Review VR

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Review VR Brief Series on Vocational Rehabilitation Employment Patterns: Demographic and Primary Disability Variations in VR Occupational Closures (2008–2012)

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Background

Funded by the National Institute on Disability and Rehabilitation Research, the Institute for Community Inclusion (ICI) at the University of Massachusetts Boston is conducting an analysis using occupational closure data to understand labor market trends and patterns, focusing on vocational rehabilitation (VR) customers. These efforts consist of multiple phases: Phase I focuses on descriptive analysis of closure patterns, Phase II focuses on aligning the state-level labor market to VR occupational closures, and Phase III identifies factors that influences occupational closures.

To coincide with the end of Phase I, we are releasing the VR Occupation Closures Brief Series—descriptive reports on the types of occupations obtained at VR closure. The first brief published in September 2014 reported occupation closure patterns and trends. The current brief describes the variations using demographic and primary disability characteristics in VR occupational closures from 2008–2012. Demographic characteristics are assessed by age, gender, and race; primary disability patterns are assessed by sensory/communicative impairments, physical impairments, cognitive impairments, and psychosocial and other mental impairments.

Methods

We examined the Rehabilitation Services Administration's Case Service Report (RSA-911) and our sample size was 868,695 closed cases that achieved successful employment outcome over a five-year period (2008–2012). Occupational closures are described by the Bureau of Labor Statistics' (BLS) Standard Occupational Classification system (SOC) codes. We recoded the six-digit detailed codes that represent specific occupations at closure in the RSA-911 data into 23 major groups defined by the SOC system to look at demographic and disability variations in occupation trends and patterns.

For the age analysis, we presented median age by occupational categories and developed three age groups: transition age (VR consumers ages 14 to 24), working-age (VR consumers ages 25 to 64), and the elderly (VR consumers ages 65 years old and above). From the detailed race and ethnicity descriptions in the RSA-911, we defined four broader racial and ethnic categories: White (non-Hispanic), African American (non-Hispanic), other races (non-Hispanic), and Hispanic. For developing disability categories, we grouped 19 primary impairment categories into four primary disability categories: sensory impairments, orthopedic impairments, cognitive impairments, and psychosocial and other mental impairments. We further identified that the top six occupational categories employ approximately 60% of VR consumers each year, hence, our data analyses described in this brief mainly focuses on demographic distributions by these top six categories.

Results

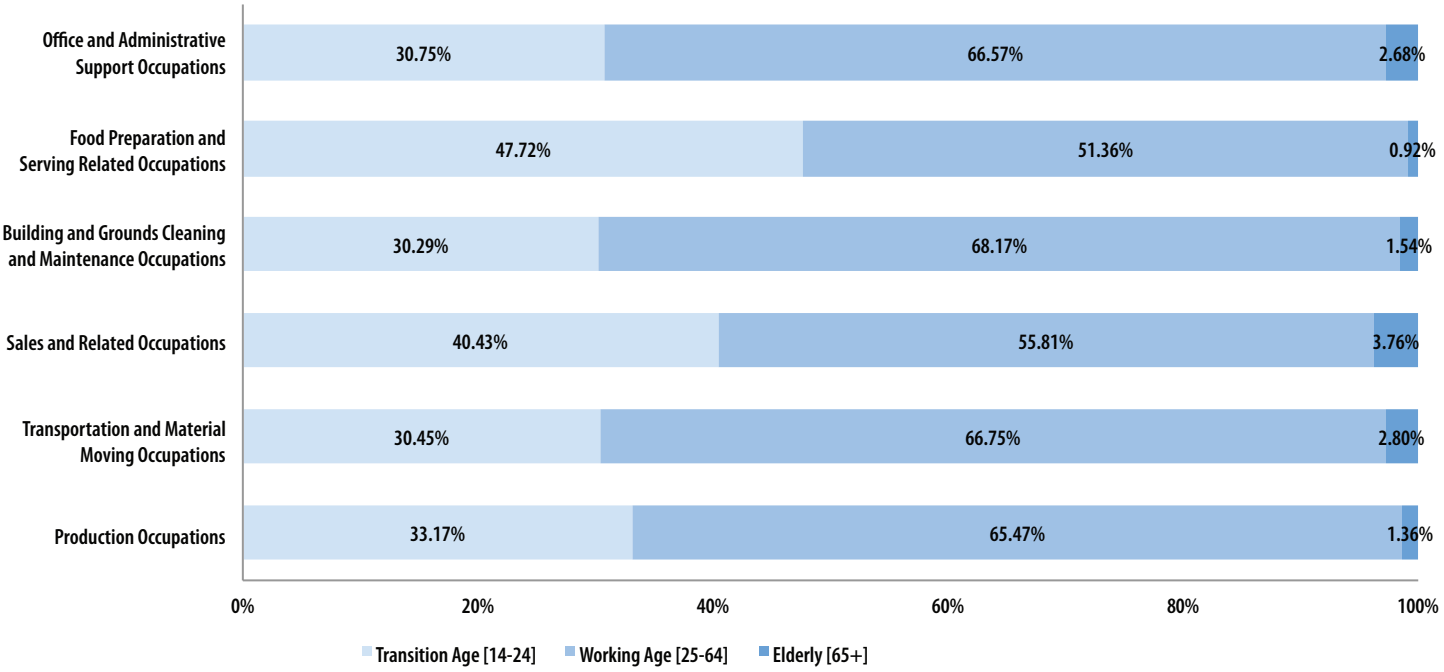
Our analysis consists of four sections, each focusing on one demographic characteristic: age, gender, race/ethnicity, and disability.

