



Social Comparison Climate and Participation Confidence in Group Fitness Settings

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Abstract: Group fitness settings provide an important social environment in which individuals pursue physical activity goals while interacting with peers. The social climate within these settings may shape how participants judge their own abilities, interpret the performance of others, and develop confidence about continued participation. One relevant process is social comparison, through which individuals evaluate their performance, progress, competence, or appearance in relation to other group members. The present paper examines the relationship between social comparison climate and participation confidence in group fitness settings from a sport and social psychology perspective. Social comparison climate is conceptualized as the perceived extent to which comparison, performance evaluation, competitive standards, and peer-based judgments characterize a group exercise environment. Participation confidence refers to an individual's perceived capability and comfort in participating actively and consistently within the group setting. The theoretical framework draws on social comparison theory, self-efficacy theory, achievement goal perspectives, social identity approaches, self-determination theory, and research on group exercise environments. Because no original participant dataset was provided, the quantitative component is presented explicitly as a simulation-based analytical illustration rather than completed empirical research. The illustrative analysis reports participation confidence scores of 2.74, 3.68, and 3.21 under low, moderate, and high social comparison climate conditions, respectively. A second illustrative analysis presents simulated contribution indicators for peer support, comparison interpretation, and group belonging. These values are not empirical estimates and should not be interpreted as causal effects, regression coefficients, or population statistics. Existing research suggests that social comparison may produce different

outcomes depending on the direction and interpretation of comparison. Group exercise settings may also provide social support, companionship, validation, informational assistance, and a stronger exercise identity. Research on social physique anxiety further shows that social evaluation may shape experiences within exercise environments, although evaluation-related concerns do not always lead to lower physical activity participation. The present framework therefore avoids treating social comparison as either inherently beneficial or harmful. Instead, it proposes that a moderate and mastery-oriented comparison climate may coexist with confidence-supportive group processes, while an excessively evaluative climate may reduce participation confidence for some individuals. The paper contributes a sport and social psychology framework linking comparison climate, peer support, group belonging, self-efficacy, and participation confidence. Future empirical research should examine these relationships longitudinally and distinguish constructive social comparison from threatening social evaluation.

Keywords: Social Comparison; Participation Confidence; Group Fitness; Sport Psychology; Exercise Psychology; Social Evaluation; Self-Efficacy; Peer Support; Group Belonging; Exercise Behaviour; Social Comparison Climate; Physical Activity Participation

1. Introduction

Background

Group fitness settings represent a distinctive form of physical activity because exercise takes place within both individual and social contexts. Participants may attend classes, training sessions, recreational programs, or other organized activities alongside people who differ in experience, physical capability, confidence, motivation, and personal goals. The presence of others creates opportunities for encouragement and social support while also providing a basis for interpersonal comparison.

Social comparison broadly refers to the process through which individuals evaluate aspects of themselves by considering information about other people. In exercise settings, comparison may involve performance, endurance, technique, progress, consistency, appearance, or perceived competence. The effects of comparison depend partly on how participants interpret the information they observe.

A group fitness environment may therefore be understood as a social comparison climate when participants perceive performance differences, visible achievement, competition, or

peer evaluation as especially noticeable. Such a climate does not require formal competition. Comparison may occur even in cooperative exercise settings when participants observe others and use their performance as a reference point.

Participation confidence is also multidimensional. It may involve confidence in performing exercises, participating in front of others, interacting with group members, and continuing involvement despite temporary differences in performance.

The relationship between social comparison and participation confidence is theoretically important because comparison may lead to different motivational responses. One participant may view a more experienced group member as a useful source of information and a model for future progress. Another participant may interpret the same comparison as evidence of personal inadequacy.

Social comparison theory provides an important basis for understanding this process. Festinger's original framework proposed that individuals seek information to evaluate their abilities and opinions when objective standards are unavailable. Later research expanded this perspective by examining upward, downward, and lateral comparisons and their different emotional and motivational consequences.

Exercise settings provide many visible opportunities for comparison. Participants may observe repetitions, pace, technique, progression, class involvement, and other indicators of performance. Social comparison may therefore become especially noticeable in group exercise compared with some forms of solitary physical activity.

Research on social physique anxiety also shows how exercise settings may involve concerns about social evaluation. A study involving women entering fitness facilities examined social physique anxiety in relation to the social composition of exercise environments.

At the same time, existing evidence does not support the assumption that evaluation-related concerns always reduce physical activity. Portman et al. (2018), for example, reported no association between social physique anxiety and physical activity frequency, exercise history, or intensity within their sample of male and female exercisers.

