

An Assessment of EMS Longevity and the Current EMS Workforce in South Carolina

Introduction: It cost several thousands of dollars and significant person hours to educate and train an EMS provider. This is in addition to the significant personal financial and opportunity costs incurred by the student. Long hours, little pay, repetitive physically and emotionally demanding conditions, violence against personnel, and high injury rates have all been cited as reasons why people leave the field of EMS. However, there is limited research examining the longevity of EMS providers.

Objective: To describe the length of time EMS providers in South Carolina remain in the workforce and identify factors related to longevity.

Methods: This was a retrospective observational study of all EMS providers who held an EMS certification in South Carolina from 1970 to 2019. Data were extracted from the South Carolina Continuum application, which is managed by the EMS Performance Improvement Center (EMSPIC). All EMS providers in South Carolina have an initial certification date and certification expiration date recorded within the application. The time between the initial certification date and the certification expiration date was calculated to construct an EMS experience variable. EMS experience was evaluated to describe differences between EMS providers who remained in EMS for less than 8 years, at least 20 years, and at least 30 years compared to those who did not remain in EMS. The initial comparison of 8 years was chosen because, for a portion of time during the study period, South Carolina certifications were valid for 4 years. These categories were chosen to compare those who remained in EMS for more than one recertification cycle (8 years), those who spend a career in EMS (20 years) and those who could retire from EMS in South Carolina (30 years). A separate variable was constructed to identify those currently certified. Since South Carolina currently requires National Registry of EMTs certification, those with an EMS expiration date after 3/31/2018 were considered currently certified. Demographic characteristics evaluated in this study included age, sex (female/male), race (white/black/other) and the individual's current or final certification level (EMT/EMT-B, AEMT/EMT-I, Paramedic/EMT-P). Descriptive statistics were calculated. Chi-square and Wilcoxon rank-sum test were calculated, where appropriate.

Results: There were 23,680 unique individuals who held an EMS certification in South Carolina during the study period. More than two-thirds of those who ever held an EMS certification in South Carolina were male (male 16,301, 68.8%; female 7,379, 31.2%). The majority were white (white 21,931, 92.9%; black 1,288, 5.5%; other 380, 1.6%). Most of those who ever held an EMS certification in South Carolina held an EMT/EMT-B as their current or final certification (14,624, 61.8%). There were 1,951 (8.2%) who held an AEMT/EMT-I and 7,105 (30.0%) who held a Paramedic/EMT-P as their current or final certification. Age at initial EMS certification ranged from 18 to 89. The average age at initial EMS certification was 30.7 years (standard deviation 9.4) with a median of 28 (interquartile range 24-36). The median age when EMS certification expired was a median of 36 (interquartile range 29-46).

EMS experience ranged from less than 1 year (those recently certified at the time of the study) to 47.1 years. The overall median EMS experience was 3.9 years (interquartile range 2.9-9). There were 11,197 (47.3%) who were currently certified and 12,483 (52.7%) who did not hold a current certification. The median EMS experience for those who were currently certified was 4.1 years (interquartile range 2.2-9.5) and the median EMS experience for those who did not hold a current certification 3.9 years (interquartile range 3-8.7). This difference was not statistically significant ($p>0.05$). The average age of those who were currently certified was 38 years (standard deviation 11.4) median 36 (interquartile range 29-46).

There were 6,626 (28.0%) individuals who remained in the South Carolina EMS workforce for at least 8 years. Statistically significant differences in sex, race, and certification level were noted when comparing those with at least 8 years of service and those with less than 8 years of service ($p < 0.01$). A larger percentage of males maintained certification for at least 8 years (female 1,665, 22.6%; male 4,961, 30.4%). Compared to those who identified as white or black, fewer individuals of other races maintained certification for at least 8 years (white 6,206, 28.3%; black 356, 27.6%; other 55, 14.5%). A greater proportion of Paramedic/EMT-P maintained a South Carolina EMS certification for at least 8 years (EMT/EMT-B 2,747, 18.8%; AEMT/EMT-I 598, 30.7%; Paramedic/EMT-P 3,281, 46.2%).

There were 2,090 (8.8%) individuals who remained in the South Carolina EMS workforce for at least 20 years. Statistically significant differences were revealed when comparing those with at least 20 years of service and those with less than 20 years of service by sex, race, and certification level ($p < 0.01$). A larger percentage of males had at least 20 years of service (female 372, 5.0%; male 1,718, 10.5%). Fewer of those whose race was categorized as other had at least 20 years of service when compared to those categorized as white or black (white 1,961, 8.9%; black 107, 5.1%; other 16, 4.2%). A higher percentage of Paramedics/EMT-P had 20 years of service (EMT/EMT-B 556, 3.8%; AEMT/EMT-I 141, 7.2%; Paramedic/EMT-P 1,393, 19.6%).

There were 601 (2.5%) individuals who remained in the South Carolina EMS workforce for at least 30 years. Statistically significant differences were revealed when comparing those with at least 30 years of service and those with less than 30 years of service by sex, race, and certification level ($p < 0.01$). A larger percentage of males had at least 30 years of service (female 81, 1.1%; male 520, 3.2%). A larger proportion of those whose race was categorized as white or black had at least 30 years of service compared to those whose race was categorized as other (white 564, 2.6%; black 31, 2.4%; other 5, 1.3%). A higher percentage of Paramedics/EMT-P had at least 30 years of service (EMT/EMT-B 112, 0.8%; AEMT/EMT-I 28, 1.4%; Paramedic/EMT-P 461, 6.5%).

Conclusion: Those currently certified in South Carolina have similar years of EMS experience and are similar in age to those who are no longer certified. These results are troubling with respect to maintaining the current workforce. They suggest that currently certified individuals may be on the verge of leaving the field. Strategies to encourage currently certified individuals to remain in the field of EMS are needed. Moreover, this study revealed that almost three-quarters of the South Carolina EMS workforce maintained their EMS certification for less than 8 years, over 90% don't make it to 20 years of service and over 98% do not accumulate enough service time to retire from EMS. Females maintain EMS certification for fewer years compared to males and EMTs maintain certification for fewer years compared to paramedics. To maintain a workforce of experienced EMS providers will require strategies that encourage EMS providers to remain in the workforce. This study provides some guidance for groups that should be targeted including females and those certified at the EMT level.