam than those from lower-ranked schools.

Bushardt et al. (2012) also examined the relationship between faculty characteristics and licensing exam outcomes using pass rates from the National Physician Assistant Certifying Exam (PANCE). However, the study differed from Bline et al. (2016) as it examined exam pass rates at the institutional level using only institutional data. The authors conducted a simple linear regression to examine the relationship between the faculty size and faculty credentials of 152 schools and their PANCE pass rates. They found that schools with a master's degree program and a low student–teacher ratio have higher PANCE pass rates.

Program Size and Geographic Location

Falcone (2012) examined if first-time pass rates of the American Board of Pediatrics Certifying Examination were related to pediatrics residency programs' size, theorizing that larger residency programs may have more resources, leading to more robust educational curricula and programs, leading to higher pass rates on the certifying exam. Falcone's statistical analysis of 193 residency programs from 2008 and 2010 showed that exam pass rates were related to residency program size. However, Falcone acknowledged that the residency program's exam pass rates are complex and may depend on multiple factors, such as resident selection, curriculum structure, and faculty recruitment. In the following year, Falcone and Middleton (2013) studied the pass rates on the American Board of Family Medicine certification exam from 429 family medicine residency programs from 2007 to 2011. Their linear regression analysis revealed that **the programs' five-year pass rates were positively associated with program size**. The authors theorized that program size is correlated with the nature of curricula, the ability to attract specialized faculty, higher-quality residents, and established education

programs, all of which may help larger programs outperform smaller programs on the certification exam.

Some research suggests that an institution's proximity to urban locations is important for exam outcomes. Angelo et al. (2021) found **a positive relationship between a school location in or near a city and CPA exam outcomes**. Proximity to and availability of a large number of professional candidates are important in motivating exam-taking and exam performance. Examinees from large programs may have more resources and opportunities to perform well on an exam. Professional organizations are likely to be headquartered in cities and urban areas in which a large number of professionals are available. Because of the proximity to opportunities and resources, institutions' location in urban settings is important (Angelo et al., 2021).

Similarly, according to Falcone & Hamad (2012), first-time pass rates of the qualifying and certifying exams of the U.S. Medical Licensing Examination are significantly different by residency programs' geographic location. Residency programs located in the southern United States, specifically in Kentucky, Louisiana, Mississippi, and South Carolina, were associated with lower certification exam pass rates. Residency programs located in the western and southwestern parts of the county have higher qualifying exam pass rates.

Community Factors

Community-level opportunities and disadvantages as measured by indicators of segregation, economic inequality, and socioeconomic status affect licensing exam outcomes. Examinees from more integrated and affluent communities tend to perform better than their counterparts. This was particularly true for Black examinees.

Segregation, Inequality, and Socioeconomic Status

As seen in Table 1 earlier in this article, the accounting profession has one of the lowest licensing exam pass rates, particularly among historically marginalized groups. Recent empirical evidence by Espahbodi et al. (2023) presents a comprehensive conceptual framework to shed light on these disparate outcomes. The authors conceptualized that racial/ethnic gaps in most achievement gaps are associated with racial/ethnic gaps in SES, acknowledging that a large share of examinees from historically marginalized groups grew up in less affluent, segregated communities that negatively affected their lifetime outcomes. They investigated community and environmental factors from a person-in-environment perspective. They conducted a statistical analysis of national data for three sources of exam disparities — examinees, institutions, and communities. They compiled (1) examinees' demographic and exam data from the National

Association of State Boards of Accountancy (NASBA) between 2005 and 2016, (2) university characteristics data from the Department of Education, and (3) the indicators of community segregation, income gaps, and education gaps developed by the Center for Educational Policy Analysis at Stanford University.

Their descriptive analyses showed that white men performed better on the CPA exam, as did examinees who graduated from public, more selective, and AACSB-accredited universities that required higher admission standards (e.g., higher SAT scores). Their analyses tested (1) if CPA examinees' probability of passing all four sections of the CPA exam within 18 months was affected by the indicators of segregation, income gaps by race and gender, and educational gaps by race and gender in the communities where they lived and (2) if those indicators had different effects on historically marginalized groups. Their statistical models also controlled for the factors that previous studies identified as determinants of the exam outcomes, such as examinees' race/ethnicity, gender, age, type of university, the university's AACSB accreditation status, percentage of students on Pell Grant, and the 75th percentile SAT verbal scores of the admitted first-year students. They did not include examinees' GPAs or admission test scores in their statistical analyses.

Overall, their findings demonstrated that Black, Hispanic/Latino, and female examinees' underperformance on the CPA exam was affected by opportunities and disadvantages in their communities. In general, **CPA examinees who were from less segregated, more affluent, and more economically integrated communities scored higher compared to their counterparts**. More specifically, a one-unit increase in the **segregation index** was associated with a decreased probability of passing the exam by 29.4 percent. They also found that opportunity factors — indicated by income gaps and socioeconomic status — affected the performance of historically minoritized groups differently. For example, living in a community with **higher racial income gaps** negatively affected Black examinees' probability of passing the exam. Black examinees' success on the exam decreased by nearly 30% with every unit increase in the racial income gap. On the other hand, living in a **higher socioeconomic status** community was related to an increase in the probability that Black examinees would pass the exam. For every unit increase in socioeconomic status, Black examinees' probability of passing the exam increased by 8.7%. **Based on these findings, the authors argued that the profession must recognize the impact of socioeconomic factors on the development, recruitment, and retention of a diverse talent pool. They also advocate for long-term and systematic interventions to mitigate the negative effects of economic segregation and inequality on the accounting profession.**

Conclusion

The available evidence suggests that disparities in licensing exam results are influenced by a combination of individual, institutional, and community factors that are shaped by broad socioeconomic inequalities. Younger individuals, those with high GPAs and admission test scores, and those who do not delay taking the exam once eligible and have sufficient study

resources are more likely to pass a licensing exam. Additionally, those who attend institutions with selective admissions, strong faculty, and well-resourced programs are more likely to pass an exam. Individuals in more socioeconomically integrated and equal communities are also more likely to succeed on a licensing exam. Since licensing exams occur at the end of an individual's educational and training journey, the results are likely to reflect cumulative educational and training opportunities and disadvantages experienced throughout their lifetime.

When applying these findings to the social work profession, this report emphasizes the need for empirical research on the sources of racial/ethnic and other demographic disparities in the ASWB exam pass rates. We need to understand the extent and nature of these disparities at the examinee, institution, and community levels to evaluate necessary interventions. This review provides guidance for the empirical research that the social work profession should undertake to comprehend the sources of disparities and identify means of reducing them.

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