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Performing To Lose: Loss Aversion As A Predictor Of Decision-Making Under Pressure In Indian Adolescents

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Abstract

There has been an increasing interest in the study of behaviour related to uncertainty, risk, and possible outcomes of decisions in the context of adolescent development. Loss aversion is useful as a starting point in the explanation of decision-making under competitive pressure, especially when considering the problem from a psychological perspective since losses tend to be given more importance than equivalent gains. The purpose of this study was to explore the relationship between loss-averse mechanisms and joining and performance in competitive swimming and dance among adolescents. Thematic analysis of articles from journals and descriptive quantitative analysis of Indian competition results available online were used to secure a secondary mixed-methods design. Loss-sensitivity, adolescent risk-taking, fear of failure, and contextual influences on decision-making were emphasized in the literature. Overall, there were measurable differences in performance between heats and finals, with six of 8 matched swimmers experiencing an increase, and two a decrease. The evidence of achievement by DanceSport was of a competitive nature and, whilst often given, not as consistently reported numerically as in other activities. The literature suggests that there are additional examples where competitive situations require more room in determining adolescent behaviour under pressure, such as situations that include exposure to the possibility of failure, ranking and elimination.

Keywords: Loss aversion; adolescents; decision-making; competitive pressure; swimming; dance; behavioural economics

1. Introduction

1.1 Background

Adolescence is a critical period of development when greater independence can involve choices within contexts of uncertainty, risk and conflicting consequences. Behavioural economics acknowledges that particular choices are influenced not just by logical likelihoods, but also by psychological reactions to gains and losses. Prospect theory is the main theoretical view underlying loss aversion, which suggests that individuals make comparative judgements against reference points and feel the pain of losing a given amount more than the pleasure of acquiring an equal amount. Recent studies have identified that developmental- and context-dependent differences in adolescent risk preferences exist (Zhang et al., 2025; Rosenbaum et al., 2021). The prospect of potentially winning, losing, and suffering the performance effects in competitive contexts can then make these gains, losses, and consequences very evident.

1.2 Competitive Performance and Decision-Making Under Pressure

Competition involves benefits such as qualification, progression, and ranking improvement, but also entails losses of being eliminated, failing, and poorer ranking. In these high-stakes circumstances, as a response, the behaviour or performance may be affected, but stress cannot be said to systematically decrease loss aversion, as emotional stress can actually do the opposite (Molins, Ayuso and Serrano, 2021). The competitive setting of swimming is different from that of dance, in that time and ranking are used in swimming while judged performance and placement are more heavily used in dance. Therefore, in this study, these observable performance patterns are investigated together with psychological evidence, but not as a direct measure of loss aversion.

1.3 Problem Statement

Loss aversion has been extensively studied in behavioural economics, although less attention has been called to the occurrence of loss sensitivity in adolescents' competitive performances. The idea that potential losses can have a more powerful effect than equivalent gains has been shown in research, as well as differences in developmental patterns in the neural processes involved in risk avoidance (Barkley-Levenson, Van Leijenhorst and Galván, 2013). Furthermore, loss aversion may not occur, as the case is different when stakes are set differently, and decisions are made differently (Ert and Erev, 2013). Public sporting evidence is fragmented, and existing evidence is limited to the context of the Indian adolescent context. Secondary analysis therefore can provide information for an exploratory link between competitive performance and the theory of loss-avoidance.

1.4 Rationale of the Study

Literature evidence along with the Indian competitive-performance data gives a wider and more thorough analysis of a research problem. The literature provides the theoretical and psychological underpinnings for loss aversion, while competition results provide a backdrop and context to observe performance, progression, and potential success or failure. At the same time, this combination enables the study to be suitably conservative when there are no psychological metrics available.

1.5 Research Aim

To explore the role of loss aversion under competitive stress on the decision-making and performance pattern of young people aged 12-17 years in India, secondary literature and publicly available data from competitive swimming and competitive dancing were analysed.

1.6 Research Objectives

1. To explore the concept of loss aversion and its link to adolescent decision making when a situation is challenging.
2. To critically appraise published material relating to the concept of loss aversion, risk, pressure, and adolescent decision making.
3. To determine the observable performance patterns from the available public Indian competitive swimming and dance performances.
4. To examine whether performance patterns vary across different competitive contexts.
5. To analyse the identified patterns in terms of loss-aversion theory.