AGE

Age is a key demographic characteristic associated with work and employment. Across their lifespan, people may get employed in different occupations or change their occupational roles. In the labor market, age distribution varies among different occupation categories. We examined age patterns across major occupational categories and changes from 2008–2012. To compare how VR consumers of different ages are distributed across major occupation types we looked at the five-year aggregated case closure data. Figure 1 shows percentages of distribution by age group within the top six major occupation categories. Variation across occupation categories indicates the patterns of occupations in relation to employees' age distribution. For example, occupations related to Food Preparation and Serving employ relatively more transition age VR consumers than other occupations. Similarly, Transportation and Material Moving Occupations predominantly employ working-age clients.

Most occupation categories show remarkable consistency in terms of median age of VR consumers they employ. Low-skilled service-related occupations such as Sales or Food Preparation and Serving tend to employ younger VR consumers. Occupations that potentially require middle or higher skills, those related to education, health care, or business, tend to employ older VR consumers (related occupations include Business and Financial Operations, Legal, Community and Social Services Occupations, and Protective Service Occupations). Military Specific Occupations have the lowest median age at 22.2 years and Management Occupations have the highest median age at 43.8 years. In Table 2, we present the median age across the five-year period for all major occupation categories, as well as the five-year mean and variance (represented by the standard deviation).

Figure 1: Distribution by Age Groups in the Top Six Major Occupation Types, 2008-2012



The age groupings encompass different spans of years, with the transition group spanning 11 years, the working-age group covering 40 years, and the elderly group includes people age 65 and above. Therefore, sample size within each group varies significantly. Difference in the size of the groups affect the percentage distribution within occupation types, as most of the occupations will have more VR consumers from the working-age group, which is the largest. Table 3 presents percentages of distribution based on age for different age groups varying across different occupation types. This distribution allows us to notice patterns in occupational distribution independently from the size of the age groups. Nearly 64% of transition age clients, 58% of working age clients and approximately 41% of the elderly population is employed in the top six occupations.

GENDER

Gender distribution across major occupational categories over the five-year period is consistent. For all VR consumers with employment outcomes in our sample, 56.2% were men and 43.8% were women, and the proportions of men and women did not change dramatically among three age groups. Gender ratio (i.e., women to men) was calculated to compare gender distribution across different occupations across the five years. A ratio that is closer to 0 means the corresponding occupation tends to have more men than women; a ratio of 1 indicates employment of men and women are equal in certain occupations, and a ratio above 1 indicates that a certain occupation employs more women than men.

