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Knowing What is Fair: Epistemological Orientations Toward Rules, Judging, and Fair Play in Competitive Swimming

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ABSTRACT: Fair play in competitive swimming is not only about following competition rules but it also demands that athletes acknowledge the legitimacy of officiating decisions, differentiate acceptable strategies from unethical violations and reflect on their sporting conduct. This study investigated epistemological orientations toward fair play among competitive swimmers, differentiated rule-related statements from judgment-related statements and gender differences. Cross sectional quantitative design was used with 122 competitive swimmers consisting of 56 male and 66 female from five swimming clubs in Makassar, South Sulawesi, Indonesia. Eight epistemological statements were selected from a 24-item philosophical fair-play questionnaire using five-point Likert scale. Descriptive statistics, item analysis, internal consistency assessment and Welch's independent samples t test were used. Generally, favourable epistemological orientations (M = 35.61 SD = 3.84) were found with good internal consistency (Cronbach's α = .869). Understanding how competition rules contribute to fair participation was endorsed most strongly (M = 4.60) while respect for officiating decisions even when personally unfavourable were least agreed upon and most variable (M = 4.18, SD = 0.87). No difference between male and female swimmers was found t (116.43) = 0.90 p = .371 small effect size (Hedges' g = 0.16). Athletes strongly agree with rule-related fairness but acceptance of personally unfavourable decisions is less uniform. The study shows that rule understanding, officiating authority and ethical reflection need to be integrated into fair-play education but self-reported orientations do not necessarily reflect demonstrated knowledge or competitive behaviour.

KEYWORDS: Competitive swimming; Epistemological orientations; Fair play; Officiating decisions; Rule understanding

1. INTRODUCTION

Fair play is well established as a principle of competitive sport dealing with respect for rules, opponents, officials and ethical expectations that legitimate competition has. It is more than just not doing things that are forbidden because athletes also need to know why regulations exist, how decisions are justified, what conduct is acceptable under pressure, in this sense fair play is normative commitment plus knowledge-related judgments. Ludwiczak and Bronikowska (2022) looked at fair play in physical education and sporting behaviour and showed how ethical orientations are relevant in organised sport. Wang (2023) looked at students' attitudes and behaviours towards fair play and stressed educational importance of sporting values understanding alongside participation.

Competitive swimming is a special context in which these questions can be addressed. Athletes compete under standardized rules for starts, lanes, turns, finishes and official results determination. Compliance with those rules is necessary to ensure comparable competition conditions and legitimate outcomes. But athletes' understanding of fair play cannot be reduced to rote memorization of technical rules: it also involves recognizing ethical justification of regulations; interpreting the authority of officials; distinguishing permissible strategies from violations; judging personal conduct after competition. These dimensions are interrelated so an epistemological question arises: How do swimmers know what counts as fair and on what grounds they recognize legitimacy of competitive decisions?

Epistemological perspective is particularly helpful because it focuses attention on how knowledge, judgment and justification relate to one another. In sport knowing that a regulation exists doesn't mean you understand why it is fair or how it should be applied in contested situations. Grecic et al.'s (2024) epistemic judgement framework in physical education highlighted the need for reflective judgment in professional decision making but their framework concerns teachers not swimmers so conceptualising how knowledge claims and judgments might be critically interrogated within sporting contexts is what this paper aims to do. For athletes it means thinking about fair play as an interpretive orientation rather than simply declaration of obedience to rules.

More recent work also indicates that sporting morality is more than knowing the rules. Ring et al (2023) looked at sport values, personal values and antisocial behaviour relationships; Hurst et al (2023) moral identity and regret with cheating in sport. These studies give reasons to distinguish ethical commitments from decisions made under competitive pressure. Indonesian youth athletes were found to have moral, competence and status values related to cheating and gamesmanship attitudes (Syarifatunnisa et al., 2025). Taken together these findings indicate that an athlete's endorsement of fair-play principles can coexist with competing motives. But it doesn't show whether swimmers who say they understand competition rules make better ethical judgments.