2. Literature Review

2.1 Loss Aversion and Prospect Theory

Prospect Theory offers a basic set of principles that allows one to better understand decision-making under uncertainty, such that people look at the final outcome of a decision in reference to some point or set of points. Therefore, outcomes are then seen as gains or losses, with losses being psychologically heavier than gains that are the same magnitude. This asymmetry, called loss aversion, has been shown to affect risk preferences and to induce people to reject alternatives that involve the risk of losses even if the expected gains are not bad. Pachur et al. (2018) propose that some part of the knowledge about risky prospects may be encapsulated in Process Theory, which summarises the cognitive processes that lie underneath valuation. On the other hand, Gal and Rucker (2018) do not agree with the universal and quantitative claim of the existence of loss aversion, which it states depends on context and method.

2.2 Loss Aversion in Adolescence

The process of continuous cognitive maturation, particularly relating to risk assessment, susceptibility to reward, and sensitivity to risk, plays an important role in the ways that adolescents make decisions. Social and situational factors play a role in whether or not adolescents will make more risky decisions than adults. For adolescents (12-17 years of age), the peer observation group increased choices of risky prospects in adolescents' risk-taking behavior but not in their diminished sensitivity to losses (Tymula and Wang, 2021). Social observation and peer influence, in turn, can thus affect the assessment of unclear consequences in adolescents. Likewise, Van Duijvenvoorde et al. (2022) emphasised the developmental nature of risk and reward processing, with adolescence identified as a time when the sensitivity to rewards, combined with the environment, may have a significant effect on decision-making.

2.3 Decision-Making and Performance Under Pressure

Competition may influence how adolescents make their decisions, either increasing their worries surrounding failure or their expectations of success. If there is a significant consequence involved (such as having to think of potential negative outcomes), the adolescents may be more vigilant and cautious about their choices and purposefully try to not take risks in that context. However, Icenogle and Cauffman (2021) state that judgement is still malleable and influenced by developmental and situational factors: Decisions are different when the pressure is on. Mishra, Fogg, and Deminchuk (2024) also show that competition can impact risk-taking behaviour in competitive settings but that reactions vary among the athletes and personalities involved. Thus, in times of threat, lack of performance may produce a degradation of performance or inconsistency, because fear of losing outweighs the possible rewards of a successful performance.

2.4 Competitive Swimming and Dance as High-Pressure Contexts

Competitive swimming and dancing can be used to explore performance in high-pressure situations. There is clear objective quantification of swimming performance in terms of race performance, race qualification and limits, progression to heats and finals. This pressure can be even increased with high-pressure personal standards on high-level or emerging competitors (Meggs et al., 2016). Similarly, high-stakes outcomes, but judged performance (scoring, ranking, etc as a result of the assessor's judgement, are present in dance. The uncertainty of performance, subject more to subjective assessments, may thus lead to uncertainty in competition finals. These situations are examples of how in high-stakes sporting situations quick action and adaptation may be necessary while simultaneously elevating the psychologically devastating impacts of failure (Wilson, Kinrade and Walsh, 2019).

2.5 Theoretical and Conceptual Framework

Prospect Theory is the main guiding theory for this study because it puts forward the idea that people do not only base their judgments of uncertain outcomes on probability but also on the reference points they have in place (Kahneman and Tversky, 2018). The concept of 'loss aversion' states that losses seem to weigh heavier in the mind than gains of a similar size. This is important to competition in which qualification, ranking, and progress provide meaningful reference points and salience to failure. Finally, Kemel and Paraschiv (2018) illustrate that risk preferences can be status quo depending on the outcome framing.

The conceptual pathway is shown in Figure 1. Secondary competition data is used to study the final observable and established literature to make inferences about psychological mechanisms. Accordingly, the outcomes of performance are not considered as direct measures of loss aversion.