Gender ratios are relatively stable across the five-year time period. However, there is significant variation in gender ratio across different occupational categories. For example, healthcare-related occupations (Healthcare Support Occupations, Healthcare Practitioners and Technical Occupations, and Personal

Care and Service Occupations) employ 5 times more women than men; the Education, Training, and Library Occupations employ 2.3 times more women than men. By contrast, more physically demanding occupations such as Construction and Extraction Occupations and Transportation and Material Moving Occupations mainly employ men. Detailed description by occupation is shown in Table 1 as ratio of women over men employed under any major occupation type.

Table 1: Gender Ratio (Women to Men) by Occupation, 2008–2012

Major Occupation Type	2008	2009	2010	2011	2012	Mean
Office and Administrative Support Occupations	1.44	1.43	1.36	1.27	1.26	1.35
Food Preparation and Serving Related Occupations	0.86	0.82	0.75	0.77	0.78	0.80
Building and Grounds Cleaning and Maintenance Occupations	0.50	0.47	0.46	0.45	0.46	0.47
Sales and Related Occupations	1.21	1.22	1.16	1.18	1.19	1.19
Transportation and Material Moving Occupations	0.19	0.19	0.18	0.18	0.18	0.18
Production Occupations	0.35	0.34	0.31	0.31	0.30	0.33
Personal Care and Service Occupations	2.25	2.11	2.05	2.09	2.15	2.13
Installation, Maintenance, and Repair Occupations	0.14	0.14	0.13	0.15	0.16	0.14
Healthcare Support Occupations	5.35	4.99	4.85	4.73	5.08	5.00
Education, Training, and Library Occupations	2.33	2.30	2.42	2.43	2.37	2.37
Construction and Extraction Occupations	0.04	0.03	0.03	0.03	0.03	0.03
Community and Social Services Occupations	1.54	1.55	1.49	1.50	1.55	1.53
Management Occupations	0.67	0.75	0.66	0.69	0.74	0.70
Healthcare Practitioners and Technical Occupations	3.05	3.15	2.95	2.97	2.99	3.02
Protective Service Occupations	0.31	0.25	0.31	0.28	0.28	0.29
Business and Financial Operations Occupations	0.98	1.02	1.01	1.05	1.02	1.02
Arts, Design, Entertainment, Sports, and Media Occupations	0.86	0.80	0.77	0.74	0.75	0.78
Computer and Mathematical Occupations	0.26	0.23	0.25	0.27	0.23	0.25
Architecture and Engineering Occupations	0.16	0.15	0.14	0.11	0.14	0.14
Farming, Fishing, and Forestry Occupations	0.19	0.17	0.17	0.19	0.18	0.18
Life, Physical, and Social Science Occupations	0.80	1.03	0.95	0.93	1.00	0.94
Legal Occupations	1.24	1.39	1.29	1.38	1.30	1.32
Military Specific Occupations	0.14	0.11	0.79	0.92	0.70	0.53

Note: This table is ordered by number of employment closures (not shown) for major occupation types in descending order.

