



Investigate the Effects of Neuro-Linguistic Programming on University Level Novice Archery Players' Performance

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Abstract

Over the past two decades, there has been a growing recognition of the psychological dimensions of sport, particularly the influence of athletes' mental states on performance outcomes. Though Neuro-Linguistic Programming (NLP) has been utilized with great success in business and clinical environments, its use in sport, particularly in sport involving skills, has not yet been reported. The current study sought to investigate the influence of Neuro-Linguistic Programming on the performance of novice female archery players at the university level. Using an experimental study design, the study utilized a 12-week intervention program. The volunteers were divided into experiment and control groups, both of which received a pre-test with a normal benchmarking instrument. The experiment group was taught NLP, whereas the control group went through standard training procedures. Upon completion of the intervention, both groups were assessed using the Archery Skill Precision Test (ASPT). Findings revealed a statistically significant improvement in the performance of the experimental group compared to the control group. The results suggest that Neuro-Linguistic Programming may enhance athletic performance by strengthening key psychological factors such as concentration, self-confidence, and motivation.

Keywords: Neuro-Linguistic Programming, Archery, Athlete Performance, Mental Skills, Sports Psychology

Introduction

Sports psychology is a dynamic and evolving discipline that seeks to understand and enhance athletic performance by examining the psychological processes influencing individuals engaged in sport and physical activity. Although the discipline began to gain scientific prominence in the 1950s, early empirical efforts can be traced back to 1898 (Granito, 2017). As a subfield of psychology, it encompasses a range of topics including personality, motivation, arousal, stress, aggression, leadership, self-confidence, team cohesion, and the influence of spectators (Weinberg & Gould, 2023). A core concern of sports psychologists is how mental states such as mental toughness and flow contribute to optimal performance. While the definition of mental toughness varies across scholars, it is commonly described as an athlete's ability to rebound from adversity, maintain composure under pressure, and perform consistently regardless of external stressors (Weinberg et al., 2016). Mental toughness involves a constellation of traits such as optimism, confidence, self-belief, and self-esteem (Soundara-Pandian et al., 2022). Athletes often require personalized psychological strategies to reach peak performance, as each individual or team possesses unique psychological and physiological needs (Allen et al., 2015). One promising intervention aligned with such individualized needs is Neuro-Linguistic Programming (NLP), a cognitive-behavioral approach that explores the relationships between neurological processes, language, and behavioral patterns. NLP became popular during the 1980s and 1990s as a means of improving sporting mental skills. It is especially attractive because it is exciting, organic, and flexible in form (Saunders, 2009). NLP uses the term "neuro" to refer to the manner in which people deal with experience in their brains, "linguistic" to refer to language that is used to convey and build these experiences, and "programming" to refer to patterns of conduct that are inferred from these interactions (Molden, 2007). The different responses of individuals to NLP is what makes it such an effective tool that can be accessed by such a wide variety of different athletes of varying backgrounds and ages.

According to McDermott and Jago (2002), NLP is the "study of human excellence," providing a framework for understanding how people perceive the world and interact with others. In order to improve performance, the model incorporates interconnected abilities such as goal-setting, team dynamics, leadership, stress management, and individual coaching (Saunders, 2009; Cooper & Goodenough, 2007). Techniques from NLP have been incorporated into

psychological skills training (PST) programs that have been commonly applied in elite as well as recreational sports to enhance concentration, motivation, stress management, and self-confidence (Ungerleider, 2005). Other research has supported that these kinds of interventions can enhance performance in a range of sporting activities including gymnastics (Cogan & Petrie, 1995), field hockey (Bakker & Kayser, 1994), tennis (Daw & Burton, 1994), cricket (Bull, 1995), martial arts, and archery.

Though applied internationally, NLP has yet to be fully exploited and researched in the Pakistani sporting environment. This research aims to bridge this gap by examining the influence of NLP on performance among novice university-level archery players. Since archery is a discipline that demands poise, accuracy, physical mastery, and mental equilibrium, it would be an excellent setting in which to determine the efficacy of mental training programs. Archery is generally classified under target archery, shooting arrows towards stationary targets, and field archery mimicking actual hunting conditions under natural surroundings. Due to its unique skill set, psychological readiness is considered especially critical in archery, where mental components may constitute as much as 80% of performance outcomes, compared to 20–30% in other sports. Despite international interest, no empirical research to date has examined the impact of NLP on archery performance in Pakistan.