This distinction is important. A person may experience social comparison or concern about evaluation while continuing to participate. The relevant outcome may therefore extend beyond simple participation or nonparticipation to include confidence, comfort, persistence, and quality of engagement within the group.

Group exercise environments may also provide important social resources. Research on group exercise membership has identified associations with emotional, validation, informational, instrumental, and companionship support, together with exercise identity and physical activity.

Group fitness settings therefore contain both supportive and evaluative social processes. The central issue is not whether comparison occurs, but how the perceived comparison climate interacts with social support, self-efficacy, and belonging.

Problem Statement

The presence of peers in group fitness settings creates a complex psychological environment. Participants may receive encouragement, observe successful behaviors, learn exercise techniques, and develop a sense of belonging. At the same time, they may compare their performance with others and perceive themselves as less capable.

A participant entering a group class with limited experience may initially compare their performance with more experienced members. If this comparison is interpreted as useful information, it may provide a reference for learning and improvement. If the same comparison is interpreted as evidence of inadequacy, participation confidence may decline.

This creates an important research problem because the same observable environment may produce different psychological experiences. A group containing highly skilled participants should not automatically be classified as supportive or threatening without considering how individuals interpret the social setting.

Another issue concerns the distinction between comparison climate and competitive climate. Competition involves explicit or implicit efforts to outperform others, while social comparison may occur without any competitive intention. A participant may compare their performance with another person without trying to perform better than them.

A further issue is that participation confidence is often treated as an individual characteristic. In group fitness settings, confidence may also be shaped through observation, feedback, encouragement, comparison, and group membership.

The central problem addressed in this paper is therefore:

How does the perceived social comparison climate of group fitness settings relate to participants' confidence in participating, and what social-psychological processes may explain variation in this relationship?

Research Motivation

The motivation for this study comes from the growing relevance of group-based physical activity settings. Group fitness provides opportunities for social interaction that are less available in individual exercise, while the same social environment may also create additional psychological demands.

A second motivation is the need to move beyond a simple positive-versus-negative interpretation of social comparison. Social comparison should not automatically be viewed as harmful. Upward comparison may provide information, motivation, or inspiration, while downward and lateral comparisons may influence self-evaluation in different ways. The meaning assigned to comparison is therefore important.

A third motivation concerns self-efficacy. Confidence in one's ability to participate may influence persistence, while successful participation and supportive social feedback may strengthen confidence over time. This suggests a potentially reciprocal process rather than a strictly one-directional relationship.

A fourth motivation concerns group belonging. Participants who feel accepted within an exercise group may interpret differences in performance as less threatening because their sense of membership is not based entirely on performance.

The study therefore develops an integrated framework involving social comparison climate, comparison interpretation, peer support, group belonging, self-efficacy, and participation confidence.

2. Literature Review

Social Comparison Processes in Exercise Contexts

Social comparison theory begins with the idea that people evaluate themselves by comparing their abilities and opinions with those of others. In physical activity settings, such comparisons occur naturally because participants share visible environments and often perform similar tasks.

Upward comparison occurs when individuals compare themselves with someone they perceive as performing better. This type of comparison may create discouragement if the difference is interpreted as evidence of personal inadequacy. It may also provide useful information about improvement and future progress.

Downward comparison involves comparison with someone perceived as performing less effectively. In some situations, this may support self-evaluation, although it does not necessarily encourage long-term improvement.

Lateral comparison occurs when individuals compare themselves with people they perceive as similar. This form of comparison may provide a particularly meaningful reference because similarity often makes the information more personally relevant.

All three forms of comparison may occur during the same group fitness session. Participants may observe highly experienced members, individuals at a similar skill level, and people who are relatively new to the activity.

The psychological effect depends largely on interpretation. One participant may observe an advanced member and view improvement as achievable, while another may interpret the same performance difference as evidence that they do not belong in the group.

Participation Confidence and Self-Efficacy

Self-efficacy theory provides an important explanation for confidence in exercise participation. Bandura defined self-efficacy as an individual's belief in their ability to organize and perform the actions needed to achieve a particular outcome.

Exercise self-efficacy is relevant because participants often face both practical and psychological barriers. These may include fatigue, unfamiliar exercises, social discomfort, previous unsuccessful experiences, and perceived differences in performance.

Mastery experiences are an important source of efficacy information. Successfully completing an exercise, maintaining attendance across sessions, or achieving a personally meaningful goal may strengthen perceived capability.