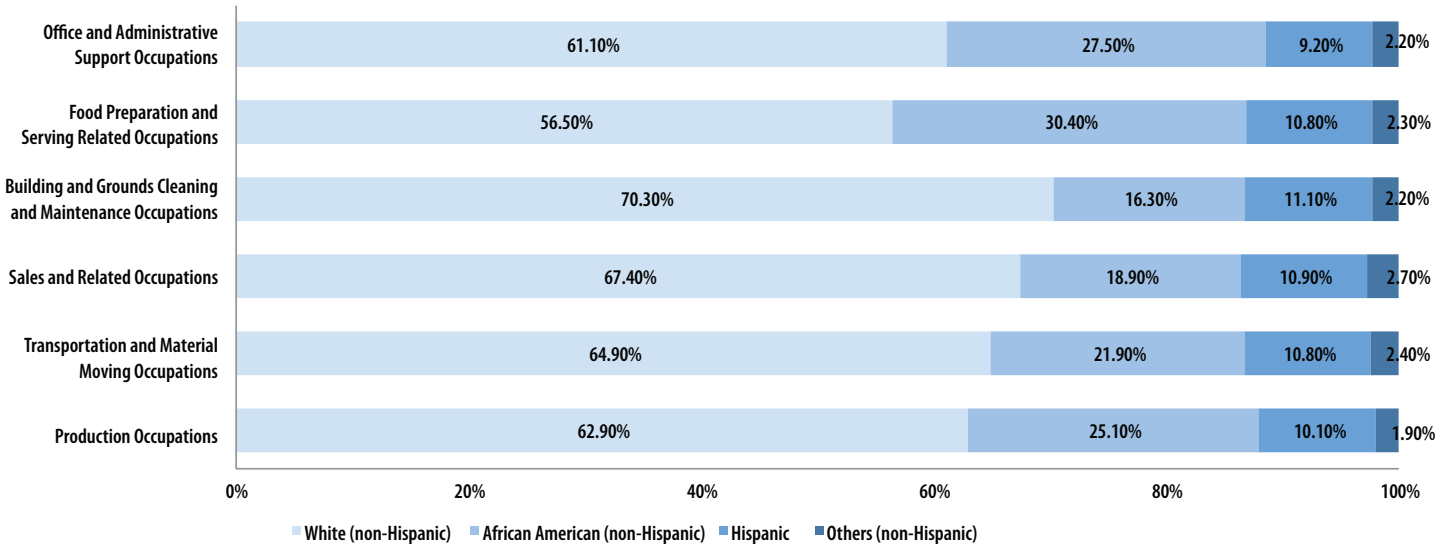
RACE/ETHNICITY

The following analysis presents percentages of employment closures within four broad racial/ethnic categories as defined earlier in this brief. For the five-year period, individuals who closed with employment outcomes were distributed as 66.5% White (non-Hispanic), 20.8% African American (non-Hispanic), 2.3% other (non-Hispanic), and 10.3% Hispanic as a total for all occupation types. These percentages of distribution closely mimics the closures for all the cases presented in RSA-911.

For comparison of race/ethnicity distribution within major occupational categories, Figure 2 highlights percentages of distribution within major occupations across all the racial categories. The closure percentage for African American (non-Hispanic) VR consumers is markedly higher in Office and Administrative Support Occupations and in occupations related to Food Preparation and Serving than their closure percentages for all occupation categories combined.

For comparison of occupational employment outcome within each racial/ethnic groups, Table 4 shows the percentage distribution within each racial category across all occupation types. Table 4 highlights the relative propensity of different occupations to employ VR consumers from a particular racial category.

Figure 2: Percentage of Distribution by Race/Ethnicity Across the Top Six Occupation Types