The authority of referees and judges is another aspect of epistemological fair play. Official decisions decide whether performances are within competition regulations or not; they decide whether results are valid or not. Athletes therefore have to acknowledge that decisions may affect their competitive outcomes but an official's authority is conceptually different from believing every decision is substantively correct. Sport officiating research shows that making a decision is perceptual, cognitive and situational work (McEwan et al. 2024; Vater et al. 2024). How viewing conditions influence referees' decisions was studied by Wang et al. (2024) among soccer referees as well. These studies are about soccer not swimming but show why officiating should be understood as judgment-based practice rather than as purely mechanical application of rules.

This distinction is developed further in contemporary discussions of officiating. Hancock and Pizzera (2025) discussed psychological aspects of sport officiating and Russell et al. (2026) conceptualised referee decision-making as a socially situated activity involving relationships and shared understandings. These perspectives provide a useful conceptual framework for looking at athletes' acceptance of decisions (when official outcomes do not match personal expectations). Acceptance of an unfavourable decision should not be taken as a direct measure of perceived procedural justice; procedural fairness also refers to whether decision-making processes are impartial, consistent and justified. Kim et al. (2024) when developing a measure of athletic justice emphasised the importance of athletes' perceptions of fairness in sporting relationships although their instrument addressed a different context from competition officiating.

Athletes' moral orientations may also be shaped by social and educational contexts. Gürpınar et al. (2023) studied relationships between coach-created motivational climate, moral disengagement and sporting behaviour; Wang and Zhong (2025) examined roles of coach- and parent-created motivational climates in student-athletes' moral behaviours while Zhong and Wang (2025) considered moral disengagement in the relationship between motivational climate and antisocial conduct. Fazilah et al. (2023) also reviewed the role of coaching behaviour in prosocial and antisocial outcomes. All these studies indicate that ethical sporting orientations develop in broader interpersonal settings. However, the present study does not measure coaching climate, parental influence or moral disengagement so those results are used only to situate fair-play understanding importance.

Another issue is whether athletes are able to identify ethical boundaries and reflect on their actions. Bronikowska et al. (2023) investigated moral competence and dilemma discussion in sport; Bronikowska et al. (2024) compared active discussion with passive observation for developing sport-related moral competencies; Yasunaga and Fujii (2024) also examined educational materials developed to promote sports integrity among young athletes. All this indicates that educational relevance lies not only in transmission of regulations but also opportunities for ethical discussion and reflection. Zhu et al. (2025) in systematic review and meta-analysis found associations between moral disengagement and prosocial and antisocial behaviour in sport. These results show how important it is to distinguish between what an athlete reports knowing about ethical principles and the ability to apply them in competition situations.

Despite these contributions, little attention has been paid specifically to the epistemological orientations of competitive swimmers, for instance how they report knowing rules; recognizing officiating authority; distinguishing ethical strategies and evaluating their own behaviour. Fair-play attitudes, moral behaviour, motivational environments or officiating processes have often been studied separately. Bringing all of these knowledge-related orientations together may provide a more differentiated account of how athletes conceptualise fairness in an individual sport under tight regulation.

Accordingly, this study examined the epistemological dimensions of fair play among 122 competitive swimmers from five clubs in Makassar, Indonesia: (1) How do competitive swimmers understand the epistemological foundations of fair play? (2) Which aspects of rule understanding and procedural fairness are most variable in athletes' responses?; and (3) Are epistemological fair-play orientations different between male and female swimmers? Overall and item response patterns as well as sex comparisons are used to investigate how swimmers endorse different knowledge-related dimensions of fair play without assuming that self-reported orientations reflect demonstrated knowledge or sporting behaviour.

2. METHOD

2.1 Research design

Quantitative cross-sectional survey design was used in this study to explore competitive swimmers' epistemological orientations towards fair play. The design was chosen because it was able to describe athletes' reported understanding of competition rules, recognition of officiating authority, ethical discrimination and reflective self-evaluation at one time (i.e., not behaviour actually engaged in during sport or objective testing of knowledge about swimming regulations). Instead of measuring actual sporting behaviour or objectively testing knowledge of swimming regulations the study measured agreement with statements relevant for

epistemological aspects of fair play: overall patterns of response could be identified; differences between individual questionnaire items; possible variations between male and female swimmers. Epistemology was part of a philosophical fair-play questionnaire covering ontological, epistemological, axiological domains but only epistemological dimension is reported here so that conceptual and analytical focus remains on this domain. Observational and cross-sectional design meant that we wanted to identify descriptive patterns and group differences rather than causal relationships or developmental changes in athletes' understanding.