This research aims to contribute to the literature by examining the potential of NLP as a psychological intervention to enhance accuracy and performance in university-level novice archers. The key aim of this research was to find out how effective a Neuro-Linguistic Programming (NLP) training intervention can be for enhancing the performance of university-level novice archery players in Pakistan. There has been a statistically significant difference in the archery performance of university-level novice athletes receiving NLP-based psychological training and those who are not.

Research Methodology

This study employed a true experimental design to determine the effectiveness of Neuro-Linguistic Programming (NLP) on the performance of beginning female university-level archery players. The target population was female archers from universities within the Lahore district of Pakistan. A total of 30 beginning archers, aged between 18 and 25, were selected using a randomized sampling technique. Before initiation, ethical clearance of the research

protocol had been obtained from the respective University Ethical Review Committee. Informed consent had been obtained from all subjects by means of a standard consent form, along with the collection of personal details and confidentiality was ensured. To ensure participant safety and fitness, pre-participation health screening was conducted using the American Heart Association (AHA) and American College of Sports Medicine (ACSM) Pre-participation Screening Questionnaire (Balady et al., 1998).

The participants were randomly divided into two groups:

Experimental group (n = 15)

Control group (n = 15)

Each group underwent a pre-test with the Archery Skill Precision Test (ASPT) to determine baseline performance. The control group received no psychological intervention, while the experimental group was subjected to the 12-week NLP intervention. Both groups were then post-tested at the end of the intervention with the identical ASPT protocol.

The NLP intervention consisted of both individual and group sessions, delivered over 12 weeks. The training addressed ten core psychological and cognitive-behavioral skills associated with peak performance, as identified in NLP literature. These included:

- Acting from one's highest intention
- Work ethic and persistence
- Goal-setting skills
- Inner trust and intuitive decision-making
- Self-confidence and self-esteem differentiation
- Coping with defeat
- Managing anxiety versus building confidence
- Effective use of language in self-talk and communication
- Mental preparation techniques
- State of flow management

Measurement Instrument: Archery Skill Precision Test (ASPT)

The ASPT was adapted based on the guidelines provided by the German Tennis Federation (Deutscher Tennis Bund, DTB) and modified for archery-specific performance metrics (Hegazy, 2012). Each participant was required to complete three rounds, with five arrows per

round, resulting in 15 total shots from a standard distance of 30 meters. A rest interval of 10 minutes between rounds was provided to mitigate fatigue. Performance was evaluated using a 10-zone scoring system, with each bull's-eye scoring 10 points and outer zones scoring progressively fewer points. The maximum possible score per participant was 150 points.

Results:

