



ACP Paramedics and ACP Paramedic Employers: The Perceived Necessity for a College Degree in the Paramedic Profession

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Before We Get Started

- ACP vs paramedic
- Why only in the US
- Why not a specific degree
- Associates, Bachelors, Masters, Doctorate

Purpose of the Study

- Why do we care?
- No present college education standard in paramedicine in the United States
- Most other healthcare professions have evolved in college education
- Opinions on both sides
- No actual research in college education and paramedics

Definitions

- Committee on Accreditation of Educational Programs for the Emergency Medical Services (CoAEMSP) – the only accrediting organization of paramedic training programs in the US (CoAEMSP, 2020).
- National Registry of EMTs (NREMT) Paramedic Certification – a national certification for (ACP) paramedics that measures cognitive knowledge and practical skills as a paramedic (NREMT, 2020)
- (ACP) Paramedic – a certified provider of advanced life support in EMS (NREMT, 2020).
- (ACP) Paramedic Training Program – the initial training for paramedic certification that includes classroom, clinical, and field training (CoAEMSP, 2020).

National Association of State EMS Officials (NASEMSO) Regions

NASEMSO Regions

East Region	South Region	Great Lakes Region	Western Plains Region	West Region
Connecticut	Alabama	Illinois	Colorado	Alaska
Delaware	Arkansas	Indiana	Iowa	Arizona
Maine	Florida	Michigan	Kansas	California
Maryland	Georgia	Minnesota	Missouri	Hawaii
Massachusetts	Kentucky	Ohio	Montana	Idaho
New Hampshire	Louisiana	Wisconsin	Nebraska	Nevada
New Jersey	Mississippi		New Mexico	Oregon
New York	North Carolina		North Dakota	Washington
Pennsylvania	Oklahoma		South Dakota	
Rhode Island	South Carolina		Utah	
Vermont	Tennessee		Wyoming	
West Virginia	Texas			
	Virginia			

(National Association of State EMS Officials , 2021)

Background of Paramedicine in the US

- Birth of paramedicine
- Paramedic education history
- Healthcare professional education parallel comparison
- Present education standard (1977, 1985, now)
- Present college degree requirements (U.S., U.K., and Australia)
 - Kansas and Oregon
- Support for college degree standards
- Opposition to college degree standards

Conceptual Framework

- Benefits of a college degree in the field of paramedicine
- Soft Skills
 - Critical Thinking
 - Analyzing
 - Writing
 - Communication

Research Questions (RQs)

- RQ1. Do paramedics that have a minimum of an associate degree perceive that their education has contributed to the development of their soft skills?
- RQ2. Are paramedics from states that require college degrees for new paramedic certification more likely to perceive that college degrees contribute to the development of soft skills than paramedics from states that do not require a college degree for new paramedic certification?
- RQ3. Do paramedic employers who believe college degrees promote the development of soft skills prefer paramedics with college degrees?
- RQ4. Do paramedics and paramedic employers who believe that a college degree contributes to the development of soft skills place a higher need on obtaining a college degree?
- RQ5. Do paramedic training programs that offer a college degree have higher first attempt pass rates on the NREMT paramedic certification exam than programs that do not offer college degrees?

Methodology - Paramedic Survey Instrument (PSI)

- Created by this researcher specifically for this research project
 - Included personal, professional, and education demographic questions
 - 5-point Likert statements regarding soft skills, applicability of college degrees in paramedicine, and college majors.
 - Piloted in NJ (those participants were not included in actual study)
- (ACP) Paramedic population
 - PSI sent to each state Office of EMS (OEMS) for distribution
 - Several states provided researcher with email list
 - Several states distributed survey directly to their paramedic population
 - Some states did not reply to multiple requests
 - PSI also sent to several national associations for distribution to their respective paramedic population
- Over 10,000 direct survey emails were sent
- 4542 surveys started; $N = 3925$ (86.4% completion)

Methodology - Paramedic Employer Survey Instrument (PESI)