2.2 Participants and Sampling Procedures

The participants were competitive swimmers recruited from five swimming clubs in Makassar, South Sulawesi, Indonesia, namely PSC (n = 25), GL (n = 25), KSC (n = 24), AMSC (n = 24) and SSC (n = 24). The sample comprised 56 male and 66 female swimmers aged between 14 and 21 years. Total sampling was used within the participating clubs (all eligible swimmers included in the study population were approached for participation). This procedure was done to cover broadly all available athletes within the five clubs rather than produce a probability sample of all competitive swimmers in Makassar. Sex was recorded so differences in epistemological orientation could be studied but age only described the sample in which no age-based subgroup comparisons were made n. Thus, findings should be interpreted with respect to the swimmers involved and not automatically generalised to other clubs, regions or competitive populations.

2.3. Research Instrument

A questionnaire was used to measure philosophical orientations towards fair play in competitive swimming. The whole instrument comprised 24 statements grouped into three conceptual domains, that is ontology, epistemology and axiology, with eight items in each domain, and E1–E8 were analysed for epistemology. They asked about reported understanding of swimming regulations and what they mean for fair competition (E1–E3), whether officiating authority is accepted and composure when receiving decisions (E4–6), perceived ability to distinguish legitimate competitive strategies from fair-play violations (E7) and reflection on personal conduct (E8). Responses were scored on a five-point Likert scale (1=strongly disagree; 5=strongly agree). Item scores were summed up to give an epistemological composite score between 8 and 40 that higher scores indicated more favourable self-reported orientations. Conceptual item groupings were not treated as independent subscales.

2.4 Data Collection Procedures

Data were collected through an online questionnaire distributed via Google Forms to competitive swimmers from the five participating clubs. The study statements and basic demographic information needed for sample description and sex comparisons were on the questionnaire. Participants selected one response per statement based on how they understood and perceived fair play in competitive swimming in which same format for all epistemological items. All responses were coded as such so that measurement consistency was maintained. Responses were collated into a dataset of participant characteristics and questionnaire scores after data collection. The eight epistemological items were extracted from the overall philosophical fair-play instrument for use in this analysis only. Individual item responses were retained to explore distributions and variability of responses while composite scores were calculated to summarise overall epistemological orientations. As the study used questionnaire responses no direct observations of competitions, officiating interactions or actual fair-play behaviour were included in this quantitative analysis.

2.5 Data Analysis

Descriptive statistics, internal consistency and inferential comparisons were combined. Frequencies and percentages were used to describe participant characteristics and responses across the eight epistemological statements; item means, standard deviations, medians and proportions of maximum responses were used to look for differences in endorsement and response variability. An epistemological composite score was constructed by summing E1–E8 in which possible scores: 8-40. Cronbach's alpha was used for internal consistency in which corrected item–total correlations and alpha-if-item-deleted statistics also reported, ceiling effects were tested by looking at proportion of participants reaching maximum composite score and differences between male and female swimmers were tested with Welch's independent samples t-test in which mean differences, 95% confidence intervals and Hedges' g given that appropriate, and significance was set at $p < .05$. Analyses were descriptive and comparative not causal or predictive modelling.

2.6 Ethical considerations

Competitive swimmers aged 14–21 years old were studied so particular attention was paid to voluntary participation, confidentiality and age-appropriate informed consent procedures. Participants were told what the study was about, what was on the questionnaire, that it was voluntary and how we would use the data collected (if below legal age of independent consent parental or guardian permission needed and athlete assent too). Participation should not affect athletes' standing within clubs, training opportunities or relationships with coaches; responses to questionnaires were for research purposes only and should be reported in aggregate form without revealing identifiable information about the participants; access to the dataset should be restricted to authorised research staff. The final manuscript must state which institutional ethics approval or authorisation was obtained and describe the consent

procedures actually carried out. These details need to be checked against documentation from the research team rather than assumed from administration of online questionnaire alone.

3. FINDINGS

In this section we report findings on competitive swimmers' epistemological orientations towards fair play from responses by 122 athletes in five swimming clubs in Makassar, Indonesia. Three research questions are addressed: overall epistemological scores; agreement across individual questionnaire statements; internal consistency of the measurement scale and differences between male and female swimmers. Descriptive statistics are reported to illustrate distribution and variability of athletes' responses and reliability analysis is reported to inform us about consistency of the eight-item epistemological measure. Inferential analysis then reports whether the differences between male and female participants were statistically significant.