Vicarious experiences are also relevant. Observing another person perform an activity may provide useful information about what is achievable, especially when the observer perceives that person as similar to themselves.

Social persuasion represents another pathway. Encouragement from instructors and peers may strengthen confidence, especially when feedback is credible, specific, and related to the task.

The social environment of group fitness may therefore shape confidence through several processes at the same time.

Group Fitness and Social Support

Group exercise provides regular opportunities for interpersonal interaction and social support. Research examining group exercise membership has reported associations with emotional, validation, informational, instrumental, and companionship support, together with exercise identity and physical activity.

This evidence is important because peer presence should not be treated as equivalent to peer evaluation. A participant may compare themselves with others while also receiving support from the same group members.

Social support may reduce the negative interpretation of performance differences. For example, an experienced participant who offers encouragement may be viewed as a useful source of information rather than as a threatening comparison target.

Zhang et al. (2022) examined physical exercise behavior among college students and reported relationships involving social support, self-efficacy, and exercise behavior. Their structural equation model identified both direct and indirect relationships involving social support and self-efficacy.

An intervention study examining received social support also reported findings consistent with an enabling pathway through self-efficacy in physical exercise.

These findings support the inclusion of social support as a potential mechanism through which group exercise environments shape participation experiences.

Social Evaluation and Exercise Settings

Exercise settings provide visible opportunities for social evaluation. Participants may become aware of how other people view their performance, competence, or physical appearance.

Research on social physique anxiety has examined this issue in several exercise contexts. Kowalski et al. (2001) studied college women and examined whether social physique anxiety influenced relationships between physical self-perceptions and physical activity involvement. Brewer et al. (2004) examined social physique anxiety and protective self-presentational exercise behaviors among women participating in aerobics classes.

Research involving undergraduate students in physical activity courses has also examined changes in social physique anxiety over time, with reported changes across a 16-week period. Portman et al. (2018), though, found no association between social physique anxiety and exercise frequency, exercise history, or exercise intensity within their sample.

The literature therefore suggests that social evaluation may be psychologically meaningful without necessarily leading to withdrawal from physical activity.

Achievement Goals and Motivational Climate

Achievement goal theory offers another useful perspective for understanding group fitness experiences. Individuals may approach exercise with different goal orientations, including mastery-focused goals centered on learning and personal improvement, and performance-focused goals centered on comparison with others.

A mastery-oriented climate may reduce the importance of interpersonal performance differences by emphasizing personal progress. A performance-oriented climate may make relative performance more noticeable.

Instructors play an important role in shaping this motivational climate. Their language, feedback, activity structure, and recognition of performance may influence how participants interpret success and failure.

A participant who perceives that improvement is valued may interpret social comparison differently from someone who believes that being among the strongest or fastest participants is treated as the main sign of success.

This distinction helps explain why similar levels of social comparison may produce different participation-confidence outcomes.

Social Identity and Group Belonging

Social identity theory proposes that group membership may become part of an individual's self-concept. Within group fitness settings, participants may gradually develop a sense of identity as members of a particular exercise community.

Group belonging may provide psychological security. When participants feel accepted, differences in performance may become less threatening because group membership is not based entirely on physical achievement.

Exercise identity may also support continued participation. Research on group exercise membership has reported relationships involving group membership, exercise identity, social support, and physical activity.

Belonging may therefore function as a protective process within comparison-oriented environments. A participant who identifies strongly with the group may interpret another person's stronger performance as useful information rather than as evidence of exclusion.

Social Comparison Climate as a Multidimensional Construct

Social comparison climate should not be defined only by how often comparison occurs within a group. The construct may include several dimensions:

- perceived frequency of comparison
- perceived importance of relative performance
- perceived visibility of performance
- perceived peer evaluation
- interpretation of performance differences
- instructor emphasis on comparison
- perceived consequences of performing below group standards

These dimensions may combine differently across exercise environments.

A recreational group may involve frequent comparison but relatively little evaluative pressure. A competitive training environment may involve both frequent comparison and strong performance pressure.

The same level of comparison frequency may therefore be associated with different participation-confidence outcomes depending on how comparison is interpreted and how the broader group climate is experienced.

3. Research Gap

The existing literature provides substantial evidence on social comparison, self-efficacy, social support, group exercise, and social evaluation. Even so, these constructs are often examined separately rather than within a single integrated framework.

First, research on social comparison has often focused on outcomes such as self-evaluation, affect, motivation, or body-related perceptions. Comparatively less attention has been given to participation confidence within group fitness environments.