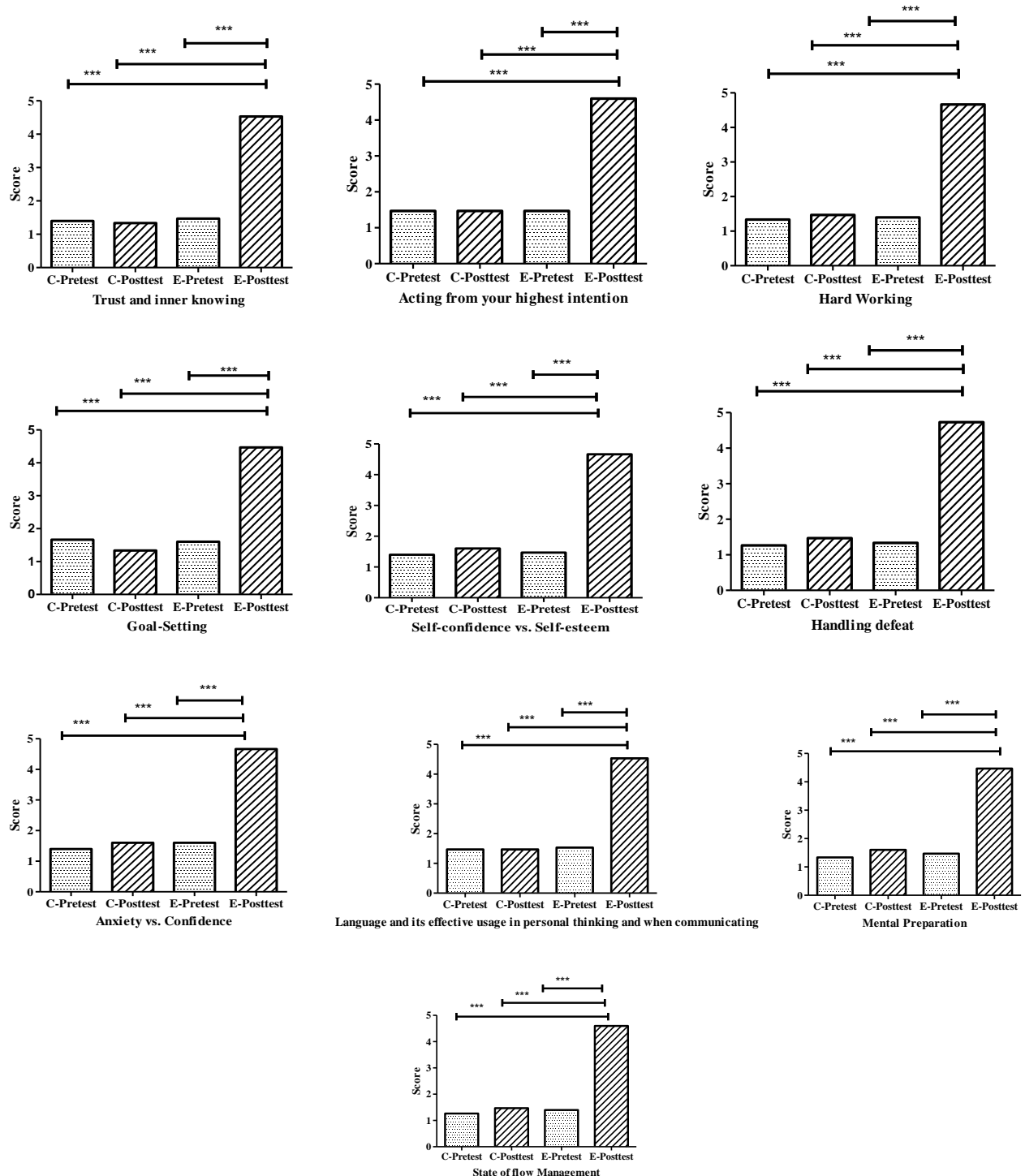
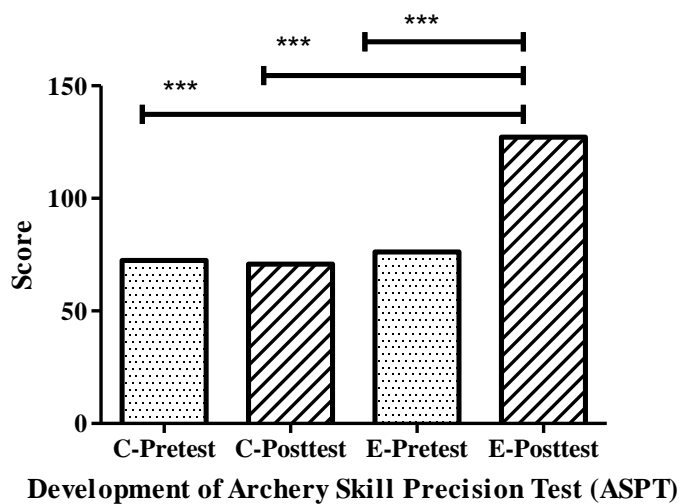


Figure 1. Presenting ANOVA Results of Control and Experimental Groups

No significant difference was evidenced in the comparison of control pretest vs control posttest, control pretest vs experimental pretest and control posttest vs experimental pretest comparisons. However, a prominent difference was evidenced in the comparison control pretest vs the experimental posttest condition. Moreover, the comparison of control posttest vs experimental posttest and experimental pretest vs experimental posttest depicted marked differences. Additionally, the experimental posttest condition presented significantly elevated as compared to other conditions.

**Figure 2: Presenting the ANOVA Results of Control and Experimental Groups of the Development of Archery Skill Precision Test (ASPT)**

No significant difference was demonstrated by comparing control pretest vs control posttest, control pretest vs experimental pretest and control posttest vs experimental pretest comparisons. But a striking difference was demonstrated by comparing the control pretest vs the experimental posttest condition. Furthermore, there were noticeable changes between the experimental pretest and experimental posttest as well as between the control and experimental posttests. In addition, results from the experimental posttest condition were significantly better than those from the other conditions.

Discussion

The current research tested the efficacy of a Neuro-Linguistic Programming (NLP) intervention to improve the performance of female novice university-level archers using a controlled experimental design. Comparing an experimental group (that received the NLP intervention) and a control group (that did not receive it), under pretest and posttest conditions, the research aimed at determining the intervention effect on targeted psychological and performance-based outcomes.