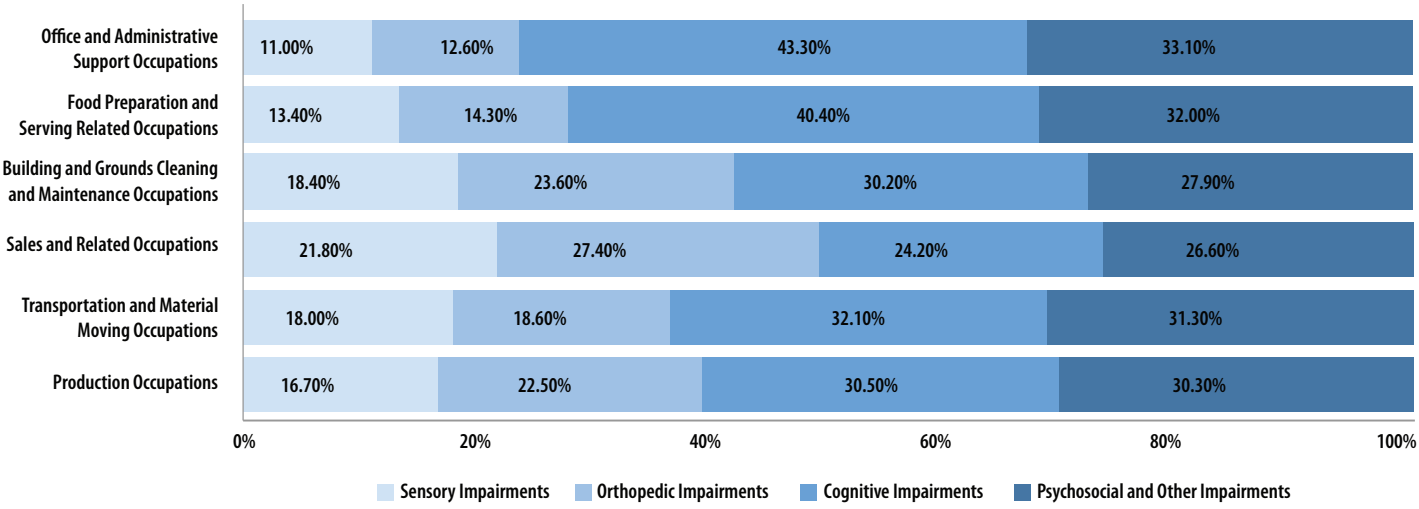


DISABILITY

For the five-year period, among the individuals who were closed with employment outcomes, 20.9% were persons with sensory and communicative impairments, 23.2% were persons with orthopedic impairments, 28.0% were person with cognitive impairments, and 27.9% were persons with psychosocial and other mental impairments for all occupation types. Figure 3 presents the percentage distribution of disability categories within each of top 6 major occupation categories. In the top 6 major occupation categories consumers with cognitive impairments and with psychosocial and other mental impairments constitute more than 50% of the total VR consumers employed in those occupations.

Table 5, on the other hand, depicts how consumers under a disability category are distributed across all the major occupation categories. This allows us to identify particular occupational categories that employ more consumers by disability category. Based on our sample in the five year period, as many as 69.5% of VR consumers with cognitive impairments, 63.4% of VR consumers with psychosocial and other mental impairments, 51.8% of VR consumers with physical impairment and 47.6% of VR consumers with sensory impairments were employed in the top six occupation categories. We also observed that the VR consumers with physical or sensory and communicating impairments are relatively more dispersed across different occupation categories than cognitive or psychosocial and other mental impairments.

Figure 3: Distribution of Disability Categories Within the Top Six Occupation Types



Conclusions

This brief examined demographic and primary disability characteristics of VR case closures with successful employment outcomes. We described the percentages of distribution of these VR consumers based on their age, gender, race, and primary disability across major occupation categories and discussions focused on the top six most frequently placed occupation types. Patterns of demographic traits within each occupational category discussed are remarkably consistent from 2008 to 2012. Meanwhile, we observed heterogeneity of different demographic characteristics across different occupational categories for VR consumers with successful employment outcomes.

The results presented in this brief add to the first phase of our analysis of labor market information in VR in tems of the bivariate association between demographic and disability variables and occupational employment outcomes. We believe that our analysis will help VR professionals, policy makers, and researchers appreciate the demographic patterns of VR consumers employed by major occupation categories in the recent labor market.

In addition, demographic patterns and variations observed across occupations in this brief will inform future analyses. Our analysis brings into the attention that VR consumers with cognitive impairments, along with those with psychosocial and other mental impairments, constitute the major portion within the employment outcomes achieved in the top six major occupations. Certain occupations have the propensity to employ female over male and some occupation may employ more minorities than others. For our future analysis that will identify influential factors affecting occupational closure patterns, we will take into account the demographic patterns and variations observed from this analysis, and control for demographic characteristics of the population not served by VR.

Table 2: Median Age Across Major Occupation Types, 2008–2012

Major Occupation Type	2008	2009	2010	2011	2012	Mean	Std.Dev
Military Specific Occupations	18	18	23	33	23	22.2	5.3
Food Preparation and Serving Related Occupations	26	26	25	26	25	25.7	0.5
Personal Care and Service Occupations	31	31	29	30	29	30.2	0.9
Sales and Related Occupations	33	31	31	30	29	31.2	1.5
Installation, Maintenance, and Repair Occupations	32	33	33	31	31	32.0	0.8
Architecture and Engineering Occupations	35	36	34	35	32	34.3	1.2
Production Occupations	35	35	35	34	33	34.3	0.7
Life, Physical, and Social Science Occupations	35	34	35	33	35	34.7	0.9
Computer and Mathematical Occupations	36	35	35	35	34	34.9	0.6
Farming, Fishing, and Forestry Occupations	39	37	34	32	30	35.0	3.3
Arts, Design, Entertainment, Sports, and Media Occupations	37.5	37	36	35	35	36.1	0.9
Office and Administrative Support Occupations	37	37	37	36	35	36.5	0.8
Transportation and Material Moving Occupations	37	36	37	37	36	36.5	0.5
Building and Grounds Cleaning and Maintenance Occupations	38	37	37	36	35	36.7	0.9
Healthcare Practitioners and Technical Occupations	37	37	36	37	36	36.7	0.5
Healthcare Support Occupations	37	37	37	36	36	36.7	0.5
Construction and Extraction Occupations	36	38	38	37	37	37.0	0.8
Education, Training, and Library Occupations	39	38	39	39	38	38.3	0.7
Protective Service Occupations	42	40	40	39	38	40.0	1.3
Legal Occupations	39	41	41	40	41	40.2	0.9
Community and Social Services Occupations	42	41	42	43	42	42.0	0.6
Business and Financial Operations Occupations	42	43	42	42	43	42.2	0.7
Management Occupations	43	44	44	44	45	43.8	0.7
Others	52	51	51	52	52	51.8	0.7