3.1 Overall Epistemological Orientations toward Fair Play

The epistemological fair-play scores generally agreed with the eight questionnaire statements (N = 122). Composite mean was 35.61 (SD = 3.84) out of 40; median score was 36; range observed 24–40. Internal consistency was good (Cronbach's α = .869); however, only 36 athletes (29.5%) had the maximum composite score so there may be a ceiling effect and limited discrimination at the upper end of the scale.

3.2 Item-Level Variation in Epistemological Orientations

Descriptive analyses were then performed for each of the eight questionnaire statements to get a better picture of swimmers' epistemological orientations toward fair play. These item-level examinations were carried out in order to see if there were differences between participants as to whether they endorsed principles concerning competition rules, officiating decisions, ethical discrimination and reflective self-evaluation; overall epistemological score only gives an idea of athletes' orientations but individual item responses tell us how strong and variable agreement is across these aspects. Means, standard deviations, medians and percentages of maximum responses were calculated for each statement. Statements with high agreement were identified and those where respondents differed comparatively more from each other were also noted. Descriptive indicators were used to test whether athletes endorsed all epistemological statements equally or not (i.e. some aspects of fair-play understanding were less uniformly supported). Item-level descriptive analysis results are shown in Table 1.

Table 1. Descriptive Profile of Epistemological Fair-Play Items (N = 122)

Item (abbreviated)	M	SD	Median	Score 5 (%)
E1. Understanding competition rules	4.55	0.59	5	59.8
E2. Recognizing rule violations	4.54	0.61	5	59.8
E3.Rules supporting fair competition	4.60	0.58	5	64.8
E4.Accepting officiating decisions	4.44	0.70	5	55.7
E5.Respecting unfavorable decisions	4.18	0.87	4	40.2
E6.Remaining calm after decisions	4.47	0.61	5	52.5
E7.Distinguishing strategy from unfair conduct	4.38	0.63	4	45.9
E8. Reflective self-evaluation	4.45	0.67	5	52.5

All item means were above 4.00. E3 (rules supporting fair competition) had the highest mean (M = 4.60, SD = 0.58); E5 (respecting unfavourable officiating decisions) had the lowest (M = 4.18, SD = 0.87). E5 also showed greatest variability. These differences indicate comparatively stronger and more uniform endorsement of rule-related principles than respect for decisions that do not meet athletes' expectations.

In addition to item level descriptive statistics in Table 1, Figure 1 compares the mean scores across the eight epistemological fair-play statements. It shows relative agreement of athletes with statements about competition rules, officiating authority, acceptance of unfavourable decisions, ethical discrimination and reflective self-evaluation. By visualizing these results, it can be more easily seen that endorsement was stronger or weaker (e.g., statements about understanding of rules vs responses to officiating decisions). All items had relatively high mean scores but their distribution tells us more descriptive information about what epistemological fair play aspects were more strongly or less consistently endorsed by participants that mean scores are shown in Figure 1.

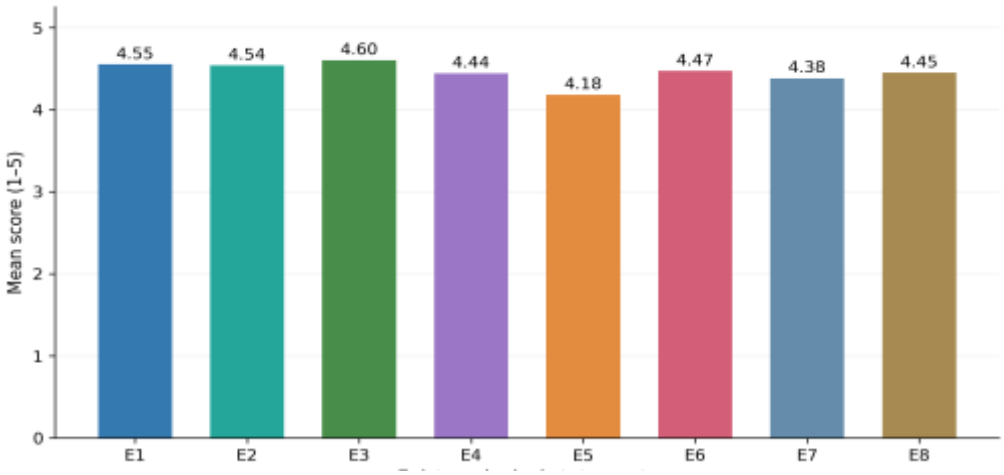


Figure 1. Mean Scores of Epistemological Fair-Play Statements among Competitive Swimmers