Second, exercise self-efficacy research commonly emphasizes individual barriers, mastery experiences, and personal capability. The broader social comparison climate in which confidence judgments develop has received less attention.

Third, group exercise research highlights the importance of social support and companionship. Supportive peer presence, though, should be distinguished from evaluative peer presence because these experiences may influence participants in different ways.

Fourth, research on social physique anxiety offers useful evidence about evaluation-related experiences in exercise settings. Social physique anxiety should not be treated as equivalent

to social comparison climate because appearance-related concern represents only one form of social evaluation.

Fifth, limited attention has been given to the role of comparison interpretation. The same upward comparison may encourage one participant while reducing confidence in another.

The research gap can therefore be stated as follows:

An integrated sport and social psychology framework is needed to explain how social comparison climate interacts with peer support, comparison interpretation, group belonging, and self-efficacy to shape participation confidence in group fitness settings.

4. Novelty / Proposed Contribution

The principal contribution of this paper is the conceptualization of social comparison climate as a contextual psychological characteristic of group fitness environments rather than only an individual tendency to compare with others.

The proposed framework distinguishes comparison exposure from comparison interpretation. Two participants may observe the same performance difference but interpret it differently depending on self-efficacy, social support, previous experience, and group belonging.

The framework also proposes that participation confidence is shaped by the interaction between comparison processes and supportive social conditions. Peer support may reduce the likelihood that performance differences are interpreted as signs of exclusion or inadequacy.

Another contribution is the distinction between performance comparison and social evaluation. Performance comparison involves using another person as a reference point. Social evaluation involves anticipating or perceiving judgment from others. These processes may overlap, but they should be measured separately.

A final contribution is methodological transparency. The study clearly separates illustrative simulation from empirical evidence, which helps prevent simulated numerical examples from being interpreted as findings observed in actual participants.

5. Research Objectives / Research Questions

The primary objective of this study is to examine the relationship between perceived social comparison climate and participation confidence in group fitness settings.

The study also examines the potential roles of peer support, group belonging, comparison interpretation, and self-efficacy.

Research Objectives

- To examine the conceptual relationship between perceived social comparison climate and participation confidence in group fitness settings.
- To distinguish constructive comparison from comparison experienced as evaluative or threatening.
- To examine peer support as a contextual factor associated with participation confidence.
- To examine group belonging as a potential psychological resource within socially comparative exercise environments.
- To examine self-efficacy as a theoretically relevant mechanism linking social experiences with participation confidence.
- To develop an empirically testable framework for studying social comparison within group-based physical activity.

Research Questions

- How does perceived social comparison climate relate to participation confidence in group fitness settings?
- Does the interpretation of social comparison influence the relationship between comparison climate and participation confidence?
- What role does peer support play in shaping participation confidence?
- Does group belonging influence how participants respond to social comparison information?
- How may self-efficacy help explain differences in participation confidence across group fitness environments?

6. Methodology

Research Design

This paper adopts a simulation-based social psychology research design grounded in established theories of social comparison, self-efficacy, achievement motivation, social identity, and social support.

No original participant dataset was provided. Therefore, all numerical results presented later in the manuscript are explicitly treated as illustrative rather than empirical.

The main explanatory construct is perceived social comparison climate, while participation confidence represents the primary outcome. Peer support, comparison interpretation, group belonging, and self-efficacy are included as theoretically relevant explanatory factors.

The design does not make causal claims because causal relationships cannot be established from simulated values.

Dataset / Sample

No empirical participant dataset was collected for the present manuscript.

A future empirical study could recruit adults who regularly participate in instructor-led or group-based fitness activities. Participants could be drawn from university recreation centers, community fitness programs, recreational exercise groups, or other organized fitness settings. Eligibility criteria should specify a minimum level of recent participation so that participants have enough exposure to a group fitness environment to evaluate its social climate.

Relevant participant characteristics should include duration of group-fitness participation, weekly attendance, preferred class type, previous exercise experience, and whether participants usually attend alone or with acquaintances.

Tools / Techniques

A future empirical study should use validated scales where suitable measures are available and carefully developed items where construct-specific assessment is needed.

The questionnaire could assess:

- perceived social comparison climate
- upward and downward comparison frequency
- perceived peer evaluation
- comparison interpretation
- exercise self-efficacy
- group belonging
- perceived peer support
- participation confidence
- continued participation intention

Behavioral indicators should complement self-report measures where feasible.

For example, researchers could record attendance frequency, session completion, participation duration, or voluntary involvement in group activities.

Experimental Procedure

The present paper does not report an experiment involving human participants.