The comparison test produced a multidimensional but not-too-messy pattern of outcomes. Control pretest and posttest, control pretest and experimental pretest, and control posttest and experimental pretest were not statistically different. The results affirm the baseline equivalence of the two groups and indicate that mere exposure to time or testing multiple times did not lead to performance acquisition within the control group. This result illustrates the stability of measures during the post-treatment phase. In contrast, a significant improvement was shown between control pretest and experimental posttest, illustrating that a substantial benefit to the experimental group was achieved by means of the NLP intervention. Control group gains in performance were not found, eliminating the potential that improvement came about through time of measurement or through repeated measurement.

Also, statistically significant differences were observed between:

Control posttest vs. Experimental posttest, and

Experimental pretest and Experimental posttest.

These results strongly suggest the favorable and significant impact of the NLP intervention. The increased scores in the posttest stage for the experimental group validate the efficiency of NLP in creating positive psychological characteristics associated with high performance in archery. Results confirm previous studies demonstrating the efficacy of NLP interventions in sports performance. NLP training stresses the importance of concentration, goal-setting, emotional control, and mental clarity, all essential elements of critical thinking in a sport that demands high concentration, accuracy, and emotional control like archery.

Trainees who received NLP training reported better capacity for focusing during training sessions and competitions, stress and anxiety control, and improved accuracy in shooting.

These results agree with fundamental NLP principles that promote greater mental clarity, better internal and external communication, and the development of a positive performance attitude.

The findings resonate with previous research across various sports disciplines. For example, The Well and Greenlees (2001) demonstrated that NLP training enhanced self-confidence and reduced stress among soccer players, leading to improved match performance. Likewise, in tennis, Loehr and Schwartz (2003) reported that NLP-based interventions enhanced emotional control and focus, enabling athletes to better handle competitive pressure. Comparable benefits have also been documented in precision sports like golf. Crews and Boutcher (2000) reported that NLP strategies contributed to better concentration and reduced anxiety, ultimately enhancing golfers' tournament performance. Given that archery, like golf, relies heavily on mental discipline and composure, the current findings reinforce the cross-sport applicability of NLP techniques.

The processes through which NLP enhances sport performance are rooted in its ability to produce awareness of oneself, through which the athlete can identify and restructure negative thought patterns. For archery, a positive and focused mindset can become a deciding factor. NLP also includes visualization techniques, which allow the athlete to practice best-case performance scenarios mentally, thereby reinforcing neural patterns for skill execution. For this experiment, the experimental group was exposed to such practices, which would have made a big difference to their higher consistency and precision.

In addition, NLP goal-setting focus requires the athletes to set specific, attainable goals. It is more meaningful for the athletes to break down overall performance goals into realistic, smaller ones to enhance their satisfaction and motivation. The structured goal-setting strategy was identified in the experimental group, which worked with clear performance targets during the 12-week intervention, ultimately realizing measurable gains. Overall, the results are all pointing towards an evidence high level that NLP training has a great effect on improving sport performance through the enhancement of psychological attributes central to sport achievement. Consistency of findings with previous soccer, tennis, and golf research is indicating the efficacy and usability of NLP methods within sporting contexts.

Conclusion

This research was conducted on 30 novice female university-level archery players of Lahore district, Pakistan. The participants were divided randomly into two equal groups ($n = 15$ in both groups), an experimental group that received a 12-week NLP intervention and a control group which did not receive any intervention. The results showed that the experimental group indicated notable archery performance improvement, while the control group did not change over the same duration. The outcome verifies that Neuro-Linguistic Programming is a valid psychological training technique with potential to improve performance via increased concentration, precision, and stress reduction, primary cognitive and affective skills required in archery. These findings add to the overall evidence in favor of NLP incorporation into athlete training regimes.

Implications for Coaching and Training: Integration into Training Courses:

The conclusions have immediate application to coaching practice in archery and precision sports. NLP methods can be taught as part of routine training so that players can be given mental strategies to maximize performance, remain in control of emotions, and be focused in pressure situations. Coaches can be trained in NLP methods to better assist in the psychological growth of players.

Institutional Adoption by Sports Academies: Sports academies and athletic organizations can incorporate NLP-based modules into their athlete development systems. Systematic NLP training can lead to comprehensive athlete development and ultimately yield better performance results on the field.

Wider Application throughout Sports. The effectiveness of NLP treatments in archery, soccer, tennis, and golf, their application promises a wider applicability across various sporting disciplines. The versatile nature of NLP approaches makes them an attractive complement to training programs designed to improve mental toughness, concentration, and consistency of performance.

Future Research Directions: Future studies should examine the long-term impact of NLP training on sports performance and determine its generalizability to various age groups, levels of competition, and sports situations. Larger sample size experimental studies with longitudinal follow-ups are suggested in order to further establish and perfect NLP intervention protocols.

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