Note: This table is ordered by mean of the median ages across five years, in ascending order. The top six occupations have been shaded.

Table 3: Percentages of Major Occupational Type Stratified by Age Groups (Five-Year Average)

Major Occupation Type	Transition Age [14-24]	Middle Age [25-64]	Elderly [65+]	Total
Office and Administrative Support Occupations	13.6%	15.0%	12.3%	14.5%
Food Preparation and Serving Related Occupations	15.3%	8.4%	3.1%	10.5%
Building and Grounds Cleaning and Maintenance Occupations	8.4%	9.7%	4.5%	9.1%
Sales and Related Occupations	10.7%	7.6%	10.4%	8.7%
Transportation and Material Moving Occupations	7.8%	8.7%	7.5%	8.4%
Production Occupations	8.1%	8.2%	3.5%	8.0%
Personal Care and Service Occupations	7.1%	5.0%	4.3%	5.7%
Installation, Maintenance, and Repair Occupations	6.1%	4.7%	3.5%	5.1%
Healthcare Support Occupations	3.9%	4.7%	2.1%	4.4%
Education, Training, and Library Occupations	2.9%	3.5%	4.8%	3.4%
Construction and Extraction Occupations	2.7%	3.6%	1.9%	3.2%
Management Occupations	1.8%	3.5%	6.5%	3.0%
Community and Social Services Occupations	1.5%	3.6%	3.5%	2.9%
Healthcare Practitioners and Technical Occupations	2.3%	3.1%	2.1%	2.8%
Others	.7%	2.5%	19.7%	2.5%
Protective Service Occupations	1.4%	1.7%	2.7%	1.6%
Business and Financial Operations Occupations	1.0%	1.8%	2.6%	1.6%
Arts, Design, Entertainment, Sports, and Media Occupations	1.2%	1.2%	1.7%	1.2%
Computer and Mathematical Occupations	1.0%	1.2%	.3%	1.1%
Architecture and Engineering Occupations	.8%	.7%	.7%	.7%
Farming, Fishing, and Forestry Occupations	.8%	.6%	1.1%	.6%
Life, Physical, and Social Science Occupations	.5%	.5%	.6%	.5%
Legal Occupations	.2%	.3%	.5%	.3%
Military Specific Occupations	.4%	.2%	.1%	.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: This table is ordered by mean of the median ages across five years, in ascending order. The top six occupations have been shaded.

Table 4: Percentages of Major Occupational Type Stratified by Racial/Ethnic Groups (Five-Year Average)