A future study could use a longitudinal design in which participants complete baseline measures and then report their experiences across several group fitness sessions.

A repeated-measures design would allow researchers to examine whether changes in perceived comparison climate are associated with changes in participation confidence over time.

An experimental extension could expose participants to standardized descriptions of group fitness environments that differ in the degree of comparison emphasis. Participants could then report anticipated confidence and willingness to participate.

Such experimental research should receive appropriate ethics approval before participant recruitment.

Evaluation Metrics

The principal outcome could be measured through a participation confidence scale assessing confidence in performing activities, interacting with peers, asking for assistance, continuing participation, and taking part despite performance differences.

Secondary outcomes could include self-efficacy, perceived peer support, group belonging, comparison interpretation, and continued participation intention.

Potential analyses include reliability assessment, descriptive statistics, correlation analysis, multiple regression, mediation analysis, moderation analysis, and longitudinal mixed-effects modeling.

For future empirical research, effect sizes and confidence intervals should be reported alongside inferential results rather than relying only on statistical significance.

7. Results

Important methodological note: The values presented below are simulated illustrative values. They do not represent actual participants, observed measurements, or empirical estimates.

Table 1. Illustrative Participation Confidence across Social Comparison Climate Conditions

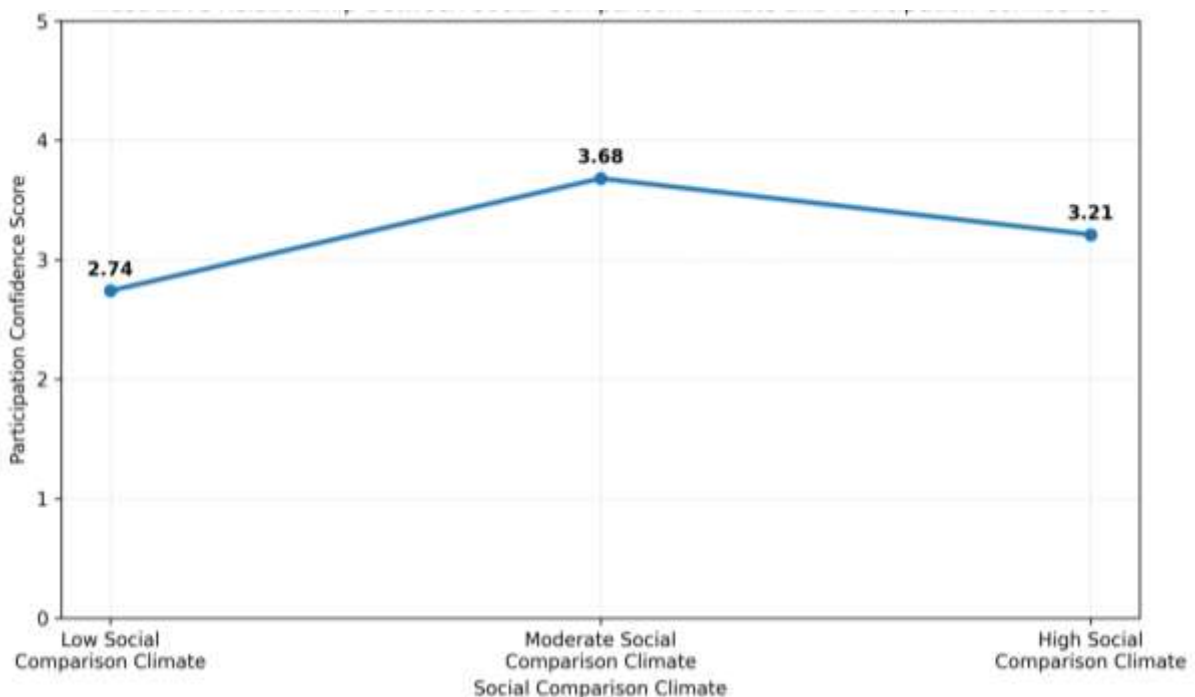
Social Comparison Climate	Illustrative Participation Confidence Score
Low Social Comparison Climate	2.74
Moderate Social Comparison Climate	3.68
High Social Comparison Climate	3.21

The simulated values show a nonlinear descriptive pattern. Participation confidence increases from 2.74 under a low social comparison climate to 3.68 under a moderate comparison climate, then decreases to 3.21 under a high comparison climate.

Within this illustration, participation confidence is highest under the moderate comparison condition.

Because these values are simulated, the pattern should be interpreted only as a conceptual analytical example. It does not establish statistical significance, an empirical association, or a causal relationship.

