Acceptability and Preliminary Efficacy Testing of a Web-Based Coach Development Program Addressing Gender Essentialism among Coaches of Adolescent Girls

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Abstract

Gender essentialism in coaching discourses often goes unnoticed by coaches, yet promotes gender stereotypes. Currently, no coach development programme addresses gender essentialism. This study tested the acceptability and preliminary efficacy of a novel web-based coaching intervention comprising seven self-led modules, aimed at reducing gender essentialism among coaches. A pilot randomised controlled trial was conducted with 102 coaches of adolescent girls across multiple sports. Coaches were randomised into the intervention condition (n = 54) or a waitlist control condition (n = 48). Both intervention and control group participants completed a baseline self-assessment prior. Intervention group participants undertook *Coaching HER Foundation* (CHF) modules over two weeks and completed a post-intervention self-assessment. Control group coaches completed the post-intervention assessment without completing the CHF modules. Based on the data, coaches found the intervention easy to follow, relevant, applicable, and enjoyable. Efficacy analyses illustrated the intervention group reported lower levels of gender essentialism at post-intervention compared to the control group. Study results must be considered in relation to the small sample size and high attrition rate (72%). Study findings will inform intervention optimisations based on participant feedback, after which CHF will be made freely available within a wider coach education and training framework.

Keywords: Coach education; Gender; Girls; Sport; Stereotypes.

Introduction

Girls' participation in sport is associated with improvements in physical, psychological, and social health. However, girls face numerous interconnected barriers to enter and sustain participation in sport activities, including gender essentialism (Allison, 2018, 2020; LaVoi, 2018; Messner, 2009, 2011). Gender essentialism posits that men and women have separate and unchanging physical, social, and personality traits (Bohan, 1993; Dzubinski & Diehl, 2018; Greene, 2021). In sport coaching, gender essentialism often manifests when coaches assert that girls and women have inherent, natural, special, or unique characteristics compared to boys and men (LaVoi et al., 2007). Impacts of gender essentialism include persistence of gender stereotypes, masculine dominance in sport and society, and discrimination against girls in sport (Allison, 2018, Messner, 2009, 2011; LaVoi & Goorevich, in press; Love & Kelly, 2011). Despite the harmful potential of gender essentialism in coaching discourses, there has yet to be a coach development programme (CDP) aimed at addressing gender discourses in sport coaching.

Gender Essentialism Defined and Its Impact

Research into pervasive and persistent gender essentialism in sport—including the realm of sport coaching—highlights how essentialism limits the potential for girls in sport to experience maximal benefits from their sport participation (Allison, 2018; Gosai et al., 2022; LaVoi & Baeth, 2018). Gender essentialism is largely shaped by biological divisions of gender, where men and women are believed to have inherently separate traits, characteristics, or essences based on hormonal or genetic differences (Bohan, 1993; Dzubinski & Diehl, 2018; Greene, 2021; Hyde, 2005). Generally, gender essentialism can manifest in assumptions that women are naturally caring, nurturing, and emotional, whereas men are naturally agentic and rational. In sport specifically, a common gender essentialist perception is that girls and women are inferior athletes, less confident, and less suitable to (certain)

sports than boys and men. As a result, gender essentialism shapes prevailing notions of masculinity and femininity, which have material impacts. For instance, gender essentialism has been found to promote biases that restrict women's access to leadership positions both in sport and beyond, as well as justify resource inequality between men and women's sport (Allison, 2018, 2020; Dzubinski & Diehl, 2018; Hovden & Tjønndal, 2019).

Unchecked and unchallenged gender essentialism is problematic, as these beliefs may marginalise, discriminate against, and negatively impact the psychosocial outcomes of girls in sport, and may render coaches less effective in coaching girls and women (de Haan & Knoppers, 2020; Felton & Jowett, 2013; Jones et al., 2019; Skewes et al., 2018). For example, if girls engage in stereotypical masculine attitudes and behaviours while playing sport (e.g., dominance and aggression), coaches who possess a high level of gender essentialism may react with backlash, gender bias, sanctioning, and marginalisation (Skewes et al., 2018). On the other hand, pressure for girls to conform to stereotypical feminine norms (e.g., being caring and passive) compounds notions of girls as unathletic and unsuitable for sport, and can impact girls' sport performance (Cooky, 2009; LaVoi et al., 2007; Kane, 2016).

Gender essentialism also normalises an idealised notion of femininity, which is structured around whiteness, heterosexuality, being cis-gender, and economic privilege (Allison, 2018, 2020; Newhall & Buzuvis, 2008; Travers, 2008). As a result, athletes who lie outside of hegemonic identities are further marginalised and discriminated against, often facing added layers of oppression and stereotypes based on race, religion, ability, class, or sexuality (Allison, 2020; McDowell & Carter-Francique, 2017). Although Messner (2009, 2011) observed that contemporary gender essentialism has become more 'soft' in its application, where girls and women are accommodated in the sporting sphere, essentialism remains pervasive, as it shapes perceptions of femininity in sport, constructs girls' choices in

sport, and impacts access to leadership opportunities (Cooky, 2009; LaVoi et al., 2007; LaVoi & Goorevich, in press; Love & Kelly, 2011). Notably, gender essentialism is also harmful for boys and men as it replicates hegemonic masculinity, limits gender expression, and perpetuates heterosexism (Messner, 2009, 2011).

Despite its power structuring sport hierarchies, where boys and men in sport receive more resources and better treatment than girls and women in sport due to perceptions of women being inferior athletes, research from developmental psychology, neuroscience, and behavioural neuroendocrinology all discredit the reality of gender essentialist binaries (Hyde, 2005; Hyde et al., 2019). Gender essentialist beliefs, then, in arenas like sport and sport coaching are subsequently not supported by research-based evidence.

Coaching and Gender Essentialism

Coaches often exhibit high levels of gender essentialism in their coaching practices and methodologies, which harms girls in sport (Gosai et al., 2022; Jones et al., 2019; Norman, 2016a, 2016b). Coaches are highly impactful on athletes' well-being in sport settings (Langan et al., 2013; LaVoi, 2018), have a significant influence on athletes' physical and mental health and well-being, and are powerful mediators of gendered hierarchies and gendered norms (Norman, 2016a, 2016b). Although gender essentialism is a phenomenon that is not exclusive to sport, sport is a salient arena for essentialist beliefs, due to a sex-segregated sport structure, historical hegemonic masculinity in sport, and an emphasis on physical ability (Messner, 2009, 2011). While it is not assumed that sport coaches are more likely to purport essentialism compared to the general population, it is important to address and challenge the essentialist beliefs which permeate sport coaching.

Sport scholars have documented essentialist (e.g., 'girls are less competitive than boys, are better listeners than boys, and need more instruction than boys'; LaVoi et al., 2007) and 'gender-neutral' coach discourses (e.g., 'treat girls and boys equally'; de Haan &

Knoppers, 2020; Hovden & Tjønndal, 2019; Norman, 2016b; Spaaij et al., 2019), and have called for new 'gender responsive' coaching discourses and methodologies to help practitioners more effectively coach girls in sport (e.g., wearing dark-coloured shorts to alleviate menstrual concerns; Hovden & Tjønndal, 2019; Jones et al., 2019; Norman, 2016a). Recently, coaching discourses have been further documented and defined ([CONCEALED]) from essentialist (e.g., 'girls are more emotional than boys') to transformative (e.g., implementing feminist pedagogy in coaching).

Despite the power and prominence inherent in the coaching role, research related to gender essentialism in sport coaching is limited (LaVoi, 2016a; LaVoi et al., 2007; Messner, 2009, 2011). Furthermore, although gender essentialism is evident in coaching discourses and methodologies, such as characterising girls as less authoritarian, inferior athletes, and more sociable compared to boys (LaVoi et al., 2007; Messner, 2009, 2011), there has yet to be an educational intervention for coaches that directly addresses and challenges gender essentialist perspectives. Coach education and CDPs address a plethora of coaching topics related to athlete motivation, sport-specific strategies, team cohesion, injury and burnout prevention, and disordered eating (Evans et al., 2015; Silva et al., 2020). However, gender-specific coach education programmes directly addressing topics relating to coaching girls and women are rare (Jones et al., 2019; Norman, 2016a), and rigorously evaluated CDPs are no exception.

When CDPs do include gender, an essentialist perspective where girls are considered non-normative in sport and different from boys is often promoted (Allen & Shaw, 2009; LaVoi et al., 2007; Norman, 2016a). Examining and questioning discourses in coach education materials through a gender responsive approach is an important way to illuminate and deconstruct gender essentialism. Gender responsive coaching teaches coaches to critically question problematic gender relations and discourses, which shape their strategies, methodologies, and opinions. Gender responsive coaching, "through identifying,

understanding, and redefining gendered ideas, stereotypes, and languages", better accommodates athletes' desires and needs and improves coach-athlete relationships and thus athlete performance (Norman, 2016b, p. 11; Schofield et al., 2022). Research has found that coaches seek out gender-responsive coaching methodologies to better support girls and women in sport (Norman, 2016b); however, we are currently not aware of any empirically-tested coaching interventions that take an anti-essentialist, gender responsive position to coaching girls.

Significance of this Research

In this paper, we examined the acceptability of an educational intervention for coaches of adolescent girls aimed at reducing gender essentialist beliefs in sport coaching. While this intervention was developed for coaches of girls, we note essentialist discourses of coaches also are harmful to boys and men. This study fills an important research gap related to gendered coach discourses; despite making up a large proportion of female sport participants, research on girls specifically—defined as youth under 18 years old assigned as female at birth, as well as all young individuals that identify as female—is lacking. Research on gendered coaching discourses is nearly exclusive to the adult, elite sport level (de Haan & Knoppers, 2020; de Haan & Norman, 2020; Schofield et al., 2022). This study therefore fills a gap by focusing on the coaches of girls, rather than adult women.

Recently, researchers have documented and problematised the existence of gender essentialist coach perceptions of the girls they coached (de Haan & Knoppers, 2020; de Haan & Norman, 2020; Jones et al., 2019). Other researchers have examined how gender essentialism restricts female coaches' careers (Hovden & Tjønndal, 2019; Knoppers, 1992; LaVoi, 2016b; LaVoi & Baeth, 2018; LaVoi & Goorevich, in press; Messner, 2009, 2011), assumes women and girls are less competitive (Mavin & Yusupova, 2020), establishes women and girls as inferior athletes (Allison, 2018; Kane, 1995; Messner, 2009; Schofield et

al., 2022), and erases the diversity found within and between girls and women's sport experiences (Allison, 2020; Newhall & Buzuvis, 2008; Travers, 2008). Furthermore, scholars have emphasised the need for greater attention to issues related to diversity, equity, and social justice in CDPs, as it can support diverse workforces, destabilise harmful social hierarchies present in sport spaces, and create more welcoming and empowering sport experiences for both athletes and coaches (Culver et al., 2023; Norman, 2016a). This intervention follows these scholars' call to action with its focus on eradicating gender essentialism in sport coaching.

The aim of the current study was to describe the preliminary testing of a novel web-based intervention aimed at reducing gender essentialist beliefs in sport coaching. The *Coaching HER Foundation* intervention (CHF) fills a gap in the existing literature and the need to target coaches in interventions as mediators of gender norms and key influences of athletes' sport experiences. The primary focus on coaches of girls is warranted, as coaches are salient role models and impactful social agents who shape girls' self-perceptions at a time in girls' developmental trajectory when a majority of girls drop out of sport and therefore fail to have the opportunity to accrue positive psychosocial, developmental, and health benefits (LaVoi, 2018).

The Current Study

Specifically, the CHF intervention aims to: (1) reduce gender essentialism among coaches of adolescent girls in sport; (2) improve coaches' self-efficacy in recognising and addressing gender essentialist beliefs; and (3) increase coaches' perceived importance placed on their role in challenging gender stereotypes and gender essentialism in coaching.

The hypotheses that guided this study are: (1) coaches who took part in CHF would find the intervention acceptable, as assessed through affective attitude, burden, ethicality, self-efficacy, perceived effectiveness, and open-ended feedback and (2) coaches who took

part in CHF would report lower gender essentialist beliefs and higher self-efficacy and outcome values in challenging gender stereotypes post-intervention, compared to coaches who did not take part in the intervention.

This study measures the efficacy of CHF in reducing gender essentialism among coaches of adolescent girls utilising an existing scale—the Gender Essentialism Scale (GES; Skewes et al., 2018). Although the GES measures the prevalence of gender essentialism in relation to political and social beliefs not specific to sport, we believe this scale can indicate the presence of gender essentialism amongst sport coaches of girls. By monitoring coaches' gender essentialist viewpoints and applying an anti-essentialist coach education intervention to challenge these beliefs, we can illustrate how gender essentialism can be changed to promote more gender-responsive sport environments for girls that will enhance sport performance, well-being, and sustain participation so benefits can accrue (Norman, 2016b).

Materials and Methods

Study Design

This study followed a two-arm randomised controlled trial design that included an intervention group and a waitlist control group. Coaches of adolescent girls based in the United States were randomly assigned to either the intervention (seven modules of CHF) or waitlist control group. Participants completed online assessments in Qualtrics at baseline (T1; within one week before starting the programme) and immediately post-intervention (T2; within one week of completing the programme). Coaches in the control group received access to the modules after completing the T2 survey. The study was pre-registered on ClinicalTrials.gov (identifier: [CONCEALED]), and University Institutional Review Board approval was obtained from the University of [CONCEALED] (ref no. [CONCEALED]). The CONSORT EHEALTH checklist (V.1.6.1; Eysenback, 2011) and the CONSORT 2010

extension to randomised pilot and feasibility trials statement were followed (Eldridge et al., 2016).

Participants and Sample Size

Participants were recruited through sports organisations' newsletters, emails to coaches, and posts across various social media channels. Participant recruitment and data collection were conducted between May and August 2022. Coaches indicated their informed consent before taking part. One response per participant was permitted. Inclusion criteria were being a current sport coach of adolescent girls and being based in the United States. Participants were excluded if they did not coach sports, coached only boys, men, and/or adult women, and were not at least 18 years of age.

Coaching HER Foundation Intervention

Intervention Development

The development of CHF integrated perspectives from coach education experts; scholarly literature in the realms of sport sociology, sport coaching, and sport psychology; and the voices of athletes and coaches. In a multi-stage process, the CHF content was first derived from existing literature surrounding gender and coaching (e.g., LaVoi, 2018; Norman, 2016a, 2016b) and the core research team's expert knowledge. Next, input from girls and coaches through surveys helped to inform the content needs for the course modules. Throughout the process, content creation was guided by best practice recommendations for developing CDPs (e.g., Griffiths et al., 2018; Nash et al., 2017). Furthermore, as this is a web-based programme, input from website developers was utilised to ensure the feasibility and usability of CHF.

Intervention Components

CHF is made up of seven, 20-minute, self-guided, and digitally available modules. An overview of the content, theoretical underpinnings, and projected learning outcomes for each

module can be found in Table 1. Modules were required to be completed in a sequential order. Modules were completed over a two-week period and were self-paced. Each module began with an introduction, core module content, definitions of key terms, and downloadable PDFs with summarised content. A variety of interactive elements (e.g., case studies, checklists, quizzes, reflection prompts) were present throughout each module, which served to emphasise the importance of self-reflection as a learning tool (Norman, 2016b; Santos et al., 2019). Images within the modules depicted girls with diverse identities, including age, ethnicity, religion, and ability. At the end of each module, coaches were provided free access to additional resources, such as videos, media articles, websites, research reports, and scientific literature, which added information about that module's topic.

Procedures

To participate in the programme, all coaches provided electronic consent and subsequently completed the baseline survey. Qualtrics randomised participants into either the intervention condition or the waitlist control condition using a 1:1 randomisation ratio. Coaches were told that they would take part in the intervention after completing the first survey or after completing the second survey depending on group assignment, to ensure participants were not influenced by randomisation. As this was a web-based intervention, complete allocation concealment was not possible.

The intervention condition consisted of a baseline self-assessment (target outcomes and demographic information), access to the training over the two-week intervention period, and a post-intervention self-assessment (target outcomes and acceptability and adherence measures). Participants accessed the intervention with a link sent via email where they logged in with their email address and a self-created password, which was never revealed to the researchers. To prompt completion of the intervention within two weeks, coaches received reminder emails one week after receiving access to the intervention. Additionally, coaches

received up to two reminder emails to complete the post-intervention survey, the first after three days and the second a week after receiving the initial survey link.

Participants in the waitlist control condition completed the baseline self-assessments (target outcomes and demographic information) and a second self-assessment two weeks later (target outcomes only), after which they received access to the online intervention. However, their engagement with the intervention was not monitored or assessed.

At completion of the post-intervention survey, all participants received a debrief form outlining the study aims and objectives. Coaches received an electronic $25 gift voucher to compensate them for their time.

Measures

Demographic Information

Demographic information consisted of questions related to location, gender identity, ethnicity/racial origin, age, education level, coaching role, gender and age of athletes coached, sports coached, competition level coached, years coaching in current role, and years coaching in total.

Acceptability

Intervention acceptability refers to how well an intervention is received by the target population and the extent to which the intervention meets the needs of the target population and the environment or organisational setting of that population (Ayala & Elder, 2011). In other words, while efficacy of an intervention refers to whether or not the intervention is successful at inducing change in pre-specified outcomes, acceptability of an intervention refers to whether the target population finds the intervention relevant, fair, adequate, enjoyable, and not too burdensome (Milosevic et al., 2015; Sekhon et al., 2017). Intervention acceptability is often an important condition for intervention effectiveness, as individuals who find an intervention acceptable are more likely to adhere to the intervention and gain

benefits from it (Diepeveen et al., 2013; Milosevic et al., 2015). Acceptability is therefore commonly measured in pilot studies assessing new interventions, including interventions targeting sport coaches (e.g., Garnham-Lee et al., 2016; Matthews et al., 2023; Schneider et al., 2023).

Acceptability of CHF was assessed retrospectively, corresponding with the theoretical framework of acceptability (Sekhon et al., 2017), which is made up of seven constructs: perceived effectiveness, ethicality, affective attitude, burden, intervention coherence, opportunity costs, and self-efficacy. For the purposes of the current study, we did not assess intervention coherence or opportunity costs. The acceptability items were measured through three questions, rated on a 1–5 Likert scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*). Below, the acceptability items are defined.

Affective Attitude. Affective attitude refers to how an individual feels about taking part in an intervention (Sekhon et al., 2017). Affective attitude was evaluated through the following questions: (1) “I liked the programme”; (2) “I am satisfied with the programme”; and (3) “I enjoyed engaging with the programme”.

Burden. Burden refers to the perceived amount of effort that is required to participate in the intervention (Sekhon et al., 2017) and was measured through three questions: (1) “Engaging with the programme was too troublesome” [reversed]; (2) “Engaging with the content of the programme was too difficult” [reversed]; and (3) “It was easy to follow the content of the programme”.

Ethicality. Ethicality refers to the extent to which the intervention has good fit with an individual’s value system (Sekhon et al., 2017) and was evaluated through three questions: (1) “I think this programme is appropriate for coaches in my organisation or in my sport”; (2) “I would recommend this programme to other coaches”; and (3) “It is important for other coaches to have access to this programme”.

Self-Efficacy. Self-efficacy refers to the participant's confidence that they can perform the behaviour(s) required to participate in the intervention (Sekhon et al., 2017) and was evaluated through three questions: (1) "I am going to use the things I learned from this programme in the future"; (2) "I have been able to apply what I have learned in the programme to my coaching"; and (3) "I am confident that I will use the techniques I learned from the programme in my coaching".

Perceived Effectiveness. Perceived effectiveness refers to the extent to which the intervention is perceived as likely to achieve its purpose (Sekhon et al., 2017) and was evaluated through three questions: (1) "The programme was successful in improving my knowledge about gender stereotypes"; (2) "The programme was successful in helping me think about my own gender stereotypes"; and (3) "The programme was successful in improving my knowledge about coaching girls".

Additional Feedback. Participants had the opportunity to provide additional feedback about their experience through the following open-ended questions: (1) "Are there any parts of the programme that were not clear (e.g., meaning, relevance, terminology, etc.)?"; (2) "Is there anything missing that you think should be included in this programme?"; (3) "Do you have feedback on the visual design of the modules?"; and (4) "Do you have any further feedback on this programme?".

Preliminary Efficacy

Gender Essentialism. The Gender Essentialism Scale (GES; Skewes, 2018) assessed coaches' gender essentialism. The GES is made up of 25 items (e.g., "Genes are at the root of differences between the sexes" and "Wherever you go in the world, men and women differ from one another in the same kinds of ways"). Participants indicated their agreement with the items on a 5-point Likert scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*). Higher mean scores indicate higher adoption of gender essentialist beliefs. The GES demonstrated high

reliability in previous research (Cronbach's alpha = .89–.90) and in the current study (Cronbach's alpha = .88).

Coach Self-Efficacy. Coaches' self-efficacy in recognising and addressing gender essentialist beliefs was assessed with the Coach Confidence Efficacy scale (CCE), developed for the purposes of this study. Adapted from Vaughan et al. (2004), this 11-item scale measured coaches' expectations regarding their ability to identify and challenge gender stereotypes in sport. Participants were asked to indicate their perceived levels of confidence to each item following the stem "I can…", rated on a 7-point Likert scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). Example items included: "I can identify gender stereotypes that are prevalent in sports" and "I can effectively reduce gender stereotypes in my coaching". Higher mean scores indicate higher self-efficacy to identify and challenge gender essentialism and gender stereotypes in coaching practices. The CCE exhibited high reliability in the current study (Cronbach's alpha = .83).

Coach Outcome Values. Coaches' perceived importance placed on their role in challenging gender stereotypes and essentialism in coaching was assessed with the Coach Outcome Values scale (COV), developed for the purposes of this study. Modified from Vaughan et al. (2004), this 5-item scale measured the value coaches placed on learning how to identify and tackle gender stereotypes in sport. Participants were asked to indicate their perceived value of each item following the stem "As a coach, one of the most important things I can do is…", rated on a 7-point Likert scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). An example item included: "As a coach, one of the most important things I can do is limit the use of gender stereotypes in my coaching". Higher mean scores indicate a higher value placed on identifying and challenging gender stereotypes and essentialism in coaching. The COV exhibited high reliability in the current study (Cronbach's alpha = .81).

Adherence and Completion

To assess adherence to CHF, we examined module completion, the use of additional intervention features (i.e., additional resources), time to complete each module, and time to complete the entire intervention (Beintner et al., 2019).

Number of Modules Completed. The virtual platform hosting the CHF intervention recorded the number of modules coaches completed.

Time to Complete the Intervention. To measure coaches' self-reported time spent on the intervention, the following questions were asked: (1) "On average, how long did each module take you to complete?" (1 = *Less than 20 minutes*, 2 = *20–30 minutes*, 3 = *30–60 minutes*, 4 = *1–3 hours*, 5 = *More than 3 hours*) and (2) "How long did the entire programme take you to complete?" (1 = *Less than 1 day*, 2 = *Half a week*, 3 = *1 week*, 4 = *One and a half week*, 5 = *2 weeks*, 6 = *Haven't completed yet*).

Engagement with Additional Resources. Participants were asked whether they engaged with the additional resources (e.g., videos, additional reading, links, reflection exercises). Participants who responded "yes" were asked: "Do you have any feedback about the additional resources (e.g., videos, additional reading, links, reflection exercises)?". Participants who responded "no" were asked: "If no, why did you not engage with the additional resources?".

Data Analysis

Intervention group acceptability and adherence data, both quantitative and qualitative, were collected at post-test. As there was a small sample size and a large number of missing responses, quantitative acceptability and adherence data were summarised using descriptive statistics. An Analysis of Covariance (ANCOVA) measured group differences on all outcomes. Randomised arms were compared on outcomes at post-test (T2), with pre-test (T1) levels of each measure included as a covariate. Partial eta-squared was selected as a measure

of effect size for its suitability with between- and within-subject effects and intervention effects (Alleva et al., 2015), and was reported for each effect, where η_p^2 = .01, .06, and .14 constitute small, medium, and large effect sizes, respectively. We considered a significance level of $p < .05$ for all outcome measures.

Results

Preliminary Analyses

Participants (n = 102) in both the intervention (n = 54) and waitlist control groups (n = 48) completed all demographic and outcome measures at pre-test. At post-test, 47% (48/102) of participants dropped out from the study and did not complete outcome or acceptability measures. Specifically, 72% (39 of 54) of the intervention group and 19% (9 of 48) of the waitlist control group dropped out at post-test.

For both outcome variables and acceptability measures, T1 had 0% missing data, while T2 showed a range of 46.1% to 47.1% of missing items. To measure whether dropouts were missing completely at random (MCAR), we compared participants who dropped out at T2 to those who were retained on T1 scores on the GES, CCE, and COV scales. A Little's MCAR test was insignificant, meaning that missing data was missing completely at random ($\chi 2$ = 72.042, df = 89, p = .905). The t-test showed no significant differences both across arms (t = -1.487, df = 100, p = .140), as well as within the intervention arm (t = -0.835, df = 100, p =.404). The result suggests that dropouts were distributed completely at random. ANCOVA assumptions of normal distribution of residuals, homogeneity of regression slopes, continuous dependent variables, homogeneity of covariance matrices, and absence of outliers were met by all outcome variables. The assumption of homogeneity of variance, as assessed by Levene's test, was met for GES, but not for CCE and COV.

Sample Characteristics

Of the 102 recruited coaches, the majority (72.5%) identified as women. Most coaches were White (80.3%), followed by multi- or biracial coaches (7.8%) and Black and African American coaches (4.9%). The coaches' average age was 37.85 years (*SD* = 11.75), and there were no significant differences in age between the intervention and waitlist control groups. Most coaches worked as a head coach (64.7%), followed by assistant coach (20.6%) and had a bachelor's degree (44.1%), followed by coaches with a master's degree (33.3%). All coaches worked with adolescent girls, and 45.1% also coached adolescent boys. The coaches were involved in a variety of sports, with the most frequently reported sports being soccer (19.6%), basketball (13.7%), and volleyball (13.7%). Most participants coached at the high school (65.7%) and club level (43.1%). On average, participants had been in their current role for an average of 6.85 years (*SD* = 7.04) and averaged 13.43 years of coaching experience (*SD* = 9.36), with no significant differences between the intervention and waitlist control groups (see Table 2 for a detailed description of the baseline sample). There were no significant differences between the groups for any outcome variable levels at baseline (see Table 3).

Intervention Acceptability

Of the coaches who completed post-intervention assessments, the average scores indicated high agreement with affective attitude (*M* = 4.38, *SD* = 0.62), ethicality (*M* = 4.38, *SD* = 0.75), self efficacy (*M* = 4.38, *SD* = 0.62), and perceived effectiveness (*M* = 4.49, *SD* = 0.59), as well as low agreement with burden (*M* = 2.53, *SD* = 0.37; see Table 4). Overall, coaches were satisfied with the intervention, found it enjoyable, and did not feel burdened to complete the programme. Additionally, coaches thought CHF was relevant, applicable, and indicated that they would recommend this intervention to other coaches. Coaches believed the intervention improved their knowledge around gender essentialism and coaching girls.

Coaches also felt that the intervention offered them knowledge and techniques that they could apply to their coaching in the future.

> *Loved [the programme]! [I] even printed a few to pass along to other coaches and the worksheets for my team to do when the season starts.* (Female swimming coach, aged 31, New Hampshire)

> *Thank you for doing this, coming from a women's wrestling coach. I wrestled boys all throughout high school, and became a coach right around the time North Carolina sanctioned wrestling for women to have their own division. So I am trying to make sure to deconstruct any coaching methods or words I use since I grew up being coached and practising with all males, and sometimes find myself embracing gender stereotypes because of how they were expressed commonly when I was in high school.* (Female wrestling coach, aged 20, North Carolina)

> *The definitions were clearly labelled which made it very easy.* (Female lacrosse coach, aged 33, New Jersey)

> *The material was very clear.* (Female cross country coach, aged 38, U.S. Virgin Islands)

> *Organised and visually pleasing.* (Female swimming coach, aged 22, New Jersey)

Coaches were offered the opportunity to explicate their experience and feedback through open-ended questions. Many coaches appreciated the "simple" and "easy to follow" design of the intervention, yet some requested more complex and in-depth content and more reflective or interactive activities. In particular, coaches requested opportunities to practise applying concepts to their coaching methodologies and discourses:

> *I wish that there was more reflection to be done after each module.* (Female field hockey coach, aged 26, Pennsylvania)

Maybe scenarios or exercises in the modules that guide coaches in the right direction. For instance instead of saying this-say that. For coaches learning how to speak differently it would be helpful for them to have activities in which they can practise. (Female gymnastics coach, aged 35, Oregon)

Intervention Efficacy

Coaches' Gender Essentialism (GES)

The ANCOVA showed a significant main effect of randomised group (F[1, 51] = 26.181, $p < .001$, $\eta_p^2 = .339$). The intervention group showed significantly lower levels of gender essentialism at post-intervention than the control group, with a large effect size.

Coach Self-Efficacy (CCE)

The ANCOVA did not show a significant main effect of randomised group (F[1, 51] = 1.906, $p = .173$, $\eta_p^2 = .036$). There was no significant difference in CCE scores between the intervention and control groups at post-intervention.

Coach Outcome Values (COV)

The ANCOVA did not show a significant main effect of randomised group (F[1, 51] = 1.288, $p = .262$, $\eta_p^2 = .025$). There was no significant difference in COV scores between the intervention and control groups at post-intervention.

Intervention Adherence and Completion

One hundred percent of the intervention group participants who completed post-test assessments completed all seven modules of CHF. Participants reported completing the modules in a timely manner, with 60% (n = 9) completing the entire programme in one day and 40% (n = 6) completing the programme within one week. A majority (86.7%, n = 13) reported that each module took less than 20 minutes to complete and 13.3% (n = 2) reported completing individual modules in 20–30 minutes. Participants frequently engaged with additional resources (n = 13, 86.7%). The two participants that did not utilise additional

517 resources stated personal time constraints and a belief they fully understood the content as
518 reasons for not engaging with these resources.

519 **Discussion**

520 In this paper, we analysed the acceptability and preliminary efficacy of a novel web-
521 based intervention for sport coaches that addressed gender essentialism in the coaching of
522 adolescent girls. Data suggests coaches widely accepted the intervention; participants in the
523 intervention group found the intervention relevant, enjoyable, easy to follow, and applicable
524 to their coaching praxis. Additionally, the majority of coaches reported that the intervention
525 greatly enhanced their knowledge of gender essentialism and gender stereotypes. In terms of
526 adherence and intervention completion, there was a high dropout rate (72%) from pre- to
527 post-intervention; however, all coaches who completed post-intervention assessments
528 completed all seven CHF modules. Most of these coaches (86.7%) also engaged in the
529 additional resources provided as part of the intervention.

530 Preliminary efficacy analyses indicated that the intervention group reported
531 significantly lower levels of gender essentialism at post-intervention, compared to the waitlist
532 control group. On average, the intervention group also reported higher levels of self-efficacy
533 in recognising and addressing gender essentialist beliefs (CCE) and higher levels of perceived
534 importance placed on their role in challenging gender stereotypes and essentialism in
535 coaching (COV); however, preliminary efficacy results related to CCE and COV were not
536 statistically significant. Findings related to the efficacy of CHF should be interpreted with
537 caution due to the small sample size. Overall, this pilot study shows promising results for the
538 acceptability of the CHF intervention for coaches of adolescent girls.

539 CHF fills a gap as the first coaches' intervention aimed at addressing gender
540 essentialism and gender stereotypes in coaching. Unlike other CDPs, which often ignore
541 gender completely or focus on biologically essentialist conceptions of gender (Jones, 2019;

Norman, 2016a), CHF is unique because it starts with creating awareness about the many ways gender stereotypes and biases influence—consciously and unconsciously—how coaches 'coach' girls. CHF is a novel example of a gender-responsive CDP that aims to help coaches understand gendered power dynamics within coach-athlete relationships, avoid essentialistic discourses, and centre girls' needs in sport (Jones et al., 2019; Norman, 2016b).

CHF is also evidence-based, drawing from developments and research from coaching science, child development, psychology, gender studies, and sport sociology. With the goal of changing and reducing social inequality by educating sport coaches, CHF specifically addresses gender inequality in sport and takes a gender-responsive approach, setting it apart from other coach education programmes (Norman, 2016b). While other CDPs and publicly available coach education materials for coaches of girls often problematise, otherise, and stereotype girls and women in sport (LaVoi et al., 2007; Schofield et al., 2022), CHF offers a way to address girls' unique needs and gendered experiences, while also avoiding gender essentialist ideologies known to undermine, limit, and negatively harm girls' sport experiences (LaVoi et al., 2007; Skewes et al., 2018).

Finally, CHF aligns with scholars' call to action for diversifying coach development (Culver et al., 2023). By challenging gendered language in coach methodologies, creating awareness of gendered sport structures within coaching, and encouraging coaches to integrate gender responsive practices, CHF sits within a larger push for social justice and equity-focussed coach education programmes (e.g., Culver et al., 2023; Norman, 2016a, 2016b). Given the promising results of this study, it is our hope that the CHF intervention can become integrated into standard coach education programmes at local, state, and national levels to help coaches learn how to encourage more diverse, equitable, and safe sport environments.

Strengths and Limitations

This pilot study's findings should be considered with the following strengths and limitations in mind. A key strength of this study is the randomised controlled design and the rigorous evaluation of acceptability and preliminary efficacy of a novel web-based intervention for coaches aimed at reducing gender essentialism in coaching. Additionally, CHF was developed to be delivered completely online, which can enhance the accessibility and scalability of the intervention.

Due to the preliminary nature of this study, there are several limitations that should also be acknowledged. First, the high dropout rates caused a lack of power for the efficacy analyses, which should be interpreted cautiously. Compared to the waitlist control group, the intervention group exhibited higher dropout rates. Due to this, ANCOVA tests consisted of highly uneven group sizes (i.e., $N_{\text{Intervention}} = 15$; $N_{\text{Control}} = 39$), which can reduce ANCOVA's power (Wan, 2020) and suggests a need for a different randomisation strategy for a future large-scale randomised controlled trial.

In self-guided and web-based interventions where there are limited or no in-person components, high dropout rates are a common concern (Brouwer et al., 2009; Linardon & Fuller-Tyszkiewicz, 2020; Wangberg et al., 2008). For example, a review of 28 web-based mental health interventions found that attrition rates ranged from as low as 5% to as high as 65% (Scheutzow et al., 2022). Research on attrition in survey research and online courses suggests that personal (e.g., gender, age, background, etc.), environmental (e.g., work commitments, life events, etc.), and course/programme factors (e.g., course design, programme quality, etc.) can all impact participant dropout (Lee & Choi, 2010). The high dropout rates might also be indicative of self-selection bias, where only coaches who were the most motivated completed the study.

Second, in light of the small sample size and large number of missing responses, adherence data were exclusively summarised by applying descriptive statistics. Future research should incorporate adherence data in efficacy analyses to establish the dose-response effect of the intervention, as well as the added benefit of engaging in additional resources (e.g., videos, additional reading, links, reflection exercises) alongside the core intervention content.

To gain additional insight into intervention non-completion, intervention group participants who did not complete the programme within the study timeframe were invited to complete a follow-up survey. Of the five participants who completed this survey, the majority (60%, $n = 3$) did not have time to complete the programme, one (20%) changed their mind about participating in the programme, and one (20%) had technical issues preventing them from accessing the modules. The most common obstacle to intervention completion was time constraints, particularly due to coaching conflicts, external work commitments, and family obligations. Regarding changes to the modules that would encourage further completion, coaches requested more reminders to participate, more time to complete the intervention, and more interactive elements within the modules.

Future Directions

Although the results of this study showed high acceptance rates of the intervention, coaches provided important feedback to help improve CHF's effectiveness. For instance, coaches reported a desire for more interactive elements within the modules, like case studies and scenario-based exercises, to provide opportunities to practise key concepts and enhance the applicability of certain tools to their coaching methodology. In line with this finding, module content will be revised to include more opportunities for situational training to assist coaches in applying learnings to their own practice. Moreover, although the majority of coaches engaged in the additional resources and materials provided as part of the

intervention, coaches were less likely to participate in reflection exercises (n = 8), despite that self-reflection (e.g., through a reflective journal) can enhance learning (Santos et al., 2019). To encourage more reflection as well as increase the availability of interactive elements, more reflection prompts will be implemented throughout the modules.

Additionally, further research must determine better ways to record programme effectiveness. Although the GES adapted from Skewes et al. (2018) provided a measure to monitor levels of gender essentialism among coaches, this scale was not specific to the unique sport environment. Furthermore, COV and CCE scales were modified to be sport specific from measures developed by Vaughan et al. (2004), meaning these scales were not validated. Currently, there is not an existing scale developed to measure levels of gender essentialism in sport-specific environments. Establishing a measure to document, record, and intervene pertaining to gender essentialism in sport can help coaches recognise and change essentialist behaviours to improve environments for girls and women in sport.

Finally, although the current intervention was developed for coaches of female athletes, and evaluated among coaches of adolescent girls, gender essentialist beliefs can also be harmful in coaching boys and men, as well as co-ed teams. Future research should consider how gender essentialism manifests on boys and men's teams and co-ed sports teams, to develop targeted approaches to eradicate gender essentialism across all sport contexts.

Conclusions

The *Coaching HER Foundation* (CHF) intervention is the first empirically tested and evidence-based CDP aimed at reducing gender essentialism among coaches of adolescent girls. Findings from this pilot study indicate that coaches found CHF easy to follow, relevant, applicable, and enjoyable. CHF may also challenge gender essentialist perspectives within coaching methodologies and increase coaches' self-efficacy in addressing and tackling

638 gender essentialist attitudes and beliefs. Additional systematic and rigorous evaluations of the
639 CHF intervention are required in different sport settings and organisations.
640
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Tables

Table 1

Outline of the Coaching HER Coaching Intervention

Modules	Learning Content	Underpinning Theories	Learning Outcomes
● **Module 1:** Developing Girls in Sport	● Explains the assets, positive outcomes and benefits that can result when girls participate in sport and a coach's role in ensuring girls experience them.	● Positive Youth Development ● Sports-Based Youth Development ● Ecological Systems Theory	● *Understand* the assets, or benefits, girls gain from sport participation. ● *Identify* a coach's role in girls' gaining benefits from sports. ● *Reflect* about negative outcomes of sport participation that some girls experience and how to avoid them.
● **Module 2:** Challenging Gender Stereotypes	● Explains the effect of gender stereotypes on girls' participation in, and enjoyment, of sport.	● Gender Essentialism ● Self-Objectification Theory ● Cognitive Bias	● *Understand* what gender stereotypes are and how they affect girls. ● *Identify* gender stereotypes that are prevalent in sports. ● *Reflect* on own explicit and implicit gender stereotypes and biases about girls in sport.
● **Module 3:** Coaching Girls Part 1: The Difference Perspective	● Teaches coaches how to recognise The Difference Perspective to coaching girls, a common coach misperception about coaching girls, and how it can undermine girls' positive experiences with sport.	● Gender Essentialism ● Schema Theory ● Stereotype Threat Theory ● Cognitive Bias	● *Understand* common perceptions about coaching girls. ● *Identify* elements of The Difference Perspective to coaching girls. ● *Reflect* on how some perceptions may be based on stereotypes and biases that are harmful to girls.
● **Module 4:** Coaching Girls Part 2: The Similarity Perspective	● Outlines The Similarity Perspective, another common coach misperception about coaching girls, and how it can undermine girls' positive sport experiences.	● Gender Essentialism ● Schema Theory ● Stereotype Threat Theory ● Cognitive Bias	● *Understand* the concepts behind The Similarity Perspective. ● *Identify* the connection between girls' experience in the world and their gender. ● *Reflect* on how The Similarity Perspective can support you in coaching girls.
● **Module 5:** Eliminating Barriers for Girls	● Teaches coaches about the barriers girls often experience in and through sport.	● Positive Youth Development ● Sports-Based Youth Development ● Ecological Systems Theory	● *Understand* the many barriers that can limit girls' sport participation on individual, interpersonal, community/environment level, and societal levels. ● *Identify* barriers that girls may face in individual communities. ● *Reflect* on and develop strategies that limit or reduce barriers for girls to participate in sport.
● **Module 6:** Recognising Girls' Identities	● Teaches coaches about aspects of girls' identities to consider when coaching girls so they have a great experience with sport.	● Intersectionality Theory ● Gender Essentialism ● Cognitive Bias	● *Understand* aspects of identity. ● *Identify* how all girls' identities intersect and impact their sport experiences. ● *Reflect* upon a coach's own identities and how those influence coaching approaches.
● **Module 7:** Supporting	● Teaches coaches about the three basic psychological	● Self-Determination Theory	● *Understand* the three psychological needs all of us have: relatedness, competence, and autonomy, also called 'The 3Cs' = care, competence, choice.

Girls' Needs	needs that all girls have: care, competence, choice.	• *Identify* the positive and negative outcomes that result with the 3Cs are and are not met. • *Reflect* on your role in girls getting their 3Cs met in the context of sport.

Table 2

Characteristics of the Baseline Sample

	Total Sample (*N* = 102)	Intervention (*n* = 54)	Control (*n* = 48)	*t*-Test Comparing Groups
Gender *N* (%)				
Women	74 (72.50%)	77 (77.8%)	32 (68.1%)	
Men	27 (26.5%)	12 (22.2%)	15 (31.3%)	
Non-binary	-	-	-	
Prefer not to say	1 (1.00%)	-	1 (2.1%)	
Prefer to self-describe	-	-	-	
Age in years *M* (*SD*)	37.852 (11.75)	37.89 (11.14)	37.81 (12.53)	t = -0.034, df = 99, p = .97
Ethnicity *N* (%)				
Asian	2 (2.00%)	1 (1.9%)	1 (2.1%)	
Black or African American	5 (4.9%)	2 (3.7%)	3 (6.3%)	
Hispanic, Latino/a, Spanish origin	3 (2.9%)	2 (3.7%)	1 (2.1%)	
Middle Eastern or North African	-	-	-	
Native American or Alaska Native	-	-	-	
Native Hawaiian or Other Pacific Islander	1 (1.00%)	-	1 (2.1%)	
White	82 (80.40%)	48 (88.9%)	34 (70.8%)	
Multiracial or Biracial	8 (7.80%)	1 (1.9%)	7 (14.6%)	
Prefer not to say	1 (1.00%)	-	1 (2.1%)	
Prefer to self-describe	-	-	-	
Education *N* (%)				
High school graduate, diploma or equivalent (for example: GED)	1 (1.00%)	1 (1.9%)	-	
Some college credit, no degree	10 (9.8%)	3 (5.6%)	7 (14.6%)	
Trade/technical/vocational training	1 (1.0%)	1 (1.9%)	-	
Associate degree	4 (3.9%)	3 (5.6%)	1 (2.1%)	
Bachelor's degree	45 (44.1%)	28 (51.9%)	17 (35.4%)	
Master's degree	34 (33.3%)	15 (27.8%)	19 (39.6%)	
Professional degree	1 (1.0%)	-	1 (2.1%)	
Doctorate degree	4 (3.9%)	3 (5.6%)	1 (2.1%)	
Role *N* (%)				
Head coach	66 (64.7%)	37 (68.5%)	29 (60.4%)	
Associate head coach	8 (7.8%)	4 (7.4%)	4 (8.3%)	
Assistant coach	21 (20.6%)	12 (22.2%)	9 (18.8%)	
Volunteer	3 (2.9%)	1 (1.9%)	2 (4.2%)	
Other	2 (2.0%)	-	2 (4.2%)	
Coaching pupils *N* (%)				
Adult women	21 (20.6%)	12 (22.2%)	9 (18.8%)	
Adult men	9 (8.8%)	4 (7.4%)	5 (10.4%)	
Adolescent girls	100 (98.0%)	54 (100%)	46 (95.8%)	
Adolescent boys	46 (45.1%)	29 (53.7%)	17 (35.4%)	
Competition level *N* (%)				

	Total Sample (*N* = 102)	**Intervention (*n* = 54)**	**Control (*n* = 48)**	***t*-Test Comparing Groups**
Club	44 (43.1%)	22 (40.7%)	22 (45.8%)	
College/university	14 (13.7%)	7 (13.0%)	7 (14.6%)	
High school/secondary school	67 (65.7%)	38 (70.4%)	29 (60.4%)	
International	2 (2.0%)	1 (1.9%)	1 (2.1%)	
Junior/community college	-	-	-	
Middle/intermediate school/junior high	26 (25.5%)	18 (33.3%)	8 (16.7%)	
National/Olympic	4 (3.9%)	2 (3.7%)	2 (4.2%)	
Recreational/in-house/community leagues	24 (23.5%)	13 (24.1%)	11 (22.29%)	
Other	4 (3.9%)	2 (3.7%)	2 (4.2%)	
Current role length in years *M* (*SD*)	6.85 (7.04)	6.23 (4.50)	7.59 (9.18)	$t = 0.912$, df = 63.08, $p = .365$
Coaching length in years *M* (*SD*)	13.43 (9.36)	12.59 (8.51)	14.41 (10.29)	$t = 0.969$, df = 98, $p = .335$

Table 3

Outcome Means by Group and Time Points

		Total Sample		Intervention		Waitlist Control		
	Score Range	**T1 (*N* = 102)**	**T2 (*N* = 54)**	**T1 (*N* = 54)**	**T2 (*N* = 15)**	**T1 (*N* = 48)**	**T2 (*N* = 39)**	***t*-Test Comparing Groups at Baseline**
GES *M* (*SD*)	1–5	2.69 (0.56)	2.48 (0.55)	2.77 (0.62)	2.36 (0.65)	2.60 (0.53)	2.53 (0.52)	t = -1.487, df = 100, p = .140 t = 1.052, df = 52, p = .298
CCE *M* (*SD*)	1–7	5.81 (0.64)	5.88 (0.55)	5.85 (0.63)	6.05 (0.38)	5.77 (0.66)	5.81 (0.59)	t = -0.639, df = 100, p = .525 t = -1.436, df = 52, p = .157
COV *M* (*SD*)	1–7	5.83 (0.89)	5.86 (0.79)	5.88 (1.01)	6.13 (0.74)	5.78 (0.76)	5.76 (0.79)	t = -0.598, df = 100, p = .551 t = -1.585, df = 52, p = .119
Affective Attitude *M* (*SD*)	1–5				4.38 (0.62)			
Burden *M* (*SD*)	1–5				4.82 (0.38)			
Ethicality *M* (*SD*)	1–5				4.38 (0.75)			
Self-Efficacy *M* (*SD*)	1–5				4.37 (0.62)			
Perceived Effectiveness *M* (*SD*)	1–5				4.49 (0.59)			

Table 4

Feasibility and Acceptability of Coaching HER Foundation Modules

	M	*SD*
Affective Attitude Liking the programme, feeling satisfied with the programme, finding the programme enjoyable	4.38	0.62
Burden Following the programme was not troublesome, not difficult, it was easy	4.82	0.38
Ethicality Programme is appropriate, would recommend it, it's important to participate	4.38	0.75
Self-Efficacy Will use learnings in the future, been able to apply learnings, confident to apply learnings	4.37	0.62
Perceived Effectiveness Programme improved knowledge about gender stereotypes, helpful to think about one's own gender stereotypes, successful in improving knowledge on coaching girls	4.49	0.59

Note. Score range is 1–5, with 1 = *Strongly Disagree* and 5 = *Strongly Agree*.