As can be seen in Figure 1, the mean scores were always above 4.00 (self-reported epistemological orientations toward fair play are generally positive). E3 (understanding competition rules contribute to fair participation) had the highest mean score (M = 4.60), whereas E5 (respect for officiating decisions even if outcome is not what athletes expect) had the lowest (M = 4.18). The difference of 0.42 points indicates that more people endorsed understanding of rules than respecting decisions which do not meet athletes' expectations. For the rest of statements mean scores were 4.38–4.55 and agreement was relatively similar. These patterns describe differences among participants' reported orientations but should not be interpreted as evidence of how they actually responded to officiating decisions in competitions.

3.3 Internal Consistency and Item Reliability

After the descriptive analysis, internal consistency of the eight-item epistemological scale was tested to see how well the statements worked together as a composite measure: Cronbach's alpha was used to assess overall scale internal consistency and corrected item–total correlations were calculated to test whether each statement related positively or negatively to the remaining items; after hypothetical deletion of individual statements Cronbach's alpha coefficients were recalculated to determine if any item would increase the scale's internal consistency (these analyses were especially important because the questionnaire covered several conceptually related aspects of epistemological fair play — rule understanding, acceptance of officiating authority, ethical discrimination and reflective self-evaluation). The results indicate preliminary evidence concerning the consistency of responses within the epistemological dimension but do not establish independently the instrument's construct validity or dimensional structure. Reliability statistics are summarized in Table 2.

Table 2. Item Reliability and Internal Consistency

Item	Corrected item–total r	α if deleted
E1	0.582	0.858
E2	0.695	0.847
E3	0.648	0.852
E4	0.609	0.855
E5	0.559	0.867
E6	0.678	0.848
E7	0.733	0.842
E8	0.568	0.859

Corrected item–total correlations were .559 (E5) to .733 (E7). Removing any item did not increase Cronbach's alpha above full scale (.869). So, the eight statements showed acceptable coherence as an overall measure but this does not prove dimensionality or conceptual groupings.

3.4 Differences by Sex

To address the third research question, it was compared male and female competitive swimmers to see if epistemological fair-play orientations varied between them including 56 males and 66 females' athletes. Composite epistemological scores were used as outcome measure or primary outcome. Welch's independent-samples t-test was used to test for difference in mean scores between groups (statistical significance) and also Hedges' g and a 95% confidence interval for precision of observed difference. These results allow us to empirically test sex differences in overall epistemological orientations measured in this study as presented in Table 3.

Table 3. Sex-Based Differences in Epistemological Composite Scores

Group	N	M	SD
Male	56	35.95	3.86
Female	66	35.32	3.83

Male swimmers scored a little higher than female swimmers but the difference was not significant; zero fell in the confidence interval and the standardized difference was small. So, these data do not prove that there is sex-based difference in overall self-reported epistemological orientation — equivalence between groups does not hold.

4. DISCUSSION

In this section, the findings are discussed with respect to the study's research questions and literature on epistemological orientations toward fair play in competitive sport. It delas with swimmers' reported understanding of competition rules, acceptance of officiating decisions, ethical discrimination and reflective self-evaluation. The generally favourable epistemological scores are discussed in which variations within individual statements also noted e.g. rule understanding vs respect for unfavourable officiating decisions, the lack of sex differences statistically significant (why?), theoretical and educational implications of these results considered but interpretations remain contextualised by the self-report nature of data and methodological limitations of study.

4.1 Epistemological Orientations toward Fair Play in Competitive Swimming

The results of this study showed generally positive epistemological orientations towards fair play among competitive swimmers from five clubs in Makassar, Indonesia (overall mean score 35.61 out of 40 (SD = 3.84): strongly endorsed statements about competition rules, officiating authority, ethical discrimination and reflective self-evaluation). These results give an initial idea of how swimmers understand knowledge-related dimensions of sporting fairness but the relatively high scores should not be taken as evidence that they have equal factual knowledge, philosophical reasoning or practical competence to solve ethical dilemmas.