Graph 1. Illustrative Relationship Between Social Comparison Climate and Participation Confidence



The graph shows the simulated increase in participation confidence from a low to a moderate social comparison climate, followed by a decline under a high comparison climate. This

pattern is conceptual and should not be interpreted as empirical evidence, statistical significance, or a causal relationship.

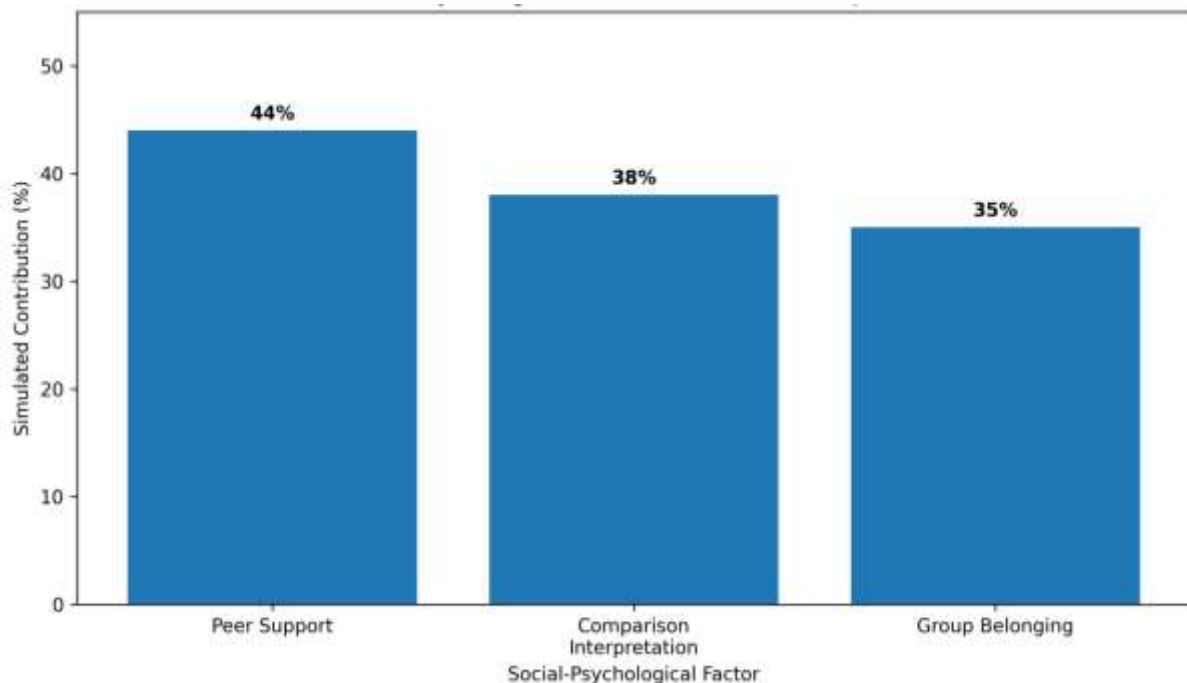
Table 2. Illustrative Social-Psychological Factors Related to Participation Confidence

Social-Psychological Factor	Simulated Contribution (%)
Peer Support	44
Comparison Interpretation	38
Group Belonging	35

The illustrative values assign the largest simulated contribution to peer support, followed by comparison interpretation and group belonging.

These values are independent illustrative indicators and do not represent regression coefficients or percentages that must sum to 100%. They should also not be interpreted as effect sizes, explained variance, or empirical estimates. Their purpose is limited to demonstrating the relative conceptual importance assigned to these social-psychological factors within the proposed framework.

Graph 2. Illustrative Social-Psychological Factors Related to Participation Confidence



The graph presents the relative illustrative values assigned to peer support, comparison interpretation, and group belonging for conceptual demonstration.

Statistical / Experimental Findings

No inferential statistical testing is reported because the manuscript does not include an empirical participant dataset.

The simulated participation-confidence score increases from 2.74 under a low social comparison climate to 3.68 under a moderate comparison climate, then declines to 3.21 under a high comparison climate.

The difference between the low and moderate illustrative conditions is 0.94 points, while the difference between the moderate and high conditions is -0.47 points.

These differences are descriptive features of the simulation only. They should not be interpreted as statistically significant differences, empirical effects, or causal estimates.

8. Discussion / Critical Discussion

Results Interpretation

The simulated results illustrate a potentially nonlinear relationship between social comparison climate and participation confidence. Confidence rises from the low comparison condition to the moderate condition before declining under the high comparison condition.

