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SHORT COMMUNICATION

Elite coaching personality analysis in competitive weightlifting

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Objectives: This study examined the personality traits of weightlifting coaches of various competitive levels. The Big Five personality traits have been used in a wide variety of populations and settings throughout the world. However, less is known about this test in relation to coaches and specifically the sport of weightlifting.

Design: To explore this question, the Big Five personality test was administered to local, regional, national, international, and international/world medalist coaches. In total 160 coaches (140 men and 20 women) from 22 countries completed the online survey.

Methods: Comparisons were made in Big Five personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and intellect/imagination) for level achieved, region of the world, and sex using the 50 item International Personality Item Pool.

Results: Overall, no statistically significant outcomes (p = 0.24 - 0.91) were observed for any level or any personality category in competitive weightlifting coaches. Regional differences were not observed (p= 0.18-0.97). When comparing men and women only agreeableness was different (p=0.006).

Conclusion: This investigation provides normative data for weightlifting coaches across various competitive levels, regions, and sexes. These findings support different personality traits and types of coaches in developing competitive weightlifters and should not dissuade coaches from entering the sport.

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Keywords: ■ big five ■ sport psychology ■ strength sports

INTRODUCTION

Weightlifting has been a longstanding sport within the modern Olympics, starting in 1896 and becoming a permanent fixture after the 1920 games in Antwerp, Belgium.[1] With the growing popularity of athletics, comes an increasing need for sport coaches to develop and navigate the training process for athletes. The developmental process, from first introduction of sport to reaching peak performance, requires an understanding of sport science and the technical and tactical elements of competition. Implementation of this information throughout the sporting lifecycle of an athlete, paired with planning demands and psychosocial considerations, showcases the prowess of a coach.[2]

Coaches occupy many roles (i.e. mentor, teacher, competitor), but their main responsibility is improving athlete outcomes, whether performance or personal characteristics (e.g., self-esteem and satisfaction).[3] The inputs that develop a coach are just as wide-ranging as the training inputs that develop athletes. Coaches likely have experience performing and competing in the sport as well as education in the science of human performance with other various aspects influencing coaching success (i.e., professional knowledge, intra- and inter-personal knowledge).

Common sense would say coaching style and achievement can be linked to the coach's personality. Personality is often defined as the individual differences in thoughts, feelings, and behaviors that persist over time simultaneously characterizing individuals and differentiating them from others.[4,5] This is often categorized and compared using the Five Factor Model (Big Five), comprised of five adjectives (openness, conscientiousness, extraversion or intellect/imagination, agreeableness, and neuroticism or emotional stability) which describe recurring, base factors of personality.[6] Published data comparing athletes, shows intra- and inter-personal changes when exposed to sport.[6] There are also measurable personality differences between athletes when achievement is considered, with elite athletes being more extraverted and emotionally stable than recreational-level athletes.[7] Research examining personality differences amongst coaches is sparse, with less examining achievement-focused differences.

The purpose of this study is to expand on the limited data comparing coach to coach variation in personality based on level of achievement in sport. Available research shows differences in neuroticism, agreeableness, and conscientiousness among beginner and world-class coaches.[8] This is across many different sports (i.e., tennis, skiing, rugby), levels of achievement, and directly compared beginner and elite mar-

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tial arts coaches.[8] Weightlifting has received no attention with regard to personality and achievement, on either the athlete or coaching level. Therefore, the aim of this paper was to evaluate differences in personality, as measured by the Big Five, across achievement levels, regions coached, and sex amongst weightlifting coaches.

METHODS

Participants

One hundred and sixty-six weightlifting coaches of various achievement levels (145 men and 21 women) completed an anonymous online survey. Participants were informed of the procedures, questions, and amount of time which was anticipated to complete the full survey. Participants consented to participate in the study and then completed the survey. Participants' data were included if they completed the full study, and all 50 questions were submitted. Participants data was excluded if they did not coach the sport weightlifting or any portion of the survey was not completed.

Instrument

The 50 item International Personality Item Pool (IPIP) is a short questionnaire for the measurement of the Big Five factor markers. The 50 questions measure variables related to the categories of: extraversion, agreeableness, conscientiousness, emotional stability, and intellect/imagination. This specific questionnaire has been determined to be reliable and valid across a diverse population.[9] Each variable was scored on a Likert scale from 1 (very inaccurate) to 5 (very accurate). The questionnaire was adapted from an open access source and coded to an online format (https://ipip.ori.org/new_ipip-50-item-scale.htm). All questions were delivered in the English language and listed in order from the main source. Once all responses were obtained composite scores were created from the categories for each personality type.

Data Collection

Data was collected anonymously through a digital submission survey posted on the Weightlifting House website, on various social media platforms, and spread by word of mouth. The survey was administered and remained open for submission for 120 days. All procedures and a brief description were provided prior to the start of the digital survey. Completion of the questionnaire implied informed consent. In addition to the 50-question questionnaire, eight demographic questions were administered to determine level of coaching, level of education, and participation in the sport of weightlifting. Region was assessed as the country the coach represented at the time of the survey, grouped into three specific areas of the world: North America, Europe, and Australasia and Southeast Asia (Southeast Asian and Australasian countries were grouped into one region due to small n sizes for each). All procedures were approved by the university's institutional review board (#299113B) and were in accordance with the declaration of Helsinki.

Statistical Methods

According to Shapiro-Wilks test for normality, data were considered not normally distributed and non-parametric tests were used for analysis. To assess differences in Big Five factor scores by coaching achievement level and region separate Kruskal-Wallis tests were utilized. If a significant main effect was found, post-hoc pairwise comparisons were assessed using Wilcoxon-Signed Rank tests. Further, to evaluate differences in sex across personality Wilcoxon-Signed Rank tests were conducted with respective effect sizes. Data were coded and analyzed in a custom R script (R Foundation, Vienna, Austria, https://www.R-project.org). Significance was set at $p = 0.05$ for all analyses.

RESULTS

Descriptive data are provided as mean and standard deviation according to level of coaching achieved and region currently coaching (Table 1). There were 166 respondents (145 men and 21 women) to the survey during the collection period. Six participants were removed for incomplete data submission. Twenty-two countries were represented in the sample and reported in regions as North America, Europe, and Australasia and Southeast Asia. Of the sample 145 (87.3%) reported that they had competed in the sport of weightlifting and 21 (12.7%) had not.

When assessing by level of coaching achievement, no personality trait was significantly different: Extraversion (χ^2 = 4.612, p-value = 0.203), Agreeableness (χ^2 = 2.445, p-value = 0.485), Conscientiousness (χ^2 = 1.016, p-value = 0.797), Emotional / Stability (χ^2 = 1.378, p-value = 0.711), and Intellect / Imagination (χ^2 = 4.166, p-value = 0.244) (Table 1). When assessing by region, no personality trait was significantly different: Extraversion (χ^2 = 0.044, p-value = 0.978), Agreeableness (χ^2 = 1.866, p-value = 0.394), Conscientiousness (χ^2 = 3.344, p-value = 0.188), Emotional / Stability (χ^2 = 1.678, p-value = 0.432), and Intellect / Imagination (χ^2 = 2.950, p-value = 0.229). Finally, when assessing by sex, only agreeableness was different (p= 0.006)

Table 1. Coaching Personality Traits by Demographic Data

	Overall Average (n=160)	Male (n=140)	Female (n=20)	North America (n = 101)	Europe (n = 38)	Asia (n = 21)	International (n = 34)	National (n = 49)	Regional (n = 32)	Local (n = 45)
Extraversion	31.525 ± 8.364	31.429 ± 8.501	32.2 ± 7.495	31.62 ± 8.69	31.39 ± 7.72	31.29 ± 8.25	33.68 ± 8.76	30.14 ± 6.83	32.66 ± 6.97	30.60 ± 10.13
Agreeableness	40.05 ± 5.97	39.507 ± 5.903	43.85 ± 5.092	40.28 ± 6.38	39.13 ± 5.29	40.62 ± 5.07	40.09 ± 5.85	41.14 ± 5.52	39.81 ± 6.41	39.00 ± 6.19
Conscientiousness	39.613 ± 5.928	39.221 ± 6.067	42.35 ± 3.977	40.18 ± 5.82	39.21 ± 5.79	37.62 ± 6.48	40.90 ± 6.16	39.57 ± 5.99	39.69 ± 6.17	39.24 ± 5.68
Emotional Stability	36.269 ± 7.14	36.679 ± 6.685	33.4 ± 9.478	36.90 ± 6.92	35.39 ± 7.54	34.81 ± 7.41	36.88 ± 6.64	36.94 ± 5.91	34.84 ± 8.85	36.09 ± 7.45
Intellect Imagination	40.356 ± 5.594	40.436 ± 5.495	39.8 ± 6.371	40.90 ± 5.76	39.39 ± 4.89	39.48 ± 5.87	40.21 ± 5.77	41.04 ± 5.73	41.53 ± 4.09	38.89 ± 6.06

Table 2. Coaching personality by sex.

IPIP	Male	Female	*p*	Effect Size	ES Interpreted
Extraversion	31.429 ± 8.501	32.2 ± 7.495	1.000	0.040	small
Agreeableness	39.507 ± 5.903	43.85 ± 5.092	0.006*	0.256	small
Conscientiousness	39.221 ± 6.067	42.35 ± 3.977	0.164	0.169	small
Emotional Stability	36.679 ± 6.685	33.4 ± 9.478	0.665	0.119	small
Intellect Imagination	40.436 ± 5.495	39.8 ± 6.371	1.000	0.032	small

Note: Data are mean±SD; *, indicates statistically significant difference at $p < 0.05$

between men and women (Table 2).

DISCUSSION

The main findings of this study suggest there are no differences in personality, as measured by the Big Five, between coaches of all achievement levels in the sport of weightlifting. Next, regionally, no differences were observed between different countries' regions. Finally, men and women differed only in agreeableness while all other factors were not statistically different. These data provide normative values for the personality for coaching level, region, and sex which can assist with future investigations for athletes. To date, there is little existing literature examining the personality profile of coaches in team and individual sports. To the author's knowledge, this is the first study to examine coaching personality in the sport of weightlifting.

With the coach-athlete dyad being a critical part of success in sport, and beyond performance (i.e., promoting growth, development, and maturity), it makes sense to understand the role of personality in sporting success.[10] Work by Yang, Jowett, and Chan (2014) examined the influence of personality traits (e.g., extraversion, conscientiousness, and neuroticism) on the quality of 350 Chinese coach-athlete dyads, representative of several team and individual sports.[11] Their findings revealed a significant effect of athlete personality on the coach's perception of relationship quality. Whereas the coach's personality did not seem to have a significant influence on the athlete's perception of the relationship. Findings from this study suggest that sporting success is not necessarily influenced by variation in personality, with no significant differences existing amongst coaching achievement or region.

Research in other sports has found a difference in personality, as measured by a Big Five inventory, and achievement level. In swimming, world-leading (Olympic gold medal winning) coaches scored higher in conscientiousness and openness to experience than world-class coaches (Olympic non-gold medal winning), according to observer-reports given to their athletes.[12] Work by Mallett & Lara-Bercial found self- and observer-report measures of serial winning coaches' personalities to echo those findings, displaying high ratings of conscientiousness and extraversion with a low level of neuroticism.[13] These findings do not align with our findings, as no differences in personality were found based on level of coaching achievement.

Regionally, no differences were noted in personality between Asia, Europe, and North America, at any level of achievement. This is a surprising finding, given the well-circulated and studied concept that personality varies by region and culture, on a larger and smaller scale. One strongly engrained idea is expressed as Western cultures being more individualistic, with Eastern cultures being more collectivistic.[14] The collective/individualistic paradigm describes interpersonal differences in personality, including variations in agreeableness and openness.[15]

Gender differences were found, but only concerning levels of agreeableness. These results mirror a long-standing and well-supported idea that women are more agreeable (i.e., caring, nurturing, and tender) than men.[16,17] Although that finding is in line with current research, established differences between men and women within other dimensions (e.g., neuroticism, openness) were not found amongst surveyed participants.[17] These results could be influenced by the smaller sample size of women coaches (n=20) compared to male coaches (n=140).

The utilization of a control group, people not involved with coaching and/or weightlifting, could have allowed us to tease out differences catered to or created by sport, along with differences between weightlifting coaches and the general population. According to Costa and colleagues (2001), data from a sample of 23,031 subjects across 26 countries indicate that gender differences in personality exist with men rating higher in assertiveness (extraversion) and openness to ideas, and women rating higher in neuroticism, agreeableness, warmth (extraversion), and openness to feelings.[16]

There are many reasons why personality would vary across achievement levels in the sport of weightlifting. Weightlifting is unique in that, at least in many countries, there is no formal path for moving from recreational lifting to the highest level of competition. Many coaches, clubs, and national governing bodies have the ability to influence athlete development. Athletes can easily move from team to team, working with many coaches at different time points in their career. This makes teasing out intra- and inter-coach differences and level of coaching achievement very challenging.

This study provides a novel contribution to the field, but it is not without limitations. The questionnaire was disseminated through social media platforms and the Weightlifting House website, limiting its availability to those without internet access and those not connected to the researchers. This seemed to bias the sample towards subjects who speak and read English, with over half of our participants coming from the United States of America. Even with a relatively large col-

lection of coaches, this study only captured a single period of time, confounding any potential relationship that has existed between personality and coaching achievement, or possibly one that will exist. Future studies should aim to target a larger, more diverse group of weightlifting coaches, including those from other countries, of different ages, ethnicity, and gender.

CONCLUSIONS

In conclusion, it seems a coach's level of achievement in weightlifting is defined by more than a single variable such as personality. While there may be benefits to having a particular personality profile, weightlifting is a sport where athletes move from coach to coach at different points in their development. Therefore, the focus should be finding athletes who best fit the system, style, and personality of the coach.

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