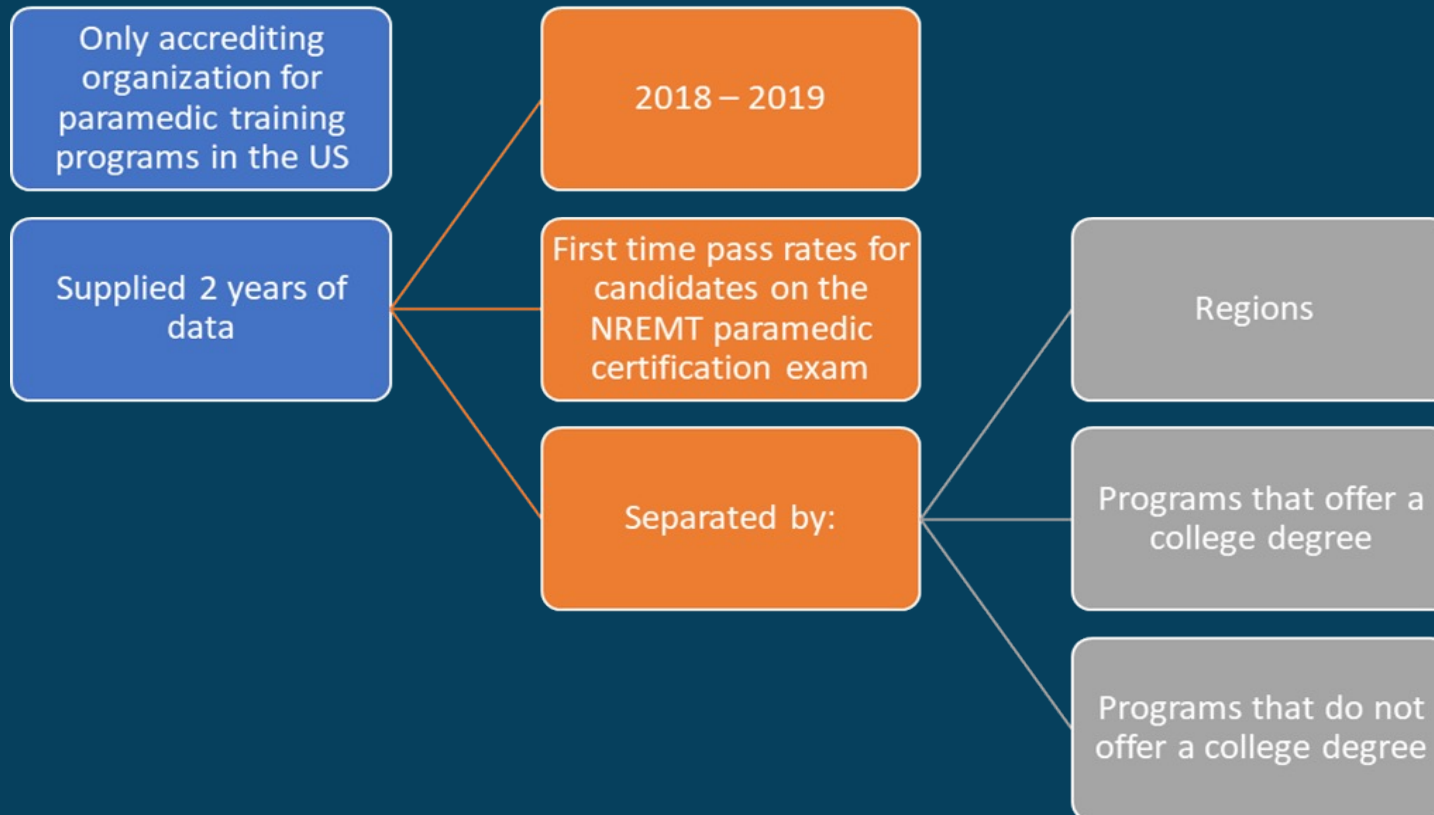
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 - Several states provided researcher with email list
 - Several states distributed survey directly to their paramedic population
 - Some states did not reply to multiple requests
 - PESI also sent to several national associations for distribution to their respective paramedic population
- Over 1,300 direct survey emails were sent
- 768 surveys started; $N = 503$ (65.5%)

Methodology - Paramedicine Qualitative Survey (PQS)

- Created by this researcher specifically for this research project
- Follow-up qualitative survey for both paramedics and paramedic employers
- 8 open-ended questions regarding soft skills and college degrees
- Piloted in NJ (those participants were not included in actual study)
- Randomly Selected Recipients of PQS
 - 50 Paramedics
 - 10 from each NASEMSO Region
 - 5 who reported possessing a college degree ($n = 5$)
 - 5 who reported not possessing a college degree ($n = 7$)
 - 50 Paramedic Employers
 - 5 who reported preferring paramedics with a college degree ($n = 11$)
 - 5 who reported not preferring paramedics with a college degree ($n = 7$)