One possible theoretical interpretation is that a moderate level of comparison provides useful information. Participants may observe how others perform, identify achievable standards, and learn from behavioral examples without experiencing strong evaluative pressure.

Under a high-comparison climate, relative performance may become more prominent. Participants may focus more on how they compare with others and less on their own progress. This may reduce confidence among individuals who perceive themselves as performing below group standards.

This interpretation is consistent with broader social comparison research, which suggests that comparison outcomes depend on direction, similarity, context, and individual interpretation rather than following a single pattern.

The simulated pattern should therefore be treated as a hypothesis-generating illustration rather than evidence that moderate comparison is universally optimal.

Comparison with Previous Studies

The proposed interpretation is consistent with research showing that social evaluation in exercise settings may shape psychological experience. Studies of social physique anxiety

have examined concerns about evaluation within fitness environments and among exercise participants.

At the same time, existing research does not support the assumption that evaluation-related concerns always reduce exercise participation. Portman et al. (2018) reported no relationship between social physique anxiety and physical activity frequency, exercise history, or exercise intensity within their sample.

This distinction supports the present focus on participation confidence rather than participation alone. A social environment may influence confidence, comfort, persistence, or subjective experience without immediately leading to withdrawal from exercise.

Research on group exercise also supports the importance of positive social processes. Group exercise membership has been associated with several forms of social support, exercise identity, and physical activity.

Similarly, Zhang et al. (2022) reported relationships among social support, self-efficacy, and physical exercise behavior among college students, suggesting that social and psychological resources may operate together.

The present framework therefore treats peer presence as psychologically complex. Peers may function as comparison targets, sources of support, behavioral models, or members of a shared social identity.

Explanation of Why Results May Differ

Future empirical findings may differ from the simulated pattern because comparison processes depend strongly on individual and contextual factors.

- First, participants with higher exercise self-efficacy may interpret upward comparison as useful information, while participants with lower confidence may experience the same comparison as threatening.
- Second, group norms may influence how strongly performance differences are emphasized. A mastery-oriented group may focus on personal improvement, while a performance-oriented environment may place greater emphasis on relative achievement.
- Third, instructor behavior may shape how participants interpret comparison. Constructive and individualized feedback may reduce evaluative pressure, while public ranking or repeated emphasis on performance differences may increase it.

- Fourth, group belonging may influence the meaning of comparison. Participants who feel accepted within the group may view skilled peers as role models rather than as threats to membership.
- Fifth, experience level may matter. New participants may be more sensitive to comparison because they have fewer established personal performance standards. More experienced participants may rely more strongly on self-referential benchmarks.
- Sixth, similarity between the participant and comparison target may also matter. Participants may respond differently when comparing themselves with highly experienced athletes than when comparing themselves with peers they perceive as similar in ability or experience.

9. Research Contribution / Implications

The central contribution of this paper is the development of a framework that treats social comparison as a contextual process rather than as a uniformly positive or negative individual tendency.

The framework recognizes that group fitness environments involve several psychological processes at the same time. Participants compare performance, receive social feedback, evaluate their own capability, form relationships, and judge whether they feel accepted within the group.

The distinction between comparison exposure and comparison interpretation is especially important. Exposure to high-performing peers does not automatically lead to negative outcomes. The psychological response depends partly on whether participants interpret the comparison as informative, motivating, threatening, or personally irrelevant.

For group fitness practitioners, the framework suggests that social comparison should be addressed through the wider motivational climate rather than removed entirely. Observing others may support learning when the environment emphasizes personal progress, skill development, and realistic improvement.

The following implications emerge from the framework:

- **Mastery-oriented communication:** Instructors should emphasize individual improvement rather than treating relative performance as the main indicator of success.
- **Supportive peer interaction:** Opportunities for constructive peer encouragement may help participants interpret performance differences within a supportive social environment.

- **Inclusive group norms:** Groups should communicate that differences in experience and ability are expected and legitimate.
- **Confidence-sensitive instruction:** New participants may benefit from clear demonstrations, achievable progression, and supportive feedback.
- **Belonging-focused practice:** Social connection may provide a broader basis for group identity than physical performance alone.
- **Measurement beyond attendance:** Future research should examine confidence, perceived belonging, comparison interpretation, and psychological comfort alongside attendance.

The broader implication is that effective group fitness environments do not need to remove social comparison. Instead, they should create conditions in which comparison is less likely to become a source of unnecessary evaluative pressure.