Major Occupation Type	White (non-Hispanic)	African American (non-Hispanic)	Others (non-Hispanic)	Hispanic	Total
Office and Administrative Support Occupations	14.7%	13.2%	17.0%	15.2%	14.5%
Food Preparation and Serving Related Occupations	9.7%	13.9%	10.0%	9.3%	10.5%
Building and Grounds Cleaning and Maintenance Occupations	7.8%	13.3%	8.9%	9.5%	9.1%
Sales and Related Occupations	9.2%	6.8%	8.3%	9.3%	8.7%
Transportation and Material Moving Occupations	7.9%	10.1%	6.7%	8.2%	8.4%
Production Occupations	7.8%	8.4%	8.2%	8.4%	8.0%
Personal Care and Service Occupations	5.3%	6.2%	5.8%	6.7%	5.7%
Installation, Maintenance, and Repair Occupations	5.4%	4.3%	5.2%	5.1%	5.1%
Healthcare Support Occupations	3.9%	5.5%	3.4%	4.9%	4.4%
Education, Training, and Library Occupations	3.7%	2.3%	3.3%	3.2%	3.4%
Construction and Extraction Occupations	3.5%	2.6%	2.4%	3.1%	3.2%
Management Occupations	3.6%	1.6%	2.5%	2.3%	3.0%
Community and Social Services Occupations	2.9%	3.2%	2.8%	2.3%	2.9%
Healthcare Practitioners and Technical Occupations	3.2%	1.6%	2.7%	2.4%	2.8%
Others	2.6%	2.1%	2.8%	2.3%	2.5%
Protective Service Occupations	1.5%	1.8%	1.4%	1.9%	1.6%
Business and Financial Operations Occupations	1.8%	1.0%	2.0%	1.1%	1.6%
Arts, Design, Entertainment, Sports, and Media Occupations	1.4%	.6%	1.5%	1.3%	1.2%
Computer and Mathematical Occupations	1.3%	.6%	1.7%	.8%	1.1%
Architecture and Engineering Occupations	.9%	.2%	.9%	.8%	.7%
Farming, Fishing, and Forestry Occupations	.7%	.3%	.6%	.7%	.6%
Life, Physical, and Social Science Occupations	.5%	.2%	.7%	.5%	.5%
Legal Occupations	.3%	.1%	.3%	.3%	.3%
Military Specific Occupations	.3%	.2%	.7%	.5%	.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: This table is ordered by number of employment closures (not shown) for major occupation types in descending order.

Table 5: Percentages of Major Occupation Types Stratified by Disability Groups (Five-Year Average)

Major Occupation Type	Sensory/ Communicative Impairments	Physical Impairments	Cognitive Impairments	Psychosocial and Other Mental Impairments
Office and Administrative Support Occupations	15.1%	17.1%	12.5%	13.8%
Food Preparation and Serving Related Occupations	5.5%	5.7%	16.2%	12.5%
Building and Grounds Cleaning and Maintenance Occupations	5.8%	5.6%	13.2%	10.4%
Sales and Related Occupations	7.6%	8.9%	9.3%	8.7%
Transportation and Material Moving Occupations	6.7%	8.1%	9.1%	9.0%
Production Occupations	6.9%	6.4%	9.2%	9.0%
Personal Care and Service Occupations	4.1%	5.4%	6.8%	5.9%
Installation, Maintenance, and Repair Occupations	4.5%	4.2%	6.3%	5.1%
Healthcare Support Occupations	3.6%	4.9%	3.8%	5.1%
Education, Training, and Library Occupations	6.1%	4.4%	1.9%	1.9%
Construction and Extraction Occupations	2.9%	2.9%	2.6%	4.4%
Management Occupations	5.1%	4.9%	1.2%	1.7%
Community and Social Services Occupations	3.4%	4.1%	1.1%	3.4%
Healthcare Practitioners and Technical Occupations	3.6%	4.2%	1.4%	2.4%
Others	8.3%	1.6%	0.5%	0.8%
Business and Financial Operations Occupations	2.6%	2.6%	0.5%	1.0%
Protective Service Occupations	1.9%	2.1%	1.3%	1.2%
Arts, Design, Entertainment, Sports, and Media Occupations	1.7%	1.7%	0.8%	1.0%
Computer and Mathematical Occupations	1.3%	1.7%	0.6%	0.9%
Architecture and Engineering Occupations	1.0%	1.2%	0.5%	0.5%
Farming, Fishing, and Forestry Occupations	0.7%	0.7%	0.7%	0.4%
Life, Physical, and Social Science Occupations	0.6%	0.8%	0.2%	0.4%
Legal Occupations	0.5%	0.5%	0.1%	0.2%
Military Specific Occupations	0.2%	0.3%	0.4%	0.3%
Total	**100.0%**	**100.0%**	**100%**	**100.0%**

Note: This table is ordered by number of employment closures (not shown) for major occupation types in descending order.

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