3rd Party Data

- 2 years of data was received from CoAEMSP
 - Program reported first-time pass rate of paramedic candidates on NREMT Paramedic exam



Paramedic Participants *(n=3925)*

- Majority between 25 and 54 years old (79.7%)
- Predominately white (91.9%) male (75.2%)
- Majority 911 paramedics (59.3%)
- Years of experience 0-10 (39.1%), 11-20 (30.5%), > 20 years (30.4%)
- Paramedicine lifelong career (36.7%), open to other careers (31.7), actively looking elsewhere (31.7%)
- Almost half (49.1%) initial training did not offer a college degree option
- HS/GED (24.7%), Associate (30.1%), Bachelors (30.2%), Masters (12.6%), Doctoral (2.4%)

Paramedic Employer Participants ($n=503$)

- Titles included director (40.4%), manager (16.7%), president (2.2%), VP (1.6%), and other (39.2%)
- Service types included private (22.7%), FD (19.9%), hospital (14.9%), and government (31.4%)
- Majority (63.4%) had 10-100 employees, (30.6%) 101-1000 employees
- Most (90.5%) provided 911 ALS services, 911 BLS (67.8%), fire services (28.2%), critical care transport (43.9%), air medical (10.5%)
- Reported employer education HS/GED (21.9%), associate (27%), bachelors (29.4%), masters (19.1%), doctoral (2.6%)
- Required education level for paramedics HS GED (91.3%), associate (8%), bachelors (0.6%), graduate degree (0.2%)
- Preferred paramedics with a minimum of associate degree (48.4%), did not (51.6%)

RQ1 - Findings and Data Analysis

RQ1 - Do paramedics that have a college degree, defined as a minimum of an associate degree, perceive that their education has contributed to the development of soft skills?

DV – College Soft Skill Benefits; IV – Highest Level of Education and Region

- Data from 5-point PSI
- ANOVA used to measure highest level of education and soft skills ($F(4, 3900) = 220.966, p < 0.001$)
- No statistical significance, $p = 0.298$, in the variation of the responses among regions
- As completed level of education increased, so did the belief that their education contributed to their soft skills development

(N = 3925)	High school / GED		Associate degree		Bachelor's degree		Master's degree		Doctoral degree	
	M	SE	M	SE	M	SE	M	SE	M	SE
East region	2.62	0.07	3.64	0.07	3.96	0.06	4.21	0.09	4.32	0.18
South region	2.68	0.05	3.51	0.05	3.95	0.05	4.26	0.08	4.54	0.18
Great lakes region	2.62	0.1	3.62	0.08	4.04	0.09	4.58	0.13	4.06	0.29
Western plains region	2.84	0.09	3.48	0.06	4.01	0.07	4.13	0.11	4.24	0.27
West region	2.87	0.11	3.62	0.1	4.07	0.1	4.42	0.17	4.61	0.5
Overall	2.73	0.04	3.57	0.03	4.01	0.03	4.32	0.05	4.35	0.14

RQ1 PQS

Paramedics with a college degree ($n = 5$) and paramedics without a college degree ($n = 7$)

"A well-rounded education exposes us to new knowledge and stretches our minds to consider things in new ways. The more ways we can look at an issue, the better we can assess situations and subsequently find answers to problems."

"Yes and no. You can lecture about critical thinking and have classroom discussions and table top exercises but nothing replaces the ride along provider experience that paramedics must do in order to complete their training. This is the same model that nurses and physicians use during their training."

- Participants with college degrees were more positive in their responses than those without a college degree
- Group without a college degree had comments regarding life experience
- Both groups were more supportive of writing and analyzing

RQ1 Summary

- Data supports that paramedics with a minimum of an associates degree believe their education has contributed to their soft skills development.
- Paramedics without a college degree did not demonstrate belief that a college degree could contribute to the development of their soft skills.
- Null hypothesis is rejected (H_{10} . Paramedics that have a minimum of an associate degree are not more likely to believe that their education has contributed to the development of their soft skills than paramedics that do not have a minimum of an associate degree)

RQ2 - Findings and Data Analysis

RQ2 - Are paramedics from states that require college degrees for new paramedic certification more likely to perceive that college degrees contribute to the development of soft skills than paramedics from states that do not require a college degree for new paramedic certification?