10. Conclusion

Social comparison is a natural possibility within group fitness settings because participants perform similar activities in the presence of others. This social environment creates opportunities for learning, motivation, support, and belonging while also introducing performance comparison and perceived evaluation.

The present paper conceptualizes social comparison climate as a multidimensional feature of group fitness environments. It distinguishes comparison exposure from comparison interpretation and emphasizes the importance of peer support, group belonging, and self-efficacy in shaping how participants respond to comparison.

The illustrative numerical analysis presents participation confidence scores of 2.74, 3.68, and 3.21 under low, moderate, and high comparison-climate conditions. These values were intentionally simulated to demonstrate a possible nonlinear pattern and should not be interpreted as empirical findings.

Existing literature supports a more nuanced interpretation of social evaluation in exercise settings. Research has documented social physique anxiety and related evaluation processes, while other findings indicate that such concerns do not always correspond with lower levels of regular physical activity.

Research on group exercise also shows that social environments may provide emotional, validation, informational, instrumental, and companionship support.

Future research should therefore examine both sides of the social environment: comparison processes that create pressure and supportive relationships that strengthen confidence. Longitudinal and experimental research would be especially useful for examining how these processes develop over time.

The most appropriate interpretation is not that social comparison is inherently beneficial or harmful. Its consequences depend on how comparison is structured, interpreted, socially communicated, and integrated into the broader motivational climate of the group.

11. Limitations

The main limitation of this study is the absence of original empirical participant data. The numerical results are simulated solely for conceptual and methodological illustration.

A second limitation concerns construct complexity. Social comparison climate includes several dimensions, such as comparison frequency, performance emphasis, peer evaluation, and comparison interpretation. A single scale may fail to capture all of these dimensions adequately.

A third limitation is the distinction between participation confidence and actual participation behavior. Individuals may report high confidence while participating infrequently because of scheduling, financial, transportation, health-related, or other practical barriers.

A fourth limitation concerns variation across group fitness settings. A recreational yoga class, strength-training group, competitive training session, and community exercise program may produce different forms of comparison climate.

A fifth limitation concerns self-report bias. Participants may underreport comparison-related discomfort or overreport confidence because of perceived social expectations.

A sixth limitation involves cultural and social differences. Norms related to competition, modesty, achievement, and group participation may influence how comparison is experienced.

A seventh limitation is that the proposed nonlinear relationship remains hypothetical. Direct empirical testing is required before conclusions about thresholds or optimal levels of comparison are supported.

12. Future Work

Future empirical research should first develop a multidimensional measure of social comparison climate specifically for group fitness environments. Such a measure should

distinguish performance emphasis, peer comparison, evaluative pressure, instructor behavior, and perceived comparison norms.

Longitudinal studies should examine whether changes in comparison climate occur before changes in participation confidence. Repeated assessments across several exercise sessions would provide stronger evidence than one-time cross-sectional measurements.

Future research should also examine mediation pathways involving self-efficacy. One possible model is that comparison climate influences comparison interpretation, which then influences self-efficacy and participation confidence.

Moderation analyses should examine whether peer support and group belonging reduce negative relationships between evaluative comparison and confidence.

Experimental studies could manipulate the social framing of group fitness sessions. For example, identical activities could be presented with mastery-focused instructions in one condition and relative-performance-focused instructions in another. Researchers could then compare participant confidence and behavioral intentions across conditions.

Behavioral measures should complement psychological questionnaires. Attendance, session completion, voluntary participation, and persistence across multiple sessions provide more direct indicators of engagement.

Future research should also distinguish upward, downward, and lateral comparison because the psychological meaning of each direction may differ.

Another important area concerns instructor communication. The language used to recognize achievement, provide feedback, and discuss performance may shape whether participants experience comparison as motivating or threatening.

Finally, qualitative research could examine participants' own explanations of comparison experiences. Interviews and experience-sampling methods may identify processes that standardized questionnaires do not capture.

13. Declarations

Conflict of Interest

The author declares no conflict of interest related to this manuscript.

Funding

No external funding was received for the preparation of this simulation-based manuscript.

Ethics Statement

The present manuscript does not report original data collected from human participants. The numerical values are simulated solely for conceptual and methodological illustration.

Any future empirical study involving human participants should obtain appropriate institutional ethics approval where required and should follow informed-consent, confidentiality, privacy, and responsible data-management procedures.

Data Availability

No empirical participant dataset was generated or analyzed for this manuscript. The quantitative values presented in the Results section are simulated illustrative values and should not be interpreted as observations from actual participants.

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