

Role Strain, Part 1: Experiences of Athletic Trainers Employed in the Professional Sports Setting

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Context: The demands and expectations of athletic trainers employed in professional sports settings (ATPSSs) have increased over the years. Meeting these demands and expectations may predispose the athletic trainer to workplace stress and ultimately role strain.

Objective: To investigate the concept of role strain among ATPSSs.

Design: Sequential, explanatory mixed-methods study consisting of 2 phases: (1) population role-strain survey and (2) personal interviews.

Patients or Other Participants: From a purposeful sampling of 389 athletic trainers employed in the 5 major sports leagues (Major League Baseball, Major League Soccer, National Basketball Association, National Football League, and National Hockey League), 152 individuals provided usable data (39% response rate).

Main Outcome Measure(s): A previously validated and reliable role-strain survey using a 5-point Likert scale (1 = *never*,

5 = *nearly all the time*) was administered. Measures of central tendency were used to identify the presence and degree of role strain; inferential statistics were calculated using analysis of variance to determine group differences in overall role strain and its subcomponents.

Results: More than half of the participants (53.9%) experienced a moderate to high degree of role strain. Interrole conflict (2.99 ± 0.77) and role overload (2.91 ± 0.75) represented the most prominent components of role strain. Differences existed by sport leagues and employment.

Conclusions: Role strain existed at moderate to high levels (mean Role Strain Score > 2.70) among ATPSSs. Interrole conflict and role overload contributed the most to overall role strain. The ATPSSs experienced role strain to a higher degree than reported in other settings.

Key Words: role stress, interrole conflict, role overload, role incongruity

Key Points

- Role strain existed at moderate levels among athletic trainers in professional sports settings.
- Interrole conflict and role overload contributed the most to overall role strain.

The expansion of professional sports has increased the psychosocial demands on those employed at this level of competition.^{1–4} Athletic trainers' (ATs') responsibilities in the professional sports setting (PSS) have evolved. Athletic trainers provide direct patient care to the professional athlete and also serve as the medical liaison among athletes, coaches, organization management, and the professional sport league. Meeting the expectations of and obligations to the athlete, the organization, and the league may predispose the AT to workplace stress and result in role strain.

Role stress occurs when role demands are difficult, conflicting, or impossible to meet and is the intrinsic expression of role strain.⁵ Role strain is a "subjective state of emotional arousal in response to the external conditions of social stress."^{5(p165)} The classification of role strain subcomponents is presented in Table 1. Role strain is prevalent in a variety of health care professionals, such as nurses,^{6–8} physicians,⁹ and physical therapists.¹⁰ Role-strain research in athletic training encompasses the collegiate and secondary school employment settings.^{11–13} Characteristics of the PSS may be different from those of other settings

studied, and findings from those settings may not be transferable to ATs employed in the PSS (ATPSSs).

The competing expectations from the professional athletes, the organization, and the league of the ATPSS may lead to role overload.^{1,12,14,15} Athletic trainers entering employment in the PSS may be unaware of these additional expectations, which may lead to role ambiguity.^{6,16–19} The purpose of our study was to identify the existence and extent of role strain in ATPSSs, to describe the most prevalent components of role strain, to depict the differences in role strain by sport league, and to determine whether demographic and employment variables influenced role-strain scores.

METHODS

Participants

We recruited ATs from Major League Baseball (MLB), Major League Soccer (MLS), the National Basketball Association (NBA), the National Football League (NFL), and the National Hockey League (NHL). Athletic trainers

Table 1. Descriptions of Role-Strain Subscales⁵

Role-Strain Subscale	Definition
Role overload	Difficulty fulfilling role obligations because role expectations are too complex, too excessive, or too time consuming
Role ambiguity	Unclear or vague role expectations
Role incongruity	A person's perception of himself or herself runs counter to the demands or expectations (or both) of the role occupied
Role incompetence	Lacking the skills, knowledge, or ability to take on the responsibilities of the role assumed
Role conflict	Athletic training roles are clear but are competing or incompatible with the expectations of those roles
Intersender conflict	The demands of a member in a role set are incompatible with the demands of another in that same role set
Intrasender conflict	The demands of a given role are incompatible or mutually exclusive
Interrole conflict	A situation in which a role occupant simultaneously has more than 1 role and the demands of 1 role conflict with the demands of another role

employed full time in each of the 5 major professional sport leagues received an e-mail request to participate. We obtained publicly accessible e-mail addresses by contacting the professional AT organizations of each league. Inclusion criteria were full-time employment as an AT and current membership in a professional organization. Exclusion criteria were not being employed full time (eg, intern or part-time staff) or not being affiliated with a professional organization.

Data-Collection Procedures

The role-strain survey was modified from 2 existing instruments.^{7,12} Originally Mobily⁷ developed a survey to investigate role strain in nurse faculty at major university hospitals. Brumels and Beach¹² modified the Mobily survey to address the AT population. We modified the survey by removing questions about scholarly service in higher education and revising the language of a few questions to increase specificity to the PSS. A pilot study was performed ($n = 6$) to address face and content validity, interpretation, and usability. The results of the pilot study confirmed the face validity, interpretation, and usability of the survey and prompted the removal of the *not applicable* response. Data from the electronic survey were collected using an online platform (Survey Monkey, Palo Alto, CA). To examine the degree of role strain, we followed the procedures established by Mobily⁷ and replicated by Brumels and Beach.¹² The mean role-strain value (2.70 ± 0.06) was rounded to the nearest tenth. The low role-strain category was established using the sample mean score and 1 standard deviation (SD) below, because this fell between the *rarely* and *sometimes* responses. Using the same logic, we established the following categories: minimal role strain = 2.10 or below, low role strain = 2.11–2.69, moderate role strain (MRS) = 2.70–3.30, and high role strain = 3.31 or above.

Data-Analysis Procedures

The recruitment letter with the link to the role-strain survey was e-mailed to 389 potential participants (MLB = 83, MLS

= 40, NBA = 73, NFL = 122, NHL = 71). Three e-mails were undeliverable, reducing the potential respondents to 386. At the close of the survey, 172 responses were recorded (44.6% response rate). Twenty responses were eliminated because of incomplete data (no role-strain data), with 152 participants remaining (39.4% response rate for analysis). During the initial analysis, we identified a few random missing data points. Because the missing data in each of the questions were less than 2%, the expectation-maximization technique was used to replace missing data. The Little missing completely at random statistical test was used to determine that the missing data were random. Of a possible 5168, 55 iterations existed, and each of those variables was replaced using the expectation-maximization technique.

Each participant answered the 34-question AT role-strain survey, which consisted of items about how often a situation occurred, using a 5-point Likert scale (1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, 5 = *nearly all the time*). Sample items included “Receiving insufficient recognition for my clinical expertise” and “Coping with the changing expectations from the professional league you work for.” Each question related to a specific role-strain subscale, and the order was randomized to eliminate bias.

Descriptive statistics and measures of central tendency were calculated to assess whether role strain existed for ATPSSs and if so, which components of role strain were most prevalent. We also conducted an analysis of variance to determine significant differences between the role-strain subscales and groups for the demographic and employment information. The Pearson product moment correlation was used to correlate the independent variables in the demographic and employment portions with the dependent variable, the level of role strain (mean Role Strain Score [RSS]) identified by each participant. Normality of data and homogeneity of variance were calculated in order to meet the assumptions of analysis of variance.²⁰ An a priori significance level was set at $P = .05$. The analysis was conducted using SPSS (version 22.0; IBM Corp, Armonk, NY).

RESULTS

Demographics of the ATPSSs in our study are presented in Table 2. The mean RSS for the sample and the mean scores for the role-strain subscales are presented in Table 3. The overall mean score on the role-strain survey for the sample was 2.70, with an SD of 0.63. More than 83% ($n = 127$) of the sample had experienced some degree of role strain, and more than half (53.7%, $n = 81$) had experienced a moderate to high degree of role strain (Table 4).

Further analysis identified that ATs employed in professional hockey appeared to experience role strain at a higher degree (2.99 ± 0.50 ; Table 5) than those in the other 4 professional sport leagues. Although the differences were not statistically significant ($F_{4,146} = 2.259$, $P = .066$), MLB ATs (2.51 ± 0.52) ranked lowest in role strain of the 5 major sport leagues.

Interrole conflict (2.98 ± 0.77) and role overload (2.91 ± 0.75) had the highest mean values among the subscales. Analysis of variance revealed a main effect of professional league affiliation on the subscale score for role ambiguity ($F_{4,146} = 2.461$, $P = .036$). Differences were identified between ATs employed in the NHL and those employed in

Table 2. Respondents' Demographics (N = 152)

Characteristic	n (%)
Marital status	
Married	109 (71.7)
Divorced	8 (5.3)
Single	13 (8.6)
Single but cohabiting	18 (11.8)
Engaged	4 (2.6)
Total	152 (100)
Highest degree obtained	
Bachelor's	44 (28.9)
Master's	87 (57.2)
Doctorate	18 (11.8)
Other	3 (2.1)
Total	152 (100)
Years Board of Certification certified	
0–5	15 (9.9)
6–10	31 (20.4)
11–15	28 (18.4)
16–20	31 (20.4)
21+	47 (30.9)
Total	152 (100)
Years in current position	
0–5	92 (60.5)
6–10	24 (15.8)
11–15	13 (8.6)
16–20	13 (8.6)
21+	10 (6.6)
Total	152 (100)
Years in professional sport league	
0–5	59 (38.8)
6–10	21 (13.8)
11–15	21 (13.8)
16–20	24 (15.8)
21+	27 (17.8)
Total	152 (100)
Years in current organization	
0–5	61 (40.1)
6–10	33 (21.7)
11–15	19 (12.5)
16–20	19 (12.5)
21+	19 (12.5)
Total	151 ^a (99.3)
Total years in professional sports	
0–5	40 (26.3)
6–10	28 (18.4)
11–15	28 (18.4)
16–20	23 (15.1)
21+	33 (21.7)
Total	152 (100)
Time spent on non-athletic training duties, %	
0–10	32 (21.1)
11–20	44 (28.9)
21–30	32 (21.1)
31–50	37 (24.3)
50 and greater	7 (4.6)
Total	152 (100)
Do you feel you have an adequate staff?	
Yes	98 (64.5)
No	51 (33.6)
Other	3 (2)
Total	152 (100)

^a One participant did not disclose.**Table 3. Mean Role-Strain and Subscale Scores (N = 152)**

Variable	Mean ± SD (95% Confidence Interval)
Total role strain	2.70 ± 0.60 (2.60, 2.80)
Role overload	2.91 ± 0.75 (2.79, 3.03)
Role ambiguity	2.73 ± 0.83 (2.60, 2.86)
Role incongruity	2.74 ± 0.78 (2.61, 2.86)
Role incompetence	2.18 ± 0.65 (2.07, 2.28)
Role conflict	2.77 ± 0.64 (2.67, 2.87)
Intersender conflict	2.57 ± 0.78 (2.44, 2.69)
Intrasender conflict	2.61 ± 0.71 (2.49, 2.72)
Interrole conflict	2.99 ± 0.77 (2.87, 3.11)

the MLB according to the Tukey honestly significant difference post hoc analysis.

We noted a difference between respondents who did or did not have an adequate number of staff in degree of role strain ($F_{1,150} = 9.393$, $P = .003$). Respondents who answered *no* had a higher degree of role strain (2.91) than those who answered *yes* (2.59). The ATPSSs perceived inadequate staffing as a barrier to decreasing role strain.

A correlation analysis assessed whether any of the demographic or employment factors influenced the degree of role strain. No significant associations were identified, although the percentage of time spent on non-athletic training duties trended toward significance ($r = 0.157$, $P = .054$).

DISCUSSION

Role stress and ultimately role strain have been associated with a decrease in job satisfaction,^{8,12,17} an increase in thoughts of leaving a job and career,^{8,21,22} and reduced productivity.^{17,22} Workplace stress has also intrinsically affected the role occupant by increasing symptoms of depression, anxiety, job-induced tension, and other physiological factors.^{5,6,9,17,18} Similarly, moderate to high levels of role strain in collegiate certified ATs are related to increased job dissatisfaction and intention to leave employment.¹²

Athletic trainers employed in the PSS perceived a moderate level of role strain (mean RSS of 2.70), with 53.9% experiencing moderate to high levels. Although this percentage is slightly higher than for ATs in other settings, these results are comparable with those of ATs employed in the collegiate setting.^{12,13,23} Recognizing the factors that contribute to role strain and identifying ways to alleviate them are critical to improving the work environment for ATPSSs.

Components of Role Strain

Of the role-strain subcomponents, interrole conflict (mean ± SD = 2.99 ± 0.77) and role overload (mean ± SD = 2.91 ± 0.75) had the highest mean scores in ATPSSs (Table 3). *Interrole conflict* occurs when a role occupant simultaneously has more than one role and the demands of one role conflict with the demands of another.⁵ *Role overload* occurs when the role occupant finds it difficult to fulfill role obligations because role expectations are too complex, too excessive, or too time consuming.⁵ Our results were higher than those of studies in the collegiate^{12,13} and secondary school¹¹ settings.

Previous researchers¹² indicated that 38% of ATs in the collegiate setting experienced moderate to high degrees of role strain because of role overload and 22% because of role conflict. Role incongruity, role overload, and interrole

Table 4. Level of Role Strain by Sport League^a

	No. (% of Total Sample)					
	Major League Baseball	Major League Soccer	National Basketball Association	National Football League	National Hockey League	Study Sample
Overall role strain						
Minimal	6 (4)	3 (2)	6 (4)	9 (6)	1 (0.7)	25 (16.6)
Low	12 (7.9)	5 (3.3)	10 (6.6)	14 (9.3)	4 (2.6)	45 (29.8)
Moderate	8 (5.3)	11 (7.3)	7 (4.6)	18 (11.9)	12 (7.9)	56 (37.1)
High	3 (2)	6 (4)	5 (17.9)	6 (4)	5 (3.3)	25 (16.6)
Role overload						
Minimal	5 (3.3)	3 (2)	4 (2.6)	8 (5.3)	1 (0.7)	21 (13.9)
Low	9 (6)	6 (4)	4 (2.6)	10 (6.6)	3 (2)	32 (21.2)
Moderate	10 (6.6)	11 (7.3)	12 (7.9)	13 (8.6)	7 (4.6)	53 (35.1)
High	5 (3.3)	5 (3.3)	8 (5.3)	16 (10.6)	11 (7.3)	45 (29.8)
Role ambiguity						
Minimal	7 (4.6)	3 (2)	7 (4.6)	15 (9.9)	1 (0.7)	33 (21.9)
Low	12 (7.9)	5 (3.3)	9 (6)	10 (6.6)	5 (3.3)	41 (27.2)
Moderate	6 (4)	9 (6)	6 (4)	11 (7.3)	6 (4)	38 (25.2)
High	4 (2.6)	8 (5.3)	6 (4)	11 (7.3)	10 (6.6)	39 (25.8)
Role incongruity						
Minimal	8 (5.3)	4 (2.6)	6 (4)	11 (7.3)	3 (2)	32 (21.2)
Low	9 (6)	3 (2)	10 (6.6)	12 (7.9)	5 (3.3)	39 (25.8)
Moderate	7 (4.6)	8 (5.3)	6 (4)	17 (11.3)	8 (5.3)	46 (30.5)
High	5 (3.3)	10 (6.6)	6 (4)	7 (4.6)	6 (4)	34 (22.5)
Role incompetence						
Minimal	18 (11.9)	10 (6.6)	18 (11.9)	20 (11.9)	7 (4.6)	73 (48.3)
Low	5 (3.3)	7 (4.6)	5 (3.3)	12 (7.9)	8 (5.3)	37 (24.5)
Moderate	5 (3.3)	8 (5.3)	4 (2.6)	14 (9.3)	7 (4.6)	38 (25.2)
High	1 (0.7)	0 (0)	1 (0.7)	1 (0.7)	0 (0)	3 (2)
Role conflict						
Minimal	5 (3.3)	3 (2)	4 (2.6)	8 (5.3)	1 (0.7)	21 (13.9)
Low	12 (7.9)	5 (3.3)	12 (7.9)	15 (9.9)	5 (3.3)	49 (32.5)
Moderate	10 (6.6)	12 (7.9)	6 (4)	17 (11.3)	8 (5.3)	53 (35.1)
High	2 (1.3)	5 (3.3)	6 (4)	7 (4.6)	8 (5.3)	28 (18.5)
Intersender conflict						
Minimal	14 (9.3)	5 (3.3)	13 (8.6)	20 (13.2)	6 (4)	58 (38.4)
Low	8 (5.3)	8 (5.3)	5 (3.5)	10 (6.6)	4 (2.6)	35 (23.2)
Moderate	5 (3.3)	6 (4)	6 (4)	8 (5.3)	5 (3.3)	30 (19.9)
High	2 (1.3)	6 (4)	4 (2.6)	9 (6)	7 (4.6)	28 (18.5)
Intrasender conflict						
Minimal	11 (7.3)	3 (2)	8 (5.3)	13 (8.6)	3 (2)	38 (25.2)
Low	6 (4)	4 (2.6)	7 (4.6)	11 (7.3)	7 (4.6)	35 (23.2)
Moderate	11 (7.3)	14 (9.3)	9 (6)	17 (11.3)	9 (6)	60 (39.7)
High	1 (0.7)	4 (2.6)	4 (2.6)	6 (4)	3 (2)	18 (11.9)
Interrole conflict						
Minimal	3 (2)	2 (1.3)	7 (4.6)	6 (4)	0 (0)	18 (11.9)
Low	10 (6.6)	4 (2.6)	2 (1.3)	7 (4.6)	3 (2)	26 (17.2)
Moderate	10 (6.6)	13 (8.6)	11 (7.3)	22 (14.6)	9 (6)	65 (43)
High	6 (4)	6 (4)	8 (5.3)	12 (7.9)	10 (6.6)	42 (27.8)

^a Minimal role strain = 2.10 or below, low role strain = 2.11–2.69, moderate role strain = 2.70–3.30, and high role strain = 3.31 or above. One participant who indicated moderate role strain did not respond to the professional league affiliation question.

conflict were the most prominent components of role strain in dual-position educators, whereas role overload and interrole conflict were the most prominent components of role strain in ATs employed as Approved Clinical Instructors in the collegiate setting.^{11,13}

Interrole conflict, a subscale of role conflict, demonstrated moderate to high levels in 70.8% of ATPSSs, as did role overload in 64.9%. The ATPSSs described a higher percentage of ideal clinical duties (76%) than actual

clinical duties (63%), implying conflicting feelings with regard to their roles. Interrole conflict in the PSS may manifest from the fact that ATs perceived conflict in trying to fulfill their athletic training and non-athletic training duties. Similar findings have identified interrole conflict as a prominent component of role strain in other settings.^{17,18,23,24} In a previous study of nurse faculty,⁷ the mean interrole conflict score was 3.2 for role strain on a 5-point Likert scale. The organizational factors associated

[illegible]

with ATPSSs may be different than those in other settings; therefore, these outcomes provide insight into the degree and components of role strain in the PSS.

For the subscale of role strain, a difference was identified between professional hockey and professional baseball ATs (Tables 4 and 5). The NHL ATs experienced role ambiguity at a higher level than MLB ATs. Role ambiguity manifests when role obligations are unclear or vague. The mean age, years as a Board of Certification-certified AT, years in their respective sport league, years working in their current professional sport league, and years working in professional sports in general were all higher for ATs working in MLB than for those working in the NHL. These differences may have contributed to the increased perceived stress associated with the role ambiguity of NHL ATs when compared with MLB ATs.

When scores were grouped according to years in the current organization (1–5, 6–10, 11–15, 16–20, 21 and over), differences in the subscales of role incongruity and role incompetence were identified. Athletic trainers working in their current organization between 6 and 10 years had a higher degree of role incongruity than those working in their current organization for 21 years or more. Athletic trainers working in their current organization for 6 to 10 years also had a higher degree of role incompetence than those working in their organization for 11 to 15 years. *Role incongruity* occurs when an individual's perception of himself or herself runs counter to the demands or expectations (or both) of the role occupied. *Role incompetence* occurs when an AT lacks the skills, knowledge, or ability to take on the responsibilities of the assumed role. Athletic trainers working 6 to 10 years in their organizations seemed to experience both of these components of role strain at a higher rate than the other groups. However, our study was not designed to explain this difference.

Influence on Role Strain

Demographic and employment factors did not appear to influence total perceived role strain in ATPSSs, although hours worked on non-athletic training duties did trend toward significance. More time spent on non-athletic training duties, such as administrative work, caused a higher degree of role strain, which is consistent with the literature.^{6,11,13,24,25} Even though the participants in our study had an average in-season workweek of more than 70 hours, they appeared to understand and accept the workload; conflict and the associated stress were due to the competing demands of the job, particularly non-athletic training duties.

The number of years employed in the PSS did not seem to affect role overload or role ambiguity. The different organizational factors among the professional leagues may have influenced the perceived stress associated with role strain. Personal factors such as experience in dealing with the sources of role strain may also affect the degree of role strain. However, we did identify significant positive correlations between interrole conflict and both number of years employed in the PSS and percentage of time spent on non-athletic training duties. A possible explanation may be that the longer an AT is employed in the PSS, the more time the AT must spend on non-athletic training duties. The role of health care provider conflicts with non-athletic training duties and may lead to interrole conflict. Participants described this scenario in the qualitative portion of the present study.²⁶

Significant negative correlations also existed between role incongruity and both the number of years since being certified by the Board of Certification and the number of years working in the current professional sport organization. Role incongruity may be lessened as the AT becomes socialized in the PSS. Reduced role incongruity may result from role transition; as time passes, an AT's self-concept becomes congruent with the professional organization.

CONCLUSIONS

Our results give insight into the factors, consequences, and resolution of workplace stress associated with role strain in the PSS. Role strain is a concern among ATPSSs, with role overload and interrole conflict contributing most to overall role strain. The ATPSSs who believed they had inadequate numbers of staff had higher levels of role strain. Professional sport organizations that seek to mitigate role strain should consider adding athletic training personnel to meet the expectations and obligations of the athlete, the organization, and the sport league, because when these demands become conflicting and excessive, role strain becomes prevalent.

This information may be useful in developing strategies to alleviate role strain. Expanding athletic training educational programs to include (1) the development of coping and communication skills and (2) more immersion-type experiences to teach students about the administrative responsibilities of leagues and organizations may be beneficial to reducing such types of stress. Injury management, prevention, and rehabilitation are all aspects of the job that correlate with decreasing the amount of time an athlete spends being injured. With the alleviation of role stress caused by increased expectations and demands placed on the AT, all stakeholders could benefit. A healthy work environment for the AT would lead to an efficient model of health care practice for the athlete.

Because of the large volume of data collected, we decided to present the quantitative findings here, and the qualitative results are shared in a separate article.²⁶ Participants suggested modifying organizational factors to decrease the sources of role strain and improving the working environment of the ATPSS as strategies to alleviate role strain in the PSS.

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