DV – College Soft Skill Benefits; IV – States (KS and OR; other 48 states)

College degree required	N	M	SD	Skewness	Kurtosis
Yes	274	3.68	1.02	-0.72	-0.22
No	3651	3.57	1.15	-0.63	-0.55

Data were normally distributed for the two groups as absolute values of skewness ≤ 2 and absolute values of kurtosis ≤ 4 , indicating the normality assumption was satisfied for the t -test

- Two-sample t -test showed no significant difference ($t(328.33) = 1.789$ $p = 0.074$)

RQ2 Summary

- Data did not support RQ2
- Null hypothesis was retained (H_{20} . Paramedics from states that require college degrees for new paramedic certification will not be more likely to perceive that college degrees contribute to the development of soft skills than paramedics from states that do not require a college degree for new paramedic certification)

RQ3 - Findings and Data Analysis

RQ3 - Do paramedic employers who believe college degrees promote the development of soft skills prefer paramedics with college degrees?

DV – Employer preference for paramedics with college degrees; IV – College soft skill benefits and Region

- Data from PESI survey (N = 459).
- Employers who reported to be present in multiple states were not included.
- Soft skills benefit was significant ($F(1, 459) = 343.952, p < 0.001$) using a GLM
 - Employers who believe in college soft skills prefer paramedics with college degrees
- No statistical significance, $p = 0.662$, in the variation of the responses among regions

RQ3 - PQS

Paramedic employers who prefer paramedics with a college degree ($n = 11$) and paramedic employers who do not prefer paramedics with a college degree ($n = 7$)

"College education diversifies a paramedic's exposure to multiple fields of study and thus gives them a wider background from which to draw information from when critically thinking."

"Yes, generally; but, having to write papers and getting feedback about writing makes for better writers. Unfortunately some college programs simply put a letter grade on the product and do not mentor the writers."

- Participants who preferred college degrees were more positive in their responses than those who did not prefer a college degree
 - This group agrees that college work is relevant to EMS work
 - All 4 main soft skills
 - Writing was most agreed
- Participants who did not prefer paramedics with college degrees did not agree that college degrees contribute to critical thinking development.
 - Many from this group were unsure with analyzing
 - Most agreed writing and communication skills can benefit from a college degree

RQ3 Summary

- Data supports that paramedic employers who believe college degrees promote the development of soft skills prefer paramedics with college degrees.
- Paramedic employers who did not prefer paramedics with college degrees did not believe college degrees promote the development of soft skills
- Null hypothesis is rejected (H_{30} . If paramedic employers do not think college degrees promote the development of soft skills, then they will not be more likely to prefer paramedic employees who have college degrees)

RQ4 - Findings and Data Analysis

RQ4 - Do paramedics and paramedic employers who believe that a college degree contributes to the development of soft skills place a higher need on obtaining a college degree?

DV – Necessity to obtain a college degree (PSI and PESI); IV – College soft skill benefits and Region

- Compared three Likert statements from PSI and PESI to soft skills and regions

College Degree Likert Statements on PSI and PESI

Likert Statement	PSI <i>M (SD)</i>	PESI <i>M (SD)</i>
A minimum of an associate degree should be required for paramedic certification	3.39 (1.60)	2.86 (1.58)
A specific college major is not important, as long as the paramedic has a college degree	2.57 (1.21)	2.62 (1.22)
Paramedicine should have its own standardized college degree, similar to nursing and the Bachelor of Science in Nursing (BSN) degree	4.07 (1.15)	3.91 (1.17)

RQ4 - Findings and Data Analysis

- Minimum of an associates degree
 - PSI – ($M = 3.39$) GLM showed significance with soft skills agreement ($F(1, 3915) = 2423.740, p < 0.001$)
 - No significance among regions ($F(4, 3915) = 1.635, p = 0.162$)
 - PESI – ($M = 2.86$) GLM showed significance with soft skills agreement ($F(1, 459) = 272.533, p < 0.001$)
 - No significance among regions ($F(4, 3915) = 1.106, p = 0.352$)
- Paramedic group had higher level of agreement than employers
- As belief in soft skills from college degrees rose, so did the agreement with this statement

RQ4 - Findings and Data Analysis

- Specific College Major
 - PSI – ($M = 2.57$) GLM showed significance with soft skills agreement ($F(1, 3915) = 239.302, p < 0.001$)
 - No significance among regions ($F(4, 3915) = 0.481, p = 0.750$)
 - PESI – ($M = 2.62$) GLM showed significance with soft skills agreement ($F(1, 459) = 56.388, p < 0.001$)
 - No significance among regions ($F(4, 459) = 1.141, p = 0.337$)
- Both groups had lower scores of agreement
- As belief in soft skills from college degrees rose, so did the agreement with this statement

RQ4 - Findings and Data Analysis

- Standardized Degree for Paramedicine
 - PSI – ($M = 4.07$) GLM showed significance with soft skills agreement ($F(1, 3915) = 750.923, p < 0.001$)
 - No significance among regions ($F(4, 3915) = 1.449, p = 0.215$)
 - PESI – ($M = 3.91$) GLM showed significance with soft skills agreement ($F(1, 459) = 66.480, p < 0.001$)
 - No significance among regions ($F(4, 459) = 0.667, p = 0.615$)
- Both groups had higher scores of agreement
- As belief in soft skills from college degrees rose, so did the agreement with this statement

RQ4 Summary

- Data supports that paramedics and paramedic employers who believe that a college degree contributes to the development of soft skills place a higher necessity on obtaining a college degree
- Both groups demonstrate preference for a specific college major in paramedicine over no specific major.
- Null hypothesis is rejected (H_{40} . If paramedics and employers believe a college degree contributes to developing soft skills, then they will not place a higher necessity to obtain a college degree)

RQ5 - Findings and Data Analysis

RQ5 - Do paramedic training programs that offer a college degree have higher first attempt pass rates on the NREMT paramedic certification exam than programs that do not offer college degrees?

DV – CoAEMSP 1st time pass rates and PSI self-reported 1st time pass rates; IV – Highest Level of Education and Region

- Data used from CoAEMSP and self-reported pass-rates from PSI
- Logistic regression (PSI) showed no significant difference between programs that offered a college degree vs. programs that did not ($\chi^2(3) = 2.411, p = 0.492$)
- Two-sample *t*-test (CoAEMSP) showed no significance between programs for 2018 ($t(282) = -0.310, p = 0.757$) and 2019 ($t(292) = 0.040, p = 0.968$)

RQ5 Summary

- Data does not support that paramedic training programs that offer a college degree have higher first attempt pass rates on the NREMT paramedic certification exam than programs that do not offer college degrees
- Both data sets, PSI and CoAEMSP, did not demonstrate statistical differences between program types
- Null hypothesis is retained ($H5_0$. Paramedics who have a college degree are not more likely to pass the National Registry Paramedic Certification examination on their first attempt)

Conclusions

- U.S. Paramedics with a college degree perceive that their degree assisted in developing and applying soft skills in their profession.
 - This perception increases as the individual's level of education increases.
 - This perception is not affected by region or state mandate.
- The four soft skills measured in this study can all be derived from a college degree. However, writing and communication were rated higher in the surveys than the other two soft skills.
- Writing, communications, analyzing, and critical thinking can be directly linked to everyday paramedic practice.

Conclusions

- Paramedic employers who believe that college degrees assist in the development of soft skills have a higher preference for paramedics with college degrees.
- Paramedics and paramedic employers who believe that college degrees assist in the development of soft skills agree that:
 - Paramedics should have a minimum of an associate degree
 - Paramedicine should have its own degree
 - They are less likely to agree that any college degree major is as good as a particular major
- NREMT paramedic certification 1st-time pass rates are not affected by whether the training program offers a degree

Implications and Recommendations

For paramedics:

- National guidelines for minimum of an associate degree
- Higher education standards for specific associate and baccalaureate degrees
- College admin should recognize prior training for credits

For paramedic employers:

- Foster growth with career paths
- Establish agreements with higher education institutions
- Solicit potential paramedic candidates from junior colleges
- Research to identify ideal paramedicine curriculum

Future research:

- Specific majors
- Other college degree benefits
- Patient care impacts from degreed/non-degreed paramedics
- Longitudinal study on financial impacts and candidate pools

Thank You