The results support the educational value of fair play discussed by Ludwiczak and Bronikowska (2022) who placed fair-play values in physical education and sporting behaviour; Wang (2023) too looked at students' attitudes and behaviours towards fair play but highlighted ethical orientations in sporting participation. All these perspectives show that fair play goes beyond technical rule compliance to expectations about legitimate competition as well. However, our study provides a more specific perspective by investigating how swimmers endorse different statements related to knowing, interpreting and evaluating fairness.

From an epistemological point of view fair play is not simply about accepting established rules: athletes have to know on what grounds rules are justified, how official decisions gain legitimacy and how competing interpretations of sporting conduct can be evaluated. Grecic et al. (2024), through their epistemic judgement framework, had shown that reflective evaluation was necessary in physical education but it was for teachers rather than competitive swimmers so the conceptualisation they offer for separating possession of information from justification of knowledge claims is useful. When applied cautiously to our findings this distinction suggests that athletes' agreement with fair-play statements is orientation towards accepted principles rather than sophisticated epistemological reasoning.

Another issue is that responses are concentrated on the upper end of the measurement scale (29.5% reached maximum composite score) so there may be a ceiling effect here: endorsement of socially desirable sporting values may be high but instrument cannot distinguish between respondents with different levels of understanding. The findings therefore need to be interpreted alongside the characteristics of the instrument used.

Overall, the results indicate that the swimmers participating in the study were committed to knowledge-related principles of fair competition. Their responses lay the groundwork for more specific differences among rule understanding, officiating decisions and ethical reflection. It is important to note that these dimensions are not assumed to be equal simply because they contribute to the same composite measure.

4.2 Rule Understanding, Ethical Discrimination, and Reflective Evaluation

Item level results showed that statements about competition rules were very strongly endorsed. Statement E3 (understanding competition rules contributes to fair participation) had the highest mean score (M = 4.60, SD = 0.58). Statements E1 and E2 also scored high so participants generally understood swimming regulations and what happens when they are broken. These results indicate rule understanding is a central aspect of the epistemological orientations reported by participating athletes.

In competitive swimming regulations define common conditions for legitimate performance. Rules about starts, turns, lane boundaries and finishes are necessary because athletes' results depend on consistent competitive procedures. But the ethical import of rules cannot be reduced to technical function: they also set expectations of fairness by defining under what conditions performances can be compared and recognised. So knowing their importance is a potentially meaningful part of athletes orientation towards fair competition.

Still, knowledge of rules and ethical judgment are not synonymous. Ring et al. (2023) studied relationships between sporting values, personal values and antisocial behaviour; Hurst et al. (2023) moral identity and regret in relation to cheating; these studies show that moral orientations and competitive conduct are processes beyond familiarity with formal expectations. Syarifatunnisa et al. (2025) also reported associations between moral and status-oriented values and attitudes towards cheating and gamesmanship among Indonesian youth athletes so athletes may know the rules but they have competing considerations when personal advantage is at stake.

This distinction is also relevant for E7 and E8. They agreed favourably with statements about their ability to distinguish legitimate strategies from fair play violations (E7, M = 4.38) and reflect on their behaviour after competition (E8, M = 4.45). This means athletes generally thought they could recognise ethical boundaries and reflect on their behaviour but the questionnaire did not tell us whether their judgments would be correct when ambiguous competitive circumstances are presented.

Bronikowska et al. (2023) explored moral competence and dilemma discussion in sport; Bronikowska et al. (2024) examined educational relevance of active discussion for developing sport-related moral competencies. Their work provides an argument for ethical reflection as an important complement to rule instruction. Yasunaga and Fujii (2024) also looked at educational materials designed to promote sports integrity among young athletes.

Taken together these results suggest that fair-play education could be enhanced by providing technical knowledge of swimming regulations with opportunities to consider ethical dilemmas and reflect on competitive decisions (i.e., athletes thinking not only whether particular actions are in accordance with regulations but also why those actions are sporting fair). These educational possibilities are recommendations, not effects demonstrated by the present study.