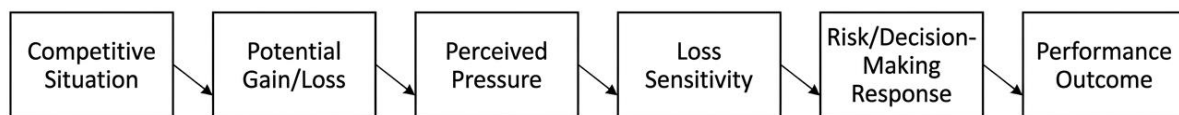


Figure 1: Conceptual Framework

2.6 Research Gap

Although there is increasing research evidence on adolescent risk-taking and loss-sensitive decision-making, there are significant research gaps. Firstly, based on the existing literature, it may be seen that the study of loss aversion in Indian adolescent competitive performers is limited. Previous work on adolescents has focused mostly on general attitudes towards risk-taking and on adolescents' decision-making processes, but not on their behaviour as young competitors within competitive settings. Secondly, the context gap is also noticeable, with much of the literature on loss aversion based on lab experiments, hypothetical scenarios, or economic decision-making tasks. While these methods enable controlled evidence of the mechanisms of behaviours, they may not fully reflect behaviour under real competitive situations of qualification, ranking, and performance pressure. Third, an evidence gap is that few publicly available information sources exist about competitive performance in India, to which behaviour decision-making theory can be applied. Thus, there is scope for a secondary exploratory analysis that combines existing psychological findings and highly measurable performance results from Indian adolescent swimming and dancing, albeit not to assert individual loss aversion.

3. Materials and Methods

3.1 Research Design

The research design employed in the study was secondary mixed-methods research, which was a blend of qualitative and quantitative secondary evidence to tackle the research aim. Peer-reviewed journal literature was used to collect qualitative evidence, which was thematically analysed to obtain identified, established psychological mechanisms linking psychological loss aversion, adolescent decision-making, pressure, and performance. Existing competitive swimming and dance outcomes were used to gather quantitative data to be analysed descriptively to uncover observable patterns. The research method chosen was pragmatism because it involved using various types of evidence depending on what questions and issues in the research required. The approach thus helped to combine or synthesize psychological evidence from the literature with outcomes of measured competitive performance.

3.2 Data Sources

Secondary sources of data consisted of two main sources. Academic databases and search engines, such as Web of Science, Scopus and Google Scholar, were used to identify the journal literature. Possible search terms included loss aversion, Prospect Theory, adolescent decision-making, risk taking, competitive pressure, sport and performance.

Similarly, competition data were gathered from Indian sporting records which are open to the public. Most of the swimming results were provided by the Swimming Federation of India (SFI), the national body for swimming sport in India, recording the results of swimming competitions held all over the country and also of junior and sub-junior competitions. There were Competition Games, including the 51st Junior National Aquatic Championships and the 41st Sub-Junior National Aquatic Championships in 2025, available in the archive. Dance data was obtained from available federation and association records from India, competition organizers, and from popular published sources.

3.3 Inclusion and Exclusion Criteria

Literature was selected if it included peer-reviewed journal articles published in the timeframe 2016-2026, with English language abstracts, addressing each of the selected keywords (which are loss aversion; adolescent decision making; risk; pressure; sport/performance). Pre-2016 publications and non-peer-reviewed editorials/commentaries and studies not relevant to the research focus were not included.

Competition data were used if they applied to Indian competitive swimming or to Indian competitive dance (of Indians, best for adolescents about 13-18 years old) containing simple verifiable information about their performance or ranking. To date, the data excluded under these conditions include results for adults only, recreation results, records with no identifiable performance data, and duplicate records.

3.4 Data Analysis

Thematic analysis was used to analyse journal literature. Familiar themes were studied: loss sensitivity and risk; adolescent decision making; pressure and performance; fear of failure and loss; social/competitive context.

The results of the competition were analysed descriptively and quantitatively. Where appropriate, percentages and frequencies were computed, and simple comparisons were made between the competition stages (heats versus finals). No regression or complex statistical modelling was performed as the secondary data provided were used to uncover observable patterns of performance and did not aim to draw direct causal connections between prospect loss aversion and individual performance.

4. Results and Discussion

4.1 Overview of the Secondary Dataset

The information was collected from competitive swimming and DanceSport in Indian competitions from 2022 to 2024. The more quantitative difference was seen in Swimming, due to the availability of age, race stage, time, rank, points, and event details in the results of the 2024 national championship, with 18 records in the Women's 50m Freestyle. The evidence in 2022 was sparser, however, mainly around participant categories as well as outcomes of medals or competitions. A total of 23 youth development performance or participation records were found. There was considerable variation among the datasets, especially in regard to the quantities and types of numerical performance measures available, so the analysis was mostly descriptive. The comparable observable performance patterns could thus be explored between heats and finals in swimming.

Table 1. Characteristics of the accessible Indian competitive-performance dataset

Sport	Competition/source	Year	Age information	Records/participants used	Performance information
Swimming	40th Sub-Junior & 50th Junior National Aquatic Championships, Swimming Federation of India	2024	15–17 years	18 performance records from the Women's 50m Freestyle; 10 athletes in heats and 8 in final	Time, rank/place, points, competition stage
Dance	12th National DanceSport Championship, All India DanceSport Federation	2022	Youth/Junior/Junior or 1/Juvenile categories reported; one juvenile participant explicitly aged 6	5 youth/junior/juvenile performers identified in the published Punjab results; 1 adult participant excluded	Medal outcome, dance category, competition outcome
Total accessible evidence	Swimming + DanceSport	2022 – 2024	Youth-focused records	23 documented performance/participant records	Time/rank or medal/category outcome

Source: Swimming Federation of India results for the 2024 national championships; CNI Channel report of the 12th National DanceSport Championship held in Meerut in 2022 (Swimming Federation of India, 2024; CNI Channel, 2022).

4.2 Swimming Performance Across Competition Stages

The literature suggests that competitive forces have the potential to affect decision-making and performance of adolescents, especially when associated outcomes, like qualification, ranking, and failure, make salient inputs to decision-making. Icenogle and Cauffman (2021) note that taking action for adolescents occurs within their specific contexts, and Mishra, Fogg and Deminchuk (2024) illustrate that competition can influence risk-taking. The results are relevant to the interpretation of the swimming evidence.

For the age group 15-17 years, there were 10 heat performances and 8 final performances in the SFI 2024 result set, which is out today. The average in the first heat was 28.17 seconds; the final heat was 27.80 seconds

- an improvement of approximately 0.37 seconds. On average, the heat-stage group was then slower than the final-stage group that was available, as suggested by the descriptive pattern. But this difference does not indicate that competitive pressure led to improvements in performance. The difference may be partly due to ability and/or qualification, as the initial group of finalists came through from various stages of competition. The result also highlights the measurable performance difference between competitive situations and can be taken into account in the context of literature on pressure/risk/loss sensitive decision making.

Table 2. Swimming performance by competition stage: Women's 50m Freestyle, Age 15–17

Competition stage	Number of performances	Mean time (seconds)	Fastest time (seconds)	Slowest time (seconds)
Heat	10	28.17	27.24	29.00
Final	8	27.80	26.91	29.47

Source: Calculated from the Swimming Federation of India results for the 40th Sub-Junior & 50th Junior National Aquatic Championships 2024. The original results list 10 heat performances and 8 final performances for girls aged 15–17 in the 50m freestyle (Swimming Federation of India, 2024).

4.3 Individual Performance Changes from Heat to Final

Each swimmer was compared individually, as the eight swimmers who advanced from the heats to the final gave more informative comparisons. As indicated in Table 3, 75% (6 of 8) swimmers improved since the pre-final while 25% did worse. The mean time was 27.80 seconds in the last and on average, the matched swimmers' time was 0.17 seconds over the heat.

Individuals differed in terms of variation. Among those who improved more than 0.25 seconds were Deeksha Sivakumar with the maximum gap of 0.66 seconds, Rujula S, Shalini R Dixit, and Deepti Raghunath Tilak with improvements greater than 0.25 seconds. Jahnabi Kashyap, however, dropped by 0.04 seconds, while Arshpreet Kaur managed to yawn a bit, trailing by 0.48 seconds. These differences indicate that the reactions of teens were not consistent when they moved from a less serious level of competition to a more serious level of competition. An increase in salience of qualification, ranking, or perceived failure might also plausibly influence decision-making and performance differently among people from a loss-averse perspective. The data, however, cannot prove loss aversion per se, as changes in ability or fatigue and other factors that affect performance could have contributed.

Table 3. Change in performance among the eight swimmers who progressed from heat to final

Swimmer	Age	Heat time (s)	Final time (s)	Change (s)	Final outcome
Rujula S	16	27.24	26.91	−0.33	Improved
Alefiya Saleh Dhansura	17	27.29	27.03	−0.26	Improved
Deepti Raghunath Tilak	15	27.53	27.26	−0.27	Improved
Shalini R Dixit	17	27.61	27.30	−0.31	Improved
Jahnabi Kashyap	17	27.89	27.93	+0.04	Declined
Deeksha Sivakumar	17	28.32	27.66	−0.66	Improved
Jahnavi Changmai	15	28.83	28.81	−0.02	Improved
Arshpreet Kaur	17	28.99	29.47	+0.48	Declined
Mean	16.25	27.96	27.80	−0.17	6 improved; 2 declined

Source: Calculated from the original SFI heat and final results (Swimming Federation of India, 2024).

4.4 Youth and Junior DanceSport Performance

DanceSport provided a complementary approach to how youth and junior competitive performance is viewed. However, there are 5 youth, junior/ juvenile performers with a total of 6 gold medals and 5 silver medals out of the published results of the 2022 National DanceSport Championship in Punjab (as shown in Table 4). These documented performers were also found in Youth, Junior, Junior 1, and Juvenile categories; therefore, there was a level of participation from various stages of developmental and competitive stages.

In contrast to swimming, in DanceSport, performances are judged, and the result is based upon a score and/or a ranking of abilities. Numerical scores, individual judging marks, or stage-by-stage measures were not consistently provided in the available source. Therefore, it was not possible to make direct comparisons on performance change. This restriction limits the scope of being able to look at DanceSport outcomes quantitatively in terms of pressure- or loss-sensitive decision-making. Hence, in DanceSport, descriptive analysis was not undertaken like swimming but considered as supporting evidence to swimming. However, its performance results offer important context for the level of competitive engagement and success of Indian youth and junior players and underscore the need for comparing how various measures of achievement are measured across sports.

Table 4. Documented youth/junior DanceSport outcomes at the 12th National DanceSport Championship, India, 2022

Performer	Reported category	Dance/event	Gold medals	Silver medals
Tehrier Bhalla	Youth	Salsa Solo; Freestyle; Cha Cha	1	2
Anusha Girn	Junior	Salsa Solo; Cha Cha	2	0
Amaira Ladia	Junior 1	Salsa Solo; Cha Cha	2	0
Inaya Ghai	Junior 1	Salsa; Cha Cha	0	2
Ritiz Thapa	Juvenile	Salsa Solo; Cha Cha	1	1
Youth/junior/juvenile total			6	5

Source: (CNI Channel, 2022).

4.5 Comparison of Swimming and DanceSport Evidence

Table 5 compares the accessible swimming and DanceSport evidence, showing key measurements and different competitive progression/data gaps. Swimming gave a more quantitative basis due to the objective manner in which performance could be measured, and because there was a clear progression from a heat to a final. This allowed the performance to be directly compared descriptively throughout the various stages of competition. Otherwise, it was possible to represent DanceSport results mostly in calculations of medals and categories in competitions, which is judged performance. While the DanceSport evidence yielded 6 gold and 5 silver medals among the number of performers identified as youth, junior and juvenile, not all numerical scores and round-by-round details were available.

Both of the data sets, however, tended to support findings relating to competition. With the more high-stakes final in Swimming, the results indicated that performance changed, while DanceSport showed positive results in the categories of judged competitive evaluation. But there were important limitations on each dataset. In the case of DanceSport, there was not enough standardised numerical information to make an analysis comparable to the Swimming finalists who had advanced from heats to the final stage, and hence DanceSport results were not analysed. These differences led to a decision to consider swimming as the main subjective data and DanceSport as the supportive comparative data. Overall, it gave an empirical basis for interpreting the possible relationships between competitive progression and potential success or failure and performance evaluation, and loss-sensitive decision-making need not have been direct measures of loss aversion.

Table 5. Comparison of the Accessible Swimming and Dancesport Evidence

Indicator	Competