

THE RELATIONSHIP BETWEEN ATHLETIC TRAINER PERSONALITY AND PATIENT  
TRUST

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**Title**

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**MASTER OF SCIENCE**

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## ABSTRACT

**Context:** Trust has been researched in accordance with patient-provider relationships and patient outcomes.<sup>1-3</sup> Factors known to influence patient provider trust include: competence, compassion, privacy and confidentiality, reliability and dependability, and communication.<sup>2-5</sup> Although a variety of behaviors and characteristics have been evaluated, personality of care-providers has not been researched. **Objective:** The purpose of this study was to determine the influence an athletic trainer's (AT) personality has on patient trust. **Participants:** Eighteen athletic trainers from three local universities were recruited for the study. A sample of athletes per athletic trainer were randomly selected. **Data Collection:** Personality assessments were administered online using skillsone.com, and trust questionnaires administered in person. **Analysis:** One-Way ANOVA, (.05) alpha level of significance. **Results:** Significant differences in trust between two personality types were detected. **Conclusion:** A larger sample of healthcare providers is needed to evaluate consistent differences in trust and personality type. Personality may be a facet of healthcare relationships.

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## CHAPTER 1. INTRODUCTION

In the allied health fields, many studies have analyzed trust,<sup>1-3</sup> and its correlation to patient-provider relationships and patient outcomes. Overall, patients who show trust in their physician take a more active role in their health care.<sup>6</sup> Holistically, trust has been directly related to patient satisfaction, adherence to medical intervention, and improved health status.<sup>2,3</sup> More specifically, patients who have articulated trust in their primary care provider are more likely to adhere to new lifestyle interventions,<sup>7,8</sup> take prescribed medications appropriately,<sup>8-10</sup> and utilize healthcare opportunities<sup>7,10-12</sup> and preventative interventions.<sup>13,14</sup>

One study exploring the outcomes of trust, supports that trust is related to patient satisfaction while also improving physical health related quality of life.<sup>1</sup> In that same study, higher trust was associated with glycemic control over the course of a year in diabetic patients.<sup>1</sup> Indeed, while trust has been extensively studied on patient-physician relationships, the few studies highlighting athletic trainers (AT's) support these principles. In fact, survey-based research performed by Fisher<sup>15</sup> found both AT's and athletes believe that AT patient rapport is the number one factor influencing adherence to rehabilitation protocol.

Many factors are known to influence patient-provider trust, including competence, compassion, privacy and confidentiality, reliability and dependability, and communication.<sup>2-5</sup> The relationship between patient and provider begins developing immediately during the initial visit. The five physician characteristics most strongly correlated with trust after the first visit are: being caring and comforting, demonstrating competency, encouraging and answering questions, explaining procedures, and "finding all the reasons for the visit".<sup>16</sup> In a recent study, David<sup>17</sup> highlights approachability, personal connection, communication, understanding the patient, and

knowledge of the sport as characteristics that specifically influence trust in the athletic training setting.

### **Personality and Relationships**

The Myer-Briggs Type Indicator (MBTI) personality test is a well-known personality assessment. In an effort to refine the type theory developed by psychiatrist Carl Jung, Isabel Briggs Myers and Katharine Briggs developed the MBTI, which was first published in 1962.<sup>18</sup> The MBTI is an instrument that tries to explain behavior through a categorization of how people perceive or judge the interactions in their lives.<sup>18</sup>

Although a variety of behaviors and personality characteristics have been evaluated, personality type of care providers has not been researched for its effect on relationships.\* The gap in the research is understanding the relationship between provider's personality type and how personality influences trust between providers and patients.

A questionnaire was developed in 2013 that looked to measure the level of trust athletes have in their AT.<sup>17</sup> It is the only trust questionnaire made specifically to record the amount of trust athletes have in their AT, and will be used in this study.

### **Purpose of the Study**

The purpose of this study was to determine the degree to which an athletic trainer's (AT) personality has on patient trust.

### **Significance of the Study**

Due to the positive effects of trust in a patient provider relationship, understanding factors that positively influence trust may influence how providers interact with patients.

## **Research Question**

Is AT personality type, a predictor for the level of patient trust?

## **Limitations**

1. Time of exposure to AT was not regulated, meaning that athletes may not show as much trust in their AT due to time, not personality.
2. Previous experiences with AT was not controlled.
3. Self-report bias.

## **Delimitations**

1. ATs all currently employed at collegiate setting. Limiting the data to a fraction of the athletic training profession, and making the results more specific.
2. All athletes had age range of 18-24. Making the data more specific, since the term athlete can be vague.
3. All athletes participated in collegiate athletics. Making the data more specific, since the term athlete can be vague.
4. Athletes were administered trust questionnaire via paper and pencil.
5. ATs were administered MBTI online.

## **Definitions**

Trust- "Trust is a belief (and/or a feeling) that an athletic trainer has the patient's best interest in mind and that therapy, and any associated information provided during therapy, will help the patient return to activity".<sup>17</sup>

Personality- explaining behavior as a reflection of the way individuals prefer to use their perception and judgment.<sup>18</sup>

MBTI- is an instrument that takes ones preferences for perceiving and judging and organizes them into personality types.

Patient-AT Trust Instrument- a questionnaire that assesses athlete trust in their athletic trainer. The questionnaire includes 8 demographic questions and 26 assessment questions. Items in the trust questionnaire assess the domains of approachability, reputation, personal connection, team work, fidelity, environment, and education.<sup>17</sup>

## CHAPTER 2. LITERATURE REVIEW

The purpose of this study is to determine the influence an athletic trainer's (AT) personality has on patient trust. Understanding the patient-provider relationships is important because trust is shown to increase patient satisfaction, increase adherence to medical intervention, and improve health status.<sup>2, 3</sup> The following research question guided this study: Is AT personality type a predictor for the level of patient trust? This literature review is organized as follows: definition of trust, factors affecting trust, positive outcomes of trust, outcomes of patient trust in AT's, overview of personality, MBTI personality assessment and relationships, understanding trust as an effect of personality, and the patient-AT trust instrument.

In the medical world no single definition of trust exists, although trust has been described as the idea that health care professionals act in the expected manner<sup>19</sup> and as "a reassuring feeling of confidence or reliance in the physician and the physician's intent".<sup>20</sup> However, a definition of trust specific to athletic training is as follows; "Trust is a belief (and/or a feeling) that an athletic trainer has the patient's best interest in mind and that therapy, and any associated information provided during therapy, will help the patient return to activity".<sup>17</sup>

General medical trust (stemming from work researching patient trust in physicians) can be quite complex, with a significant number of factors influencing its conceptualization. Using a conceptual analysis of several studies,<sup>21-25</sup> this paper organizes general medical trust into four facets; interpersonal competence, technical competence, communication, and synergy. Interpersonal competence is the physician's ability to understand patient concern and to act in a caring manner, while also individualizing each interaction. Technical competence is the care-providers ability to act or perform the most recent and researched medical interventions without error. Breaking up the idea of competence into two parts is necessary due to the measurability of

technical competence and the more abstract nature of interpersonal competence. Interpersonal competence fits more closely with the next two facets. The third facet of medical trust is communication, or the provider's ability to listen carefully, and then to also provide clear and careful explanations of both the disease and the treatment plan. The fourth facet is synergy, as a part of the physician's ability to communicate with the patient, the provider views the patient's health concerns from the view of the patient, and also includes the patient in the process of creating the treatment plan and planning of further evaluations and interventions. Thus the four facets of trust are interrelating and often interdependent. Hall et al.<sup>24</sup> add that trust depends on the patients previous experiences in the medical setting regardless of the current providers' actions.

Even though parameters such as visit frequency are different for AT's relative to the physicians described above, Fisher<sup>26</sup> adds support to the previous breakdown of trust as applied to the athletic training setting by establishing factors such as patient education, communicating effectively, and working with/increasing the responsibility of the athlete as important to athlete-AT relationship.

### **Factors Affecting Trust**

The experience of patients affects their level of trust in the primary care provider. Therefore, it is important to explore factors that elicit higher levels of trust. For example common behaviors which have been found to elicit trust include; competence, compassion, communication, privacy and confidentiality, and reliability and dependability.<sup>2-5</sup>

After first meeting with a physician, the five physician characteristics most strongly correlated with patient trust are: being caring and comforting, demonstrating competency, encouraging and answering questions, explaining what they are doing, and finding all the reasons

for the visit.<sup>16</sup> Conversely, gentleness during examination, discussing options/asking opinions, making eye contact, and treating the patient as an equal were the least associated with trust.<sup>27</sup> Among the characteristics deemed important over a span of 6 months, explaining, checking understanding, demonstrating competency and being available when needed were the top four.<sup>27</sup> However, it's important to note that some characteristics that promote trust in physicians may not promote trust in ATs because the exposure and the type of relationship between patient and provider is different. Many AT's are going to see athletes every day, sometimes more than one time a day, David<sup>17</sup> highlights approachability, personal connection, communication, understanding the patient, and knowledge of the sport as AT characteristics that influence trust. Separate from qualities that promote trust in athletic trainers, a study by Raab et al.<sup>28</sup> conducted qualitative interviews with 13 certified AT's across the U.S. to quantify trait of a quality athletic trainer. The five qualities the researchers found were; demonstrate the ability to care, show commitment, show integrity, value professional knowledge, and communicate effectively with others. These qualities encompass some of the qualities highlighted to promote trust, creating a link between a quality AT, and an AT that is able to promote trust with their athletes.

Trust in provider begins at the first visit, and influences attendance over time.<sup>1</sup> A study by Lin and Lee<sup>1</sup> found that patients who attended more scheduled visits over time reported a significantly higher level of first visit trust in their physician (mean = 83.45,  $p < .01$ ) than those who did not have significant levels of trust in their physician (mean = 80.54).

Younger populations seem to connect more with personal trust, whereas older populations seek comfort based/emotionally assessed trust. Across both age groups, behavioral and cultural competence is important, likewise, simple appearance was strongly correlated with trust.<sup>29</sup> It's noteworthy that simple appearance was found to be correlated with trust in this



particular study, perhaps guiding future research away from appearance, and towards communication and ability to care. One of the factors that influences a person's communication style is their personality.

O'Malley and colleagues<sup>14</sup> found that factors relating to care; accessibility of physicians, consistency, and coordination of referral process are more strongly related to trust than environmental factors such as the type of treatment, insurance coverage, and patient socioeconomic status. This is important in the sense that it shows patient-provider relationship is a significant factor of trust. This study also found that higher trust was associated with greater adherence to recommended preventative services. Prevention is one of the six domains of athletic training, suggesting trust as a critical piece to the athletic training model.

### **The Health Belief Model and Trust**

Trust is derived from more than the behavior/personality of the AT. Patient perceptions and behaviors have significant effect on the relationship as well. The Health Belief Model (HBM) was developed in the early 1950's by social psychologists at the U.S. Public Health Service, and attempts to explain patient behavior. The HBM postulates that patient behavior is derived from four dimensions; perceived susceptibility, perceived severity, perceived benefits, and perceived barriers.<sup>30</sup> Perceived susceptibility simply refers to individual's belief of the risk of injury, or many times re-injury. Athletes may be concerned with return to play, therefore trust in the AT could have an effect on the level of concern. Perceived severity is similar to susceptibility, but different in it deals with the consequences of the injury or illness. For example; pain, loss of function, and increased time away from sport. When describing behavior, the HBM defines perceived benefits as the patient's belief that adhering to a certain plan of action will positively outweigh the final category of HBM, perceived barriers. Barriers are the

possible negative aspects of a health intervention that will impede the patient from reaching their goal.<sup>30</sup> Since the creation of the HBM, three new dimensions have been added; cues to action, motivating factors, and self-efficacy.<sup>31</sup>

Cues to action are intrinsic or extrinsic factors that promote decision making. Extrinsic/environmental factors such as, treatment plan/medical advice from the provider, may have more significance if there is a trusting relationship between patient-provider. Self-efficacy comes from Bandura's Social Learning Theory,<sup>32</sup> and is an individual's belief that they are capable of successful task completion. Self-efficacy in an athlete's rehabilitation depends on an understanding and communication between the athlete/AT, by setting manageable goals, and working towards them together. A study done by Elder, et al.<sup>9</sup> found that South African men with higher self-efficacy are more likely to adhere to hypertension medication than those with low self-efficacy. The study also found that men who have higher levels of trust in their primary care provider are more likely to adhere to medication interventions, creating a link between self-efficacy and the importance of trust. Prior to Lin and Lee's<sup>1</sup> study on the objective effects of trust in physician, they published a study exploring the relationship between trust, self-efficacy, and adherence and self-reported health measures.<sup>33</sup> Using questionnaires on trust, self-efficacy, and self-reported health, along with a scale to measure patient adherence, the researcher's analyzed 480 patients with type 2 diabetes. Patients with higher levels of self-efficacy expectations were more likely to show higher trust in their physician ( $r = 0.45$ ,  $p < .01$ ). High self-efficacy expectations were even more correlated to adherence to treatment ( $r = 0.77$ ,  $p < .01$ ). Patients who trust physicians and have high self-efficacy are more likely to adhere to treatment and report better health outcomes.

## **Positive Outcomes of Trust**

The importance of trust is derived from the idea that high levels of trust in primary care providers has a positive impact on patient health. Trust in primary care physician has been found to have an objective effect on treatment of diabetic patients.<sup>1</sup> The study by Lee and Lin<sup>1</sup> evaluated patient glycemic control, measuring glycosylated hemoglobin (HbA<sub>1C</sub>, higher numbers indicate poor diabetes management) over a 12 month period and compared it to patient trust in physician using the 11-item scale created by Anderson and Dedrick.<sup>19</sup> The results showed that trust was negatively correlated to HbA<sub>1C</sub> at the  $p < .05$  level. Like other studies analyzing trust, this study also found positive relationships between trust and self-reported variables. For example, that same study found that self-reported physical Health Related Quality of Life (HRQoL) and satisfaction was significantly increased in patients who had more trust in their physician ( $p < .05$ ).<sup>1</sup> This review will later describe how patient perceptions are also important to trust measures, but objective data strengthens the argument of the importance of trust through concrete and repeatable data.

## **Participatory Role**

Another positive outcome of increased trust is a more participatory role by the patient.<sup>6</sup> Kraetschmer et al.,<sup>6</sup> measured the patient's desire to be autonomous and correlated it to the level of trust with the physician. Patients who desired a shared role (67.3%) reported mostly a high or moderate level of trust in their physician (48.6%). Similarly Becker and Roblin<sup>34</sup> explored a link between clinical climate, (ei: the ability of a primary care unit, practitioners and support staff, to delegate, collaborate, and use teamwork to efficiently fulfill the needs and requests of the patients) patient trust in physician, and patient activation in their health (using the Patient Activation Measure PAM-13,<sup>35</sup> which is within the context of the chronic care model and deals

with factors including the recognition of illness and the self-efficacy of patients dealing with the illness). A survey taken by practitioners and their staff was used to evaluate practice climate. Patients then evaluated trust in their physicians, the level of trust was then compared to both the evaluation of practice climate and an evaluation of patients taking an active role in their health. The study found that trust in physician was positively correlated with patient activation in health ( $r = 0.235, p < .05$ ). The study also found that when combined with positive practice climate, trust in physician and activation of patient health were positively correlated ( $r = 0.237, p < .05$ ). However, there was not a significant correlation between positive practice climate and patient activation in health ( $r = -0.057$ ), signifying the importance of trust in physician. In the athletic training setting, active participation from the athlete is important in reaching positive outcomes with rehabilitation, and preventative measures of common injuries among other aspects of athletic training.

### **Chronic Disease Management**

A number of supplemental studies look at the role of trust in the management of chronic diseases such as Diabetes Mellitus, high blood pressure, and HIV. Mancuso<sup>11</sup> and Bonds<sup>7</sup> both support the belief that increased trust in primary care providers is important in the management of diabetes. Patient's self-efficacy in managing diabetes is positively correlated with trust in their primary care provider.<sup>7</sup> High trust in athletic trainers could have a significant effect on athletes managing their diabetes. AT's aiding in the management of diabetes is important in youth or amateur athletes who may need more assistance with managing their diabetes due to the possible recent acquisition of the disease.

Another common chronic illness is high blood pressure. Patients with high blood pressure are significantly more likely to report efforts of losing weight if they have high trust in their

physician<sup>8</sup> (OR = 2.07, p < .007). Some evidence (although not statistically significant) also supports high trust to be associated with efforts in reducing salt intake and increasing exercise, in the same population. This study was unable to find a link between increased medication adherence and high levels of trust.

Exploring a different type of chronic disease, two studies conducted by Whetten et al.<sup>12</sup> and Blackstock<sup>10</sup> investigate patient trust and the management of HIV. Whetten et al.<sup>12</sup> explores patient trust in physicians, patient HIV management, and patient distrust in the government regarding information on AIDS. Separate from the issues with the government, the study found that increased trust was related to increased HIV-related outpatient clinic visits, decreased emergency room visits, increased use of medication, and improved reported physical and mental health. Blackstock<sup>10</sup> found that among African American patients, higher trust was associated with increased odds of medication adherence in an HIV population. HIV management may not be a common scenario for an AT, but many conditions involving medication are present in athletics, including asthma, diabetes, skin condition, etc. These studies provide good commentary on the idea that trust in primary care provider promotes better health practices in a chronic disease population.

### **Use of Preventative Services**

Prevention of athletic injuries is standard practice for athletic trainers. Unfortunately no published studies investigate the relationship between athlete trust in their athletic trainer and the subsequent utilization of preventative services\*. However, two studies explore the patient-physician relationship and how it relates to older populations utilizing preventative services for chronic/age related diseases.<sup>13, 14</sup> O'Malley, et al.<sup>14</sup> found that female patients with high levels of trust in their primary care physician were significantly more likely to participate in preventative

services such as pap tests, mammograms, colorectal cancers screenings, etc. Similarly Musa<sup>13</sup> found high interpersonal trust to be associated with patients receiving routine check-ups and mammograms. Although not technically defined as preventative in the study, the efforts of the patients in the Jones<sup>8</sup> study, who described actively trying to lose weight, exercise, and improve diet, could be qualified as preventative. The actions of those patients are similar to exercise programs used to prevent ACL tears in youth sports for example. Logically, athletes who trust AT's are more likely to adhere to the preventative services recommended by the AT.

### **Satisfaction**

Satisfaction is a subjective measure of patient treatment outcomes, specifically as an evaluation of physicians. Satisfaction is still a valuable form of research data due to the positive correlation between satisfaction and health outcomes.<sup>1,2</sup> Higher trust in nurse practitioners is associated with higher satisfaction in a group of African American patients who were evaluated for cultural and medical system mistrust (conceptualized as general mistrust in the healthcare system).<sup>36</sup> Interestingly, when patients showed mistrust of the medical system, satisfaction remained positively correlated with high trust in their personal medical provider. In developing a measure of trust in physicians, Hall et al.<sup>24</sup> found that general trust was strongly correlated with satisfaction and trust in one's physician.

Investigating the link between satisfaction, and the topic of the next section on adherence, a study by Safran et al.<sup>2</sup> evaluated the relationship between seven elements of primary care (accessibility, continuity, comprehensiveness, integration, clinical interaction, interpersonal treatment, and trust) and 3 outcomes measures (adherence to physician's advice, patient satisfaction, and improved health status).<sup>2</sup> Subjects were administered the Primary Care Assessment Survey after physician visit, along with observational analysis of the seven domains

stated above using and questions regarding the three outcomes measures. The research found that physician knowledge and patient trust in the physician were the two characteristics most significantly correlated with adherence to protocol and patient satisfaction ( $p < .01$ ).<sup>2</sup>

### **Clinical Outcomes of Trust in Athletic Trainer**

#### **Adherence**

One area directly affected by patient perceptions is the concept of adherence. Adherence in the medical context, is the act of following the advice of the medical provider.<sup>2</sup> Stewart<sup>37</sup> found that when patients take an active role (adhere to) in the treatment process it increases health status in the effect of reducing further investigation/referral from the physician. Adherence is important in the athletic training setting in terms of athletes taking active participation in the programs administered by the AT. In a study done by Fisher, Mullins and Frye<sup>15</sup> looking at what qualities athletic trainers believe to be important in athletes adhering to rehabilitation, 100% of the AT's who responded to the survey believe that building rapport with the athletes is necessary. In a study done on 44 division II athletes, researchers looked at six factors in relation to athletic rehabilitation adherence.<sup>38</sup> Of the six factors, pain and social support were the only two factors that had a statistically significant effect on adherence ( $t = -2.38$ ,  $t = 2.66$ , respectively.  $p < .05$ ). Over a third of the athletes in the study were considered non-adherent (17/44)<sup>38</sup> suggesting adherence to rehabilitation is an issue in athletics. Assuming a portion of rapport/social support can include the construct of trust, then the Safran, et al.<sup>2</sup> study supports the idea that medical providers who can build trust with their patients will have better adherence to rehabilitation protocol from their patients. In a similar study done by Fisher and Hoisington<sup>26</sup> looking at athletes judgments towards rehabilitation adherence, 89% of the athletes

who responded to the survey believed that rapport with their AT was essential to rehabilitation adherence.

### **Overview of Personality**

Although patient perception of provider knowledge, personal characteristics, and environmental factors have an effect on patient trust, provider behavior may be equally important. C. G. Jung's theories on psychological types<sup>39</sup> explain behavior as a reflection of the way individuals prefer to use their perception and judgment.<sup>18</sup> The Myers Briggs Type Indicator (MBTI) is an instrument that takes one's preferences for perceiving and judging and organizes them into personality types. The possibility exists that knowing one's personality can predict types of behavior and in turn the development of others' trust. The MBTI takes a look at four different domains and combines them for sixteen different personality types. The different domains are; introversion/extroversion, sensing/intuition, thinking/feeling, and judging/perceiving.

### **Myers-Briggs Type Indicator**

Introversion/extroversion can be explained by how one directs their energy, or interacts with their environment.<sup>18</sup> Someone who puts great focus in others and interaction with groups of people would be considered extroverted. Whereas someone who deals with ideas' memories, and the inner self would be considered introverted.

The second group of types is sensing/intuition. Someone who is stronger towards the sensing category is a person who uses a more hands on approach to solve problems, using facts and objective data from the 5 senses.<sup>18</sup> Intuition means someone who looks at patterns and the meaning of information and tries to solve problems within their head.<sup>18</sup>



The next group of constructs is about decision making. People who are categorized as “thinking” are more likely to make logical decision based on hard data and specific to the situation at hand.<sup>18</sup> “Feeling” involves acting in a way that considers how a decision will affect the parties involved.<sup>18</sup> Murray and McCrone<sup>4</sup> found that one of the most important factors of trust is the patients belief that the provider will act with moral compartment or simply behave in a way that considers how the decision affects the patient. This type of thinking is similar to the definition of a “feeling” person stated above.

Finally the last domain of MBTI is judging/perceiving. Considered the most confusing of the pairings judging/perceiving is described as how one likes to interact with the outside world. “Judging” people like more structure, have more organization and follow a “work first, play later” mindset. Those who fall into perceiving are considered more open and willing to change their minds after assessing new information. Combining the four different pairings allows for 16 different personality types.<sup>18</sup>

### **MBTI and Relationships**

Many studies have been performed using MBTI as a way to understand learning/communication styles and therefore better understand the needs of students, workers, employers, etc. Although there are no published studies evaluating MBTI and AT’s\*, one study<sup>40</sup> looked at personality types of college student-athletes, but had inconclusive data due to the wide variety of athletes and the 16 different types of personality. Two studies<sup>41, 42</sup> that evaluated physicians and/or medical student found that compared to the general public there are common MBTI personality types found in the medical population. More importantly Stilwell and colleagues<sup>42</sup> found that the type of physician personalities is largely unchanged compared to the 1950’s with the exception of some differences that may be accounted for by the large increase of

female doctors. Taking this information and applying it to athletic training, it can be speculated that there are common athletic trainer personalities, and if so, will this limit the ability to differentiate personality types to find correlations to trust, since this study is only examining a population of AT's. No studies evaluated personality (MBTI) and patient satisfaction.<sup>+</sup>

## **Understanding Trust as an Effect of Personality**

### **Building Trust**

As mentioned earlier, studies show that quality communication is a factor positively correlated with trust.<sup>2-5</sup> Few sources, however, deal with an intervention specific to building trust. Trust is a complex construct, difficulties in building trust could stem from the effort needed to quantify qualities compared to the effort needed to design interventions. One study analyzes trust through pre and post visit trust questionnaires which allows for observation of the patient-physician interaction.<sup>43</sup> Gordon et al.,<sup>43</sup> investigated the difference in pre and post visit trust differences between lung cancer patients of difference races. Unfortunately, the study provided insignificant data regarding the building of trust.<sup>43</sup> The study did support the notion that good communication maintains trust, by finding that perception of physician communication was a positive predictor of post visit trust. Another study looking at promoting empathetic responses from oncologists found that after an intervention (CD tutorial on communicating effectively through the use of empathetic responses), the oncologists were more likely to use empathetic statements, respond to negative emotions empathetically, and that those oncologists' patients reported greater trust than the control group.<sup>44</sup> This is a concrete example of how constructive communication (using empathetic statements in the case of this study) builds trust. While it may not be easy to show examples of building trust, communication is suggested to be a factor of trust initially<sup>2-4, 16</sup> and through intervention, therefore, personality types that convey

communication more efficiently could have greater significance. In general, both a Cochrane Review done by Rolfe et al.<sup>5</sup> and a Literature Review on trust in primary care providers done by Murray and McCrone<sup>4</sup> highlight the lack of sufficient evidence of interventions building trust.

### **Assessing Athlete Trust in Athletic Trainer**

David<sup>17</sup> developed and validated a questionnaire that assesses athlete trust in their AT. The questionnaire includes two parts and 26 questions. David found that items in the trust questionnaire must assess the domains of approachability, reputation, personal connection, team work, fidelity, environment, and education. The Cronbach's alpha of the scale scores in the instrument is .972. Compared with the "Working Alliance Inventory" (which measures the relationship between therapist and patient) there is strong concurrent validity, with a correlation of  $r = .937$  ( $p < .01$ ).<sup>17</sup> The AT-Patient Trust Instrument also has a moderate correlation of  $r = .641$  ( $p < .01$ ) with the "Patient Adherence Scale" which is supported by research linking trust to adherence.<sup>17</sup> Since the relationship of patient-AT had not been previously evaluated with a questionnaire, it is important to relate the questionnaire to validated instruments in other disciplines.

### **Conclusion**

The purpose of this chapter was to review the literature regarding trust and patient outcomes, as well as factors influencing trust. This section also reviewed the relevant literature on personality, and the effects of communication and behavior on relationships. Two different types of questionnaires were reviewed, the Myer Briggs Type-Indicator for personality, and the Patient-AT trust instrument which evaluates athlete trust in athletic trainers. The goal of this thesis is to evaluate the relationship between AT personality, and the level of trust it promotes in the AT-Athlete relationship.

\*An exhaustive search was done using the search engines: PubMed, Ebscohost, Cochrane library using the key words building trust and athletic training, and no results were found

+Hughes 1981, looked at physician personality and satisfaction with their own life, not patient satisfaction with treatment.

## CHAPTER 3. METHODOLOGY

Development of trust between medical providers and their patients is poorly studied.<sup>4,5</sup> However, through interaction, some medical providers establish a greater sense of trust with their patients. The way people interact/communicate is, in part, a reflection of their personality. The purpose of this study was to determine if there was a relationship between athlete trust in their athletic trainer based on the athletic trainer's personality. The following research question guided this study: Is AT personality type, a predictor for the level of patient trust? This chapter focused on the experimental design, description of the participants, instrumentation for data collection, procedures, data collection, and analysis procedures conducted to complete the research study.

### **Research Design**

This study assumes a survey research, cross sectional design, with athletic trainer personality being the assessed by the Myers Briggs Type Indicator,(MBTI Step I™ (Form M)—CPP Inc, 2009) and athlete trust being assessed by the Patient-AT Trust Instrument <sup>17</sup>(Appendix A).

### **Participants**

ATs selected from a network of preceptors from three local Universities (Division I, Division II, and Division III) were recruited for the study. A total of 18 ATs participated in the study. ATs had to be certified by the NATABOC and work in the collegiate setting. A sample of athletes per AT were randomly selected from rosters provided by the athletic trainers. A total of 273 athletes participated in the study, with at least 7 athletes per AT. Athletes were excluded if they were under the age of 18.

## **Instrumentation**

The trust questionnaire is comprised of eight demographic/health background questions, and then 26 items asking specifically about the athletic trainer, with response options in likert scale form ranging from “Never/A few times” to “always”. The trust instrument takes about 10-15 minutes to complete. The MBTI Form M supplied by CPP Inc (1998) and consists of 14 demographics questions, and 93 split answer questions. Form M takes 15-20 minutes to complete.

## **Procedures**

Study protocol was approved by the institutional review board. AT’s emails were acquired through the clinical education network of North Dakota State University. A total of 22 athletic trainers received emails. Instructions for taking the MBTI personality questionnaire were sent via email (Appendix B), along with a consent form (Appendix C). MBTI personality questionnaires were administered through skillsone.com, the distributive website associated with CPP Inc. Upon completion of data collection, CPP Inc. exported the responses using IBM SPSS Statistics Version 23<sup>45</sup> and emailed them to the researcher. Trust questionnaires were administered to each sport site by the researcher. Informed consent was obtained from the participants (Appendix D), and all participants were provided the opportunity to ask questions prior to distribution of both questionnaires. Upon administration of the AT personality questionnaire at the clinical site of each AT, an incentive of \$10 was given to the AT.

## **Data Analysis**

Data were analyzed using SPSS Statistics Version 23.<sup>45</sup> One-way ANOVA was used compare the personality types to scores on the trust questionnaire. Follow-up ANOVA and subsequent T-tests were used to further investigate differences in trust score between different

personality types and also between different AT's with the same personality type. The alpha level was set at  $\leq (0.05)$ .

## CHAPTER 4. MANUSCRIPT

### Abstract

**Context:** Trust has been researched as an important aspect of the patient-provider relationship and patient outcomes.<sup>1-3</sup> Many factors have been suggested to influence the trust. Although a variety of behaviors and characteristics have been evaluated, personality of providers has not been researched. **Objective:** The purpose of this study was to determine the influence an athletic trainer's (AT) personality has on patient trust. **Participants:** Eighteen athletic trainers from local universities and a random sample of their athletes were recruited for the study. **Data Collection:** Personality assessments were administered online using skillsone.com to the athletic trainers, while trust questionnaires were administered to athletes. **Analysis:** One-Way ANOVA, (.05) alpha level of significance. **Results:** Significant differences in trust between two personality types were detected. **Conclusion:** Personality may be a facet of healthcare relationships, but more research is needed.

### Introduction

In the allied health fields, studies have analyzed trust,<sup>1-3</sup> and its relationship to patient-provider interaction and patient outcomes. Overall, patients who show trust in their physician take a more active role in their health care.<sup>6</sup> Holistically, trust has been directly related to patient satisfaction, adherence to medical intervention, and improved health status.<sup>2,3</sup> More specifically, patients who have articulated trust in their primary care provider are more likely to adhere to new lifestyle interventions,<sup>7,8</sup> take prescribed medications appropriately,<sup>8-10</sup> utilize healthcare opportunities<sup>7,10-12</sup> and preventative interventions.<sup>13,14</sup>



However, while trust has been extensively studied in patient-provider relationships with other health care professionals, few studies highlighting athletic trainers (AT's) support these principles.

Many factors are known to influence patient-provider trust, including competence, compassion, privacy and confidentiality, reliability and dependability, and communication.<sup>2-5</sup> The relationship between patient and provider begins developing immediately during the initial visit. The five physician characteristics most strongly correlated with trust after the first visit are: being caring and comforting, demonstrating competency, encouraging and answering questions, explaining procedures, and “finding all the reasons for the visit”.<sup>16</sup> In a recent study, David<sup>17</sup> highlights approachability, personal connection, communication, understanding the patient, and knowledge of the sport as characteristics that specifically influence trust in the athletic training setting.

There are a variety of tools to measure trust in the patient-provider relationship. In 2013 a questionnaire was developed to measure the level of trust patients have in their athletic trainer.<sup>17</sup> It is the only trust questionnaire made specifically to record the amount of trust athletes have in their athletic training.

The manner in which people interact with each other is a reflection of their personality. Those interactions are the foundation of building trust. One measure of personality is the MBTI. The Myer-Briggs Type Indicator (MBTI) personality test is a well-known personality assessment, first published in 1962. The MBTI is an instrument that analyzes behavior through a categorization of how people perceive or judge the interactions in their lives.<sup>18</sup> Although a variety of behaviors and personality characteristics have been considered within the literature to

impact trust and the patient-provider relationship, personality type of care providers has not been researched.\*

### **Purpose of the Study**

The purpose of this study was to determine the degree to which an athletic trainer's personality has on patient trust.

### **Methods**

#### **Research Design**

This study is cross sectional survey design.

#### **Participants**

A total of 18 athletic trainers from three local universities (Division I (9), Division II (4), and Division III (5) institutions) were recruited for this study. Athletic trainers had to be certified by the NATABOC, and actively working with a team.

A sample of athletes per athletic trainer were randomly selected from rosters provided by the athletic trainers. A total of 273 athletes participated in the study with at least seven athletes per athletic trainer, and at least 10 athletes per athletic trainer personality type. Athletes were excluded if they were under the age of 18.

#### **Instrumentation**

The MBTI Form M supplied by CPP Inc (1998) and consists of 14 demographic questions, and 93 split answer questions asking for the responded to pick between either two words or two short scenarios. The instrument was scored through a rigorous process by CPP Inc. Form M takes 15-20 minutes to complete.

The trust questionnaire is comprised of eight demographic/health background questions, and 26 items asking specifically about the athletic trainer. The response options range from

“Never/A few times” to “Always” and is scored by adding the responses with “always” scored as four and “never/a few times” scored as one, for a maximum score of 104. The trust instrument takes approximately 10-15 minutes to complete.

### **Procedures**

Study protocol was approved by the institutional review board. Athletic trainer’s emails were acquired through each universities respective website. A total of 22 ATs received emails asking them to participate. Once the ATs agreed to participate, a consent form (Appendix C), along with instructions for taking the MBTI personality questionnaire were sent via email (Appendix B). The MBTI personality questionnaires were administered through skillsone.com. Upon administration of the athletic trainer personality questionnaire at the clinical site of each AT, an incentive of \$10 was given to the AT.

Trust questionnaires were administered to each athlete via pen and paper by the primary researcher. All participants were provided the opportunity to ask questions, informed consent was obtained (Appendix D), and the trust instrument was completed.

### **Data Analysis**

Data were analyzed using SPSS Statistics Version 23.<sup>45</sup> A one-way ANOVA was used to compare the personality types to scores on the trust questionnaire. A follow-up ANOVA and subsequent T-tests were used as post hoc testing to further investigate differences in trust score between different personality types and also between different AT’s with the same personality type. The alpha level was set at  $\leq (0.05)$ .

### **Results**

A total of 273 collegiate athletes participated in the study (149 NCAA Division I, 52 NCAA Division II, 72 NCAA Division III). The athletes comprised 11 different sports (Table 1)

with an age range of 18-23 years old ( $m = 20.02 \pm 1.28$ ). There were 156 male athletes and 117 female athletes who together average  $2.39 \pm 1.13$  years of collegiate athletic experience. A total of 18 ATs participated in the study (nine NCAA Division I, four NCAA Division II, and five NCAA Division III). The ATs covered 11 total sports and were comprised of 12 females and six males. Nine of the ATs had a master's degree or higher as their level of education while the other nine were working towards a master's degree.

Table 1. Sport distribution of athletes.

<b>Sport</b>	<b>Number of Athletes</b>
Womens Basketball	12
Mens Basketball	15
Wrestling	26
Football	83
Soccer	26
Softball	16
Baseball	12
Track and Field	38
Hockey	15
Swimming	16

The personality types found and the respective number of AT's in each MBTI type are displayed in (Figure 1). The most common personality type was ESTJ ( $n = 5$ ). Also, there were eight personality types not represented in this sample. Of the eight personality types found in this sample, only one had the "N" or "Intuition" psychological preference (ENFP Type). Otherwise, the psychological preferences were split evenly between the two options of each letter.

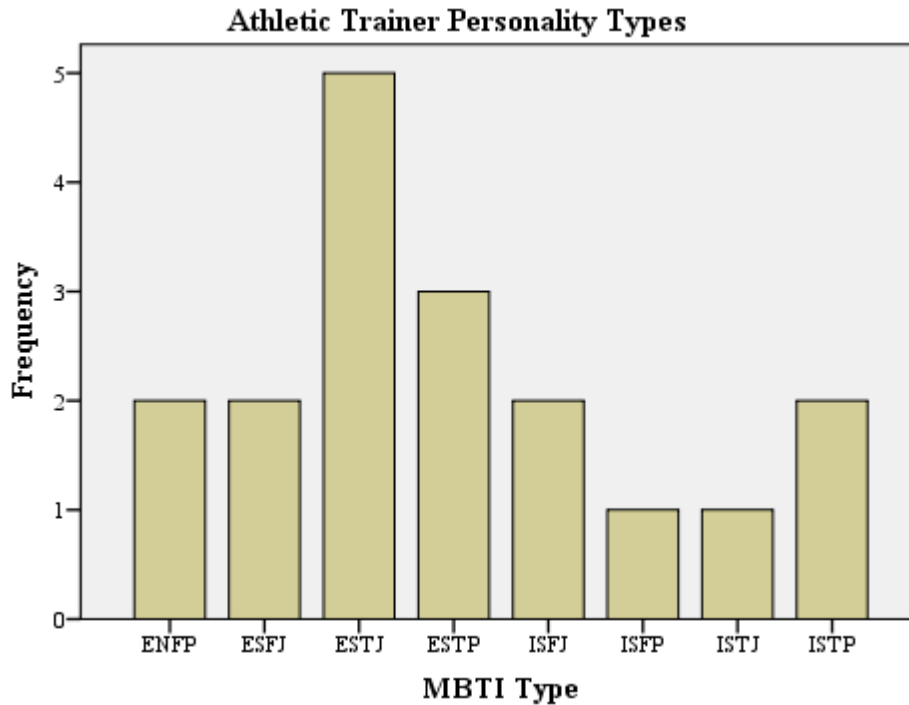


Figure 1. Frequency of athletic trainer personality type.

The Patient-AT Trust Instrument<sup>17</sup> scores ranged from 39-104. The trust score averages for each personality type are listed in figure 2. The frequency of trust score averages for each of the 18 athletic trainers are listed in Figure 3. A one-way ANOVA revealed a significant difference ( $p = .000$ ) between two personality types (ENFP and ISTP). Levene's test was significant ( $p = .000$ ) therefore, the Games-Howell post hoc test was used. Post hoc tests found that the ISTP personality type was related to significantly higher trust scores than the ENFP personality type (mean difference 10.21, standard error = 3.13,  $p = .045$ ). No other personality types had significant differences. However, the trust score averages varied between individual athletic trainers of different personality types (listed as personality types below) but also between individual athletic trainers of the same personality (listed as personality type-number below) (Tables 2, 3, and 4).

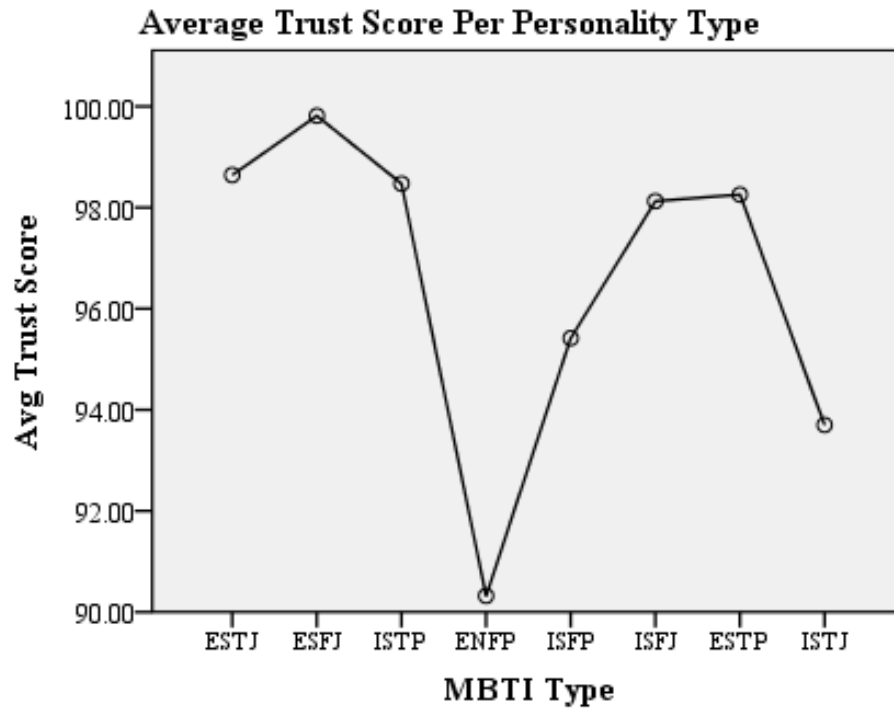


Figure 2. Average trust score per athletic trainer personality type.

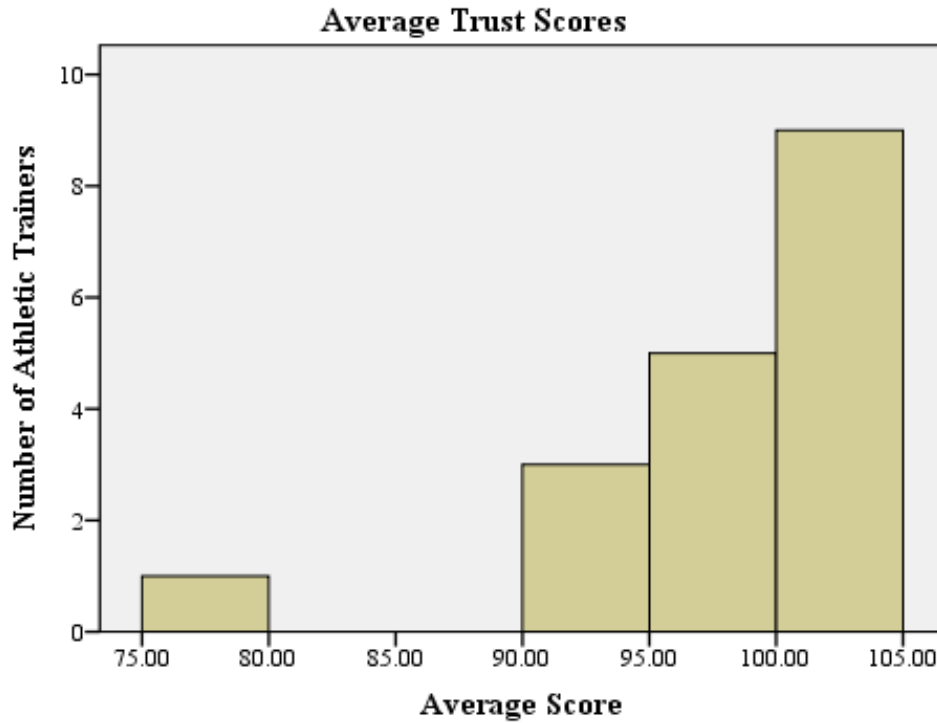


Figure 3. Distribution of trust scores for individual athletic trainers.

Table 2. Significant differences between individual athletic trainers.

Personality Type Comparison	Mean Difference	Standard Error	Significance
<b>ENFP-1</b> ESTJ-1	-21.88603*	4.48617	.008
ESFJ-1	-23.68067*	4.31087	.004
ISTP-2	-21.43464*	4.35459	.009
ISFJ-1	-21.82353*	4.36765	.008
ESTJ-3	-21.02353*	4.51083	.013
ESTJ-5	-23.10924*	4.45492	.005
ENFP-2	-22.29020*	4.36235	.006
ESTP-1	-21.02353*	4.74876	.017
ESTP-2	-23.57353*	4.33601	.004
<b>ISFJ-2</b>			
ESFJ-1	-7.60714*	1.55019	.015
ESTP-2	-7.50000*	1.61878	.018

\*significant at .05 level

Table 3. Comparison of athletic trainers with ESTP personality type.

<b>ESTP Type</b>		Mean Difference in Trust Scores	Standard Error	Significance
ESTP-1 (N=10)	ESTP-2	-2.55000	2.18511	.495
	ESTP-3	8.38182	3.40118	.059
ESTP-2 (N=16)	ESTP-1	2.55000	2.18511	.495
	ESTP-3	10.93182*	2.79612	.006
ESTP-3 (N=11)	ESTP-1	-8.38182	3.40118	.059
	ESTP-2	-10.93182*	2.79612	.006

\*significant at .05 level

Table 4. Comparison of athletic trainers with the same personality type.

<b>ISTP</b>	Mean Trust Score	Standard Deviation	Significance (T-Test)
ISTP-1 (N=12)	96.33	7.44	0.037
ISTP-2 (N=54)	100.61	6.03	
<b>ENFP</b>			
ENFP-1 (N=17)	79.18	17.63	0.000
ENFP-2 (N=15)	101.47	3.34	
<b>ISFJ</b>			
ISFJ-1 (N=12)	101.00	3.07	0.003
ISFJ-2 (N=12)	95.25	5.03	

This study found no significant difference total trust scores between male and female athletic trainers (mean difference = 0.22076,  $p = 0.941$ ) or between level of education (mean difference = 1.24914,  $p = 0.658$ ). (Table 5)

Table 5. Trust averages based on AT demographic information (independent t-test).

Category	Number of Athletes	Average Trust Score	Standard Deviation	Significance
<b>AT Gender</b>				
Female	146	97.26	8.82	0.520
Male	127	98.03	10.93	
<b>AT Highest Level of Education</b>				
Bachelor's	117	98.24	8.19	0.368
Master's	156	97.15	10.92	



Table 2. Personality comparison had variance been equal.

Type Comparison	Mean Difference	Standard Error	Significance
<b>ENFP</b> ESFJ	-10.30093*	2.46261	.001
ESTJ	-8.86731*	2.03507	.001
ESTP	-9.18581*	2.27496	.002
ISFJ	-8.50000*	2.54471	.026
ISFP	-5.79167	3.18997	.871
ISTJ	-4.07500	3.41409	.999
ISTP	-10.20833*	2.02998	.000

*\*significant at .05 level*

## Discussion

This study examined relationships between AT personality as measured by the MBTI and athlete trust. Of the 16 possible MBTI personality types, half are represented by these 18 ATs. It is noteworthy that all but two of the ATs had the “S” (sensing) psychological preference in their Type. The two ATs who had “N” (Intuition), had the ENFP type, which had the lowest average score on the trust instrument (Figure 2). The other three personality preference options displayed no patterns in this sample of athletic trainers. The ATs were evenly dispersed between E/I, T/F, and P/J. For example, Extroversion and Introversion psychological preferences are described as an individual’s preference to focus on their “outer world” or to focus on their “inner world”.<sup>18</sup> More simply, do these individuals excel with multiple stimulus at once, or do they prefer to focus on more specific tasks. Applied to athletic training, having the ability to work with a group of athletes, or to prefer to work one on one are both important. Therefore, the data seems to support the idea that more than one approach to athletic training is successful.

The same idea can be applied to the psychological preferences of “T” (thinking) and “F” (feeling). These two psychological preferences relate to the importance of technical competence and interpersonal competence. Thinking type preferred individuals fall more into the category of technical competence, whereas feeling preferred individuals fall more into the category of

interpersonal competence. The MBTI uses the term “preference” to allude to the idea that these types are not absolute, which agrees with the idea that a clinician needs to have a certain level of both the promote trust.<sup>21-25</sup>

Lastly, the even distribution of “P” (perceiving) and “J” (judging) personality preferences, is reflective of the necessity in athletic training to both work towards goals (J) and adapt to changes (P).<sup>18</sup> When rehabilitating an injured athlete, creating goals is a way to maintain the motivation of the athlete and to promote a positive environment. The ability of the AT to adjust goals, and to approach work in a more casual and destressing manor is also important, therefore the spread of “P” and “J” preferred athletic trainers seems justified. The grouping of behaviors necessary/important to the profession of athletic training appear to spread across categories of the MBTI. Raab et al<sup>28</sup> (2011) interviewed 14 athletic trainers to investigate which behaviors constituted a quality athletic trainer. These behaviors included communication, care, commitment, and integrity. Investigating the effect of certain behaviors on trust may be the next direction of research to not only help promote athlete health outcomes, but guide athletic training research.<sup>28</sup>

We found that ISTP personality type promoted significantly higher trust score averages than ENFP personality type (mean difference = 10.21, standard error = 3.13,  $p = .045$ ). ). ISTP type stands for Introverted, Sensing, Thinking, Perceiving. ISTP personality type is described as, but not limited to being quiet, independent, adaptable, hands-on problem solvers.<sup>18</sup> An AT with ISTP might be better suited than an ENFP to handle individual and personal issues with their athletes, adapting to new challenges, and developing logical solutions. Whereas ENFP (Extroverted, Intuition, Feeling, Perceiving) are more spontaneous, imaginative, and possibility focused,<sup>18</sup> leading to the possibility of athlete problems being lost in the bigger picture.

Of the 18 ATs used in this study, 16 shared personality type with at least one other person. There was a lack of consistency between trust scores of ATs with the same personality type. Of the six shared personality types, only ESTJ (N=5) didn't show significant differences between like type trust averages. The presence of variability between the same personality type has a few possible implications. More ATs per each personality type is needed to draw conclusions on the relationship of personality type to trust scores. This trend could also show a lack of power in relying on personality to predict athlete (patient) trust.

### **Limitations**

As with all studies, limitations are present. Sample size was a limitation of the study. The two personality types that showed significant differences (ENFP and ISTP) also had a considerable amount of trust score variance within the same psychological type (Table 5). The small sample size of local ATs led to more conservative statistical measures regarding homogeneity of variance when running the ANOVA. Running more liberal post hoc tests found the ENFP personality type to score significantly lower than four out of the remaining six personality types (Table 6). Regardless of the AT's personality, we set no control on the type of athletes selected under each athletic trainer. It is unclear how additional variables such as athlete ages, gender, established exposure to athletic trainer, or patient personality type would impact the outcome of the current study. Additional research should consider these variables.

It should be noted that characteristics (i.e., experience, gender) of the AT did not have statistical difference in athlete trust. Indicating that some controls of the relationship are accounted for. We could not find research describing the differences in patient trust in male/female health care professionals. However, studies found describing patient satisfaction and reported patient outcomes varying between male and female physicians is inconsistent.<sup>46-48</sup>

## **Clinical Implications**

AT personality does not appear to impact the level of trust athletes have for their AT. Additional research is needed to evaluate personality and trust in a larger, more diverse sample. Other factors such as communication style, demeanor, confidence, competence, etc. should be investigated in regards to the promotion of trust in the patient-provider relationship.

\*An exhaustive search was done using the search engines: PubMed, Ebscohost, Cochrane library using the key words building trust and athletic training, and no results were found

## CHAPTER 5. DISCUSSION & CONCLUSION

### Discussion

Trust is a complex construct that derives from a variety of factors,<sup>2-5</sup> and extends an influence of patient outcomes, not limited to patient adherence, satisfaction, and objective health outcomes.<sup>1-3, 7, 8</sup> There is a lack of research investigating trust and the associated outcomes in the athletic training setting.\* This study attempted to investigate a possible factor, personality, in influencing trust with the primary care provider.

Of the 16 possible MBTI personality types, half are represented by these 18 ATs. Interestingly, all but two of the athletic trainers had the “S” (sensing) coefficient in their Type. The two ATs who had “N” (Intuition) had the ENFP type which had the lowest average score on the trust instrument (Figure 2). Upon evaluating the difference between S and N psychological preferences yields unsurprising results. Sensing preferred individuals pay attention to observable clues using all five senses.<sup>18</sup> Related to athletic training this could be associated with the ability to approach athlete injury evaluations with a complete awareness of the problem at present. Whereas a person with Intuition psychological preference searches for patterns, abstract ideas and past experiences.<sup>18</sup> Intuition preferred individuals may analyze to the patterns of previous injuries and may not have considered the individualization of each athlete/injury. Individualizing each visit has been found to have a significant effect on patient physician trust,<sup>16</sup> and is also a direct question on the patient-AT trust questionnaire.<sup>17</sup> Therefore, as an AT it is vital to make each athlete and each of their injuries individual. It can be helpful to consider previous experiences, a strength of a “N” or “Intuition” preferred personality, however a lack of individualization can negatively impact the patient-provider relationship.

The other three personality preference options displayed no patterns in this sample of ATs. The ATs were evenly dispersed between E/I, T/F, and P/J. For example, Extroversion and Introversion psychological preferences are described as an individual's preference to focus on their "outer world" or to focus on their "inner world".<sup>18</sup> More simply, do these individuals excel with multiple stimulus at once, or do they prefer to focus on more specific tasks. Applied to athletic training, having the ability to work with a group of athletes, or to prefer to work one on one are both important. Therefore, the data seems to support the idea that more than one approach to athletic training is successful.

The same idea can be applied to the psychological preferences of "T" (thinking) and "F" (feeling). These two psychological preferences relate back to the importance of technical competence and interpersonal competence. Thinking preferred individuals fall more into the category of technical competence, whereas feeling preferred individuals fall more into the category of interpersonal competence. The MBTI uses the term "preference" to allude to the fact that these types are not absolute, which agrees with the idea that a clinician needs to have a certain level of both the promote trust.<sup>21-25</sup>

Lastly, the even distribution of "P" (perceiving) and "J" (judging) personality preferences, is reflective of the necessity in athletic training to both work towards goals (J) and adapt to changes (P).<sup>18</sup> When rehabilitating an injured athlete, creating goals is a way to maintain the motivation of the athlete and to promote a positive environment. The ability of the AT to adjust goals, and to approach work in a more casual and destressing manor is also important, therefore the spread of "P" and "J" preferred athletic trainers seems justified. The grouping of behaviors necessary/important to the profession of athletic training appear to spread across categories of the MBTI. Raab et al<sup>28</sup> (2011) interviewed 14 ATs to investigate which behaviors

constituted a quality athletic trainer. Investigating the effect of certain behaviors on trust may be the next direction of research to help promote athlete health outcomes.

We found that ISTP personality type influenced significantly higher trust score averages than ENFP personality type (mean difference = 10.21, standard error = 3.13,  $p = .045$ ). ISTP type stands for Introverted, Sensing, Thinking, Perceiving. ISTP personality type is described as, but not limited to being quiet, independent, adaptable, hands-on problem solvers.<sup>18</sup> An AT with ISTP might be better suited than an ENFP to handle individual and personal issues with their athletes, adapting to new challenges, and developing logical solutions. Whereas ENFP (Extroverted, Intuition, Feeling, Perceiving) are more spontaneous, imaginative, and possibility focused,<sup>18</sup> leading to the possibility of athlete problems being lost in the bigger picture.

Of the 18 ATs used in this study, 16 shared personality type with at least one other person. Of the six shared personality types, only ESTJ (N=5) didn't show significant differences between like type trust averages. The presence of variability between the same personality-type ATs could show a lack of power in relying on personality to measure the influence of trust (Table 3, 4, 5). However it should be noted that the consistency of scores in the high number of ESTJ athletic trainer's in a small sample of 18 ATs could simply add strength to the argument that a greater sample is needed to rule out personality as a significant factor of trust.

We found that there was no statistical difference in athlete trust when working with either gender AT, or working with bachelor's level or masters level ATs. We could not find research describing the differences in patient trust in male/female physician. Research found describing patient satisfaction and reported patient outcomes varying between male and female physicians is unclear/insignificant.<sup>46-48</sup> If gender of primary care provider does have an impact on trust in the

relationship, it seems it would be compounded with many other patient and provider characteristics and behaviors due to the inconsistencies of past data and this study.

### **Limitations**

As with all studies, limitations are present. Sample size was a limitation of the study. The two personality types that showed significant differences (ENFP and ISTP) also had a considerable amount of trust score variance within the same psychological type (Table 5). The small sample size of local athletic trainers led to more conservative statistical measures regarding homogeneity of variance when running the ANOVA. Running more liberal post hoc tests found the ENFP personality type to score significantly lower than 4 out of the remaining 6 personality types (Table 6). A larger population is needed to entertain the idea that ENFP personality type may promote less trust in the athletic training setting.

We did not consider variables specific to the athlete's background. For example many of the athletes spent a year or less with their athletic trainer. The athletes evaluation of trust can be built on the exposure to the AT, healthy athletes in high participation sports like track and field or football, may not have an opinion on their athletic trainer, due to a lack of time spent with their athletic trainer. Anecdotally, the athletes who had little contact with their AT either responded favorably on the trust questionnaire, or were significantly more negative than the average. Another variable not considered within this research is AT gender. It is unclear how gender can affect trust in a relationship, and those differences were not grouped in any way. The research on gender differences in athletic trainers-athletes suggest that athletes feel more comfortable discussing sex based injuries with a same-sex AT<sup>49, 50</sup> but comfort and trust are two different facets of the AT-athlete relationship. More research on whether like gender or opposite



gender influences trust could be interesting, due to the fact similar personality types in males and females can be interpreted differently due to social stigmas.

## **Conclusion**

The primary conclusion of this paper is that there are significant differences in the average trust scores of athletes evaluating their athletic trainer, and that those differences are poorly linked to athletic trainer personality from this small sample size. A larger sample of ATs may be necessary to truly consider personality preferences as an influential factor of trust in the patient-provider relationship. Future research should look at narrowing the factors that influence trust in order for the profession of athletic training to focus on aspects of improving patient centered care.

\*An exhaustive search was done using the search engines: PubMed, Ebscohost, Cochrane library using the key words building trust and athletic training, and no results were found

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## APPENDIX A. PATIENT-AT TRUST INSTRUMENT

Please answer the following demographic information.

1. How long, in years, have you been participating in collegiate athletics?
2. What is your biological sex?  
Male                  Female
3. What sport do you play?
4. Approximately how many injuries (whole number) have you had in your collegiate athletic career?
5. On a scale from 0 to 10, 0 being no pain and 10 being that you think you may die, how severe was your worst injury?
6. What is your age (in years)?
7. Please describe the quality of your relationship with your athletic trainer with one of the following terms:  
Great                  Average                  Okay                  Terrible
8. I trust my athletic trainer with my healthcare.  
Never/A few times                  Occasionally                  Often                  Always

Please think about your current healthcare experience and compare it to the ideal experience when answering the questions below about trust.

Please identify how often your athletic trainer has:

1. ...verbally communicated well.  
Never/A few times                  Occasionally                  Often                  Always
2. ...worked well within your sport.  
Never/A few times                  Occasionally                  Often                  Always
3. ...acted in a respectable manner.  
Never/A few times                  Occasionally                  Often                  Always



- |   |                   |              |       |        |
|---|-------------------|--------------|-------|--------|
| 4. ...communicated well through writing.  | Never/A few times | Occasionally | Often | Always |
| 5. ...explained your injury with terms you understand.                                | Never/A few times | Occasionally | Often | Always |
| 6. ...given positive feedback when you completed your rehabilitation.                 | Never/A few times | Occasionally | Often | Always |
| 7. ...provided you with targeted feedback at different stages of your rehabilitation. | Never/A few times | Occasionally | Often | Always |
| 8. ...has had your best interest in mind.   | Never/A few times | Occasionally | Often | Always |
| 9. ... listened to your input.  | Never/A few times | Occasionally | Often | Always |
| 10. ...worked to build a good relationship with you.                                  | Never/A few times | Occasionally | Often | Always |
| 11. ...been approachable.   | Never/A few times | Occasionally | Often | Always |
| 12. ...been patient.  | Never/A few times | Occasionally | Often | Always |
| 13. ...explained your treatment with terms you understand.                            | Never/A few times | Occasionally | Often | Always |
| 14. ...been confident about their decisions.  | Never/A few times | Occasionally | Often | Always |
| 15. ... treated you in a pleasant manner.   | Never/A few times | Occasionally | Often | Always |
| 16. ...been happy to see you.   | Never/A few times | Occasionally | Often | Always |

17. ...developed a plan that was specific to you.  
Never/A few times                      Occasionally                      Often                      Always
18. ... been confident when engaged in “hands-on” care.  
Never/A few times                      Occasionally                      Often                      Always
19. ...made a good decision when making a referral to another health care provider.  
Never/A few times                      Occasionally                      Often                      Always
20. ...provided a comfortable environment.  
Never/A few times                      Occasionally                      Often                      Always
21. ...been available in person when you needed him/her.  
Never/A few times                      Occasionally                      Often                      Always
22. ...been available via phone call when you needed him/her.  
Never/A few times                      Occasionally                      Often                      Always
23. ...been available via text when you needed him/her.  
Never/A few times                      Occasionally                      Often                      Always
24. My athletic trainer’s treatment approach was successful.  
Never/A few times                      Occasionally                      Often                      Always
25. I have heard positive information about my athletic trainer.  
Never/A few times                      Occasionally                      Often                      Always
26. I have given other athletes positive information about my athletic trainer’s performance.  
Never/A few times                      Occasionally                      Often                      Always

## APPENDIX B. ONLINE ASSESSMENT INSTRUCTIONS

To Take an Assessment	
1. Using a web browser (i.e., Microsoft® Internet Explorer), access the CPP Online Assessment site.	<a href="https://online.cpp.com">https://online.cpp.com</a>
2. Enter the following Login:	McThesis.2015
3. Enter the following Password:	fargoforce1
4. Leave the “User ID” blank unless you are returning to complete an assessment.	Click: <b>LOGIN</b>
5. From the menu select the desired assessment: <i><b>MBTI® Step I (Form M)</b></i>	Click: <b>BEGIN</b>

- You will be prompted to fill out a demographics page.
  - Select the batch name (**if any**) from the drop down menu
  - Provide the requested demographic information
  - Click **CONTINUE**.
- Follow all directions to complete your assessment.
- Respond to every item, answering the questions as spontaneously as possible. Don’t think about how you “should” answer the question. The right answer is how you most accurately feel about the answer.
- After completing the assessment click **DONE** at the bottom of the page.
- Write down your **USER ID**.
- If you have completed everything you have been instructed to take, click **LOGOUT**.
- If for any reason you cannot complete an assessment in its entirety, be sure to click **SAVE & COMPLETE LATER**, so your responses will be saved and can be recovered when you resume.
  - Write down the User ID number so you can resume and/or take additional assessments using the same User ID.
  - Click **LOGOUT** and close your browser session
  - To continue the assessment, return to item 1 above and start again, entering your **USER ID** in Step 4 and clicking **RESUME** in Step 5.

If you have any questions during the self-administration process please contact

kyle.mccuskey@ndsu.edu Thank you for your participation.

## Technical Requirements

Technical Requirements for this site to function properly, your Internet browser must meet the minimum requirements of Microsoft® Internet Explorer Version 5.5 or Firefox® 2 (or later versions), running on Microsoft® Windows 2000 or Windows XP operating system. (Note: Your client's Internet browser must also meet these minimum requirements.) For more information, [click here](#). While it is not a system requirement to do so, we recommend that you update your browser from either [www.microsoft.com](http://www.microsoft.com) or [www.netscape.com](http://www.netscape.com).

## APPENDIX C. ATHLETIC TRAINER CONSENT FORM

**NDSU**

**North Dakota State University**

Department of Health, Nutrition, and Exercise Science  
PO Box 6050 Dept 2620  
Fargo, ND 58108-6050  
701.231.5686

### **The Relationship between Athletic Trainer Personality and Patient Trust**

Dear Participant:

Our names are Shannon David and Kyle McCuskey. We are a faculty member and a graduate student in the Department of Health, Nutrition, and Exercise Science at North Dakota State University, and we are conducting a research project to evaluate trust in your relationship with your athletic trainer, and how it relates to their personality. It is our hope, that with this research, we will learn more about the relationship between patient and athletic trainer to improve the overall treatment.

Because you are a collegiate athletic trainer, you are invited to take part in this research project. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

It is not possible to identify all potential risks in research procedures, but we have taken reasonable safeguards to minimize any known risks.

You are not expected to get any benefit from being in this research study. However, benefits to others and society are likely to include a better understanding of the relationship between patient and athletic trainer. It also will provide insight on better ways for athletic trainers to treat patients.

It should take about 20 minutes to complete the MBTI assessment.

This study is confidential. That means that no one outside of the research team, will know that the information you give comes from you.

If you have any questions about this project, please contact me at 701.231.5686 or Shannon.david@ndsu.edu

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995., toll-free at 1-855-800-6717, by email at [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu), or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please email Shannon.david@ndsu.edu and I will provide you with the results following the completion of the study.

## APPENDIX D. ATHLETE CONSENT FORM

**NDSU**

**North Dakota State University**

Department of Health, Nutrition, and Exercise Science  
PO Box 6050 Dept 2620  
Fargo, ND 58108-6050  
701.231.5686

### **The Relationship between Athletic Trainer Personality and Patient Trust**

Dear Participant:

Our names are Shannon David and Kyle McCuskey. We are a faculty member and a graduate student in the Department of Health, Nutrition, and Exercise Science at North Dakota State University, and we are conducting a research project to evaluate trust in your relationship with your athletic trainer, and how it correlates to their personality. It is our hope, that with this research, we will learn more about the relationship between patient and athletic trainer to improve the overall treatment.

Because you are over the age of 18, a collegiate athlete, and have received athletic training services, you are invited to take part in this research project. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

It is not possible to identify all potential risks in research procedures, but we have taken reasonable safeguards to minimize any known risks.

You are not expected to get any benefit from being in this research study. However, benefits to others and society are likely to include a better understanding of the relationship between patient and athletic trainer. It also will provide insight on better ways for athletic trainers to treat patients.

It should take about 10 minutes to complete the survey.

This study is confidential. That means that no one outside of the research team, will know that the information you give comes from you.

If you have any questions about this project, please contact me at 701.231.5686 or [Shannon.david@ndsu.edu](mailto:Shannon.david@ndsu.edu)

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu), or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please email [Shannon.david@ndsu.edu](mailto:Shannon.david@ndsu.edu) and I will provide you with the results following the completion of the study.