4.3 Officiating Authority, Decision Acceptance, and Procedural Fairness

One of the most interesting results is that E5 dealing with respect for officiating decisions even if the outcome did not meet athletes' expectations was endorsed less (M = 4.18; SD = 0.87; 40.2% maximum response category). Although overall agreement was positive this was in contrast to statements about importance of competition rules where agreement was much stronger.

The point is that while understanding the necessity of rules doesn't automatically mean you agree with them when they are personally disappointing, athletes may feel that officials have a right to decide competition outcomes but disagree with decisions that affect their own results — and this disagreement should not be equated to disrespect or unethical behaviour. An athlete may agree with an official decision being binding but question its factual accuracy or justification.

Sport officiating research is relevant to interpreting this result in contemporary terms. McEwan et al. (2024) looked at refereeing accuracy and physical demands; Vater et al. (2024) how viewing conditions influence officiating decisions; Wang et al. (2024) decision-making accuracy and confidence of soccer referees. These studies are about soccer not swimming but show that officiating is perceptual, cognitive and situational demand as well. So official decisions should be viewed as judgments made under regulated competitive situations rather than mechanically applied rules written down on paper.

Hancock and Pizzera (2025) went further in psychological aspects of sport officiating and Russell et al. (2026) saw referee decision-making as socially situated activity. These ideas suggest that authority, judgement and interpersonal expectations may all come together to govern sporting competition but caution should be used when they are applied to swimming because officiating procedures vary between sports.

Procedural fairness is another conceptual distinction. Kim et al. (2024) looked at athletes' perceptions of justice in sporting relationships, showing how fairness perceptions are relevant beyond sport too but respect for an unfavourable decision is not the same as perceived procedural justice. The latter may involve judgments about impartiality, consistency, transparency and opportunities for review (the questionnaire did not directly measure these procedural characteristics). So, E5 should be read as comparatively greater variation in the athletes' reported willingness to respect unfavourable decisions rather than as evidence that officiating procedures were unfair. Nor could results tell us whether participants had previously experienced disputed decisions.

The findings nonetheless do raise an educational issue. Coaches and sporting organisations might discuss with athletes how disagreement is different from inappropriate reaction to officials; education could emphasise respect for institutional procedures but also informed understanding of rules, decisions and means of clarification available. Empirical research with actual officiating experiences would be needed to test these possibilities empirically.

4.4 Sex-Based Differences in Epistemological Orientations

The third research question was whether epistemological orientations toward fair play were different between male and female competitive swimmers. Male athletes had slightly higher composite mean scores (M = 35.95, SD = 3.86) than female athletes (M = 35.32, SD = 3.83), Welch's independent-samples t-test showed no difference between groups ($t(116.43) = 0.90$, $p=.371$). The estimated mean difference was 0.63 points (95% confidence interval −0.76 to 2.01) and Hedges' g was small (0.16).

These results are not statistically significant evidence that sex differentiated the overall epistemological orientations measured among the swimmers. But this does not mean they show that male and female athletes have equal knowledge, values or ethical reasoning abilities: there is a small difference favouring females and a larger difference favouring males in the confidence interval.

The results can be compared with other recent work on moral processes in sport. Zhu et al. (2025) in their systematic review and meta-analysis looked at associations between moral disengagement and prosocial and antisocial behaviour but sex was not a significant moderator of these associations. This is useful contextual evidence but moral disengagement and epistemological fair-play orientations are separate constructs so the present results cannot be said to show that male and female swimmers make equivalent moral decisions.

Research on athletes' motivational environments also suggests that sporting behaviour and moral orientations may be influenced by social factors other than demographic variables (Gürpınar et al., 2023; Wang & Zhong, 2025). Gürpınar et al. (2023) studied coach-created motivational climates and moral disengagement whereas Wang and Zhong (2025) looked at coach- and parent-created motivational climates with respect to student-athletes' moral behaviours. Zhong and Wang (2025) considered moral disengagement in the relationship between motivational climate and antisocial behaviour too. These studies give reasons for future investigations to examine interpersonal and environmental influences but the present study did not assess these factors so we cannot say whether they explain similarities or differences between male and female swimmers.

Another point to note is that the epistemological scale was measured so that a large proportion of responses were near the maximum score. This may have made it harder to detect small differences between groups; secondly, the composite score combines several conceptually related orientations which might hide variation in individual statements. Since item-by-item sex comparisons were not reported in the analysis described here no conclusions can be drawn as to whether particular aspects of rule understanding or officiating acceptance varied between male and female participants.

In summary, sex was not a statistically significant differentiating factor in the composite epistemological scores of this sample. Larger and more diverse groups might look at item level patterns as well as other contextual variables to get a better understanding of variation in fair-play orientations.

4.5 Theoretical Implications, Limitations, and Future Research

The results inform fair play research by showing that athletes' epistemological orientations are not necessarily the same across different aspects of competitive swimming. They were all very much in favour of competition rules but relatively less so when asked about respect for officiating decisions that did not match their expectations. This difference suggests that rule understanding, institutional authority recognition and ethical self-evaluation are related but conceptually distinct dimensions of sporting fairness.

Theoretically the results suggest that fair play should be studied through questions of knowledge, judgment and justification. Grecic et al. (2024) called for reflective epistemic judgment in physical education; conceptualising how people evaluate knowledge claims is important if we are to understand how fair play works in competitive swimming: how athletes recognise rules as legitimate, interpret official decisions and judge the ethical impact of their behaviour. But here orientation was self-reported not processes by which athletes justified beliefs.

Several educational possibilities are also suggested by the findings. Fazilah et al.'s (2023) systematic review explored coaching behaviour and prosocial/antisocial outcomes, Gürpınar et al.'s (2023) study showed motivational environments and moral disengagement were relevant and Bronikowska et al.'s (2024), Yasunaga and Fujii's (2024) research further provided a rationale for ethical discussion and integrity-oriented learning activities. Taken together these studies show that fair play education could go beyond technical rule instruction to reflection on difficult decisions, respect for officials and ethical considerations of competitive strategies. These recommendations should not be confused with interventions whose effectiveness was tested in the present study.

Several limitations should be noted. First, the cross-sectional design does not allow causal inference and does not show how epistemological orientations change over time. Second, self-report questionnaire response bias may occur (i.e., socially desirable responding), cannot test factual rule knowledge, moral reasoning competence or actual sporting conduct; third, responses clustered at maximum composite score indicate ceiling effect that may limit measurement sensitivity; fourth, participants were recruited from five clubs in Makassar so generalizability is limited; fifth, age-related development, training experience, coaching environment and prior interaction with officials were not analytically examined.

Future work could overcome these limitations by using mixed-methods designs (scenario-based assessment, interviews and observations of competitive situations). Ethical dilemmas about starts, turns, finishes and contested officiating decisions might offer opportunities to see how athletes justify their judgments rather than just endorse general statements; longitudinal studies could also look at whether epistemological orientations change with competitive experience or educational exposure.

In sum, the study reminds us that endorsement of fair-play principles is not the same as understanding and ethical action. It adds to our knowledge by showing meaningful differences across reported orientations and laying the groundwork for more detailed studies of fairness, authority and reflective judgment in competitive swimming.

5. CONCLUSION

The present study explored epistemological orientations toward fair play among 122 competitive swimmers from five swimming clubs in Makassar, South Sulawesi, Indonesia. They covered athletes' reported understanding of competition rules; acceptance of officiating decisions; ethical discrimination and reflective self-evaluation. Generally favourable orientations were evident (high

overall epistemological score and positive responses to all eight questionnaire statements), which means that the participating swimmers understood that rules and ethics are necessary for fair competition.

Nevertheless, item-level analysis showed significant differences in the strength and consistency of athletes' responses: knowing that competition rules contribute to fair participation was most strongly endorsed; respecting officiating decisions that conflicted with personal expectations was least agreed on and most variable. This contrasts sharply with recognition of normative significance of sporting regulations and willingness to respect their application under disappointing competitive circumstances. These patterns of response should not be read as agreement with officials or unethical behaviour.

The analysis also showed no statistically significant difference between male and female swimmers which implies that the overall epistemological orientations measured in this sample were not sex-specific. However, because of the large percentage of responses at the upper end of the scale these results should be interpreted cautiously.

Taken as a whole, the study helps us to conceptualize fair play as an orientation covering rule knowledge, recognition of officiating authority and ethical self-evaluation rather than just rule compliance. It shows that these interrelated aspects of sporting fairness are educational issues, not only rule compliance. Ethical dilemmas could be added in future studies; interviews and behavioural observations could help to understand how athletes justify and apply fair-play principles in real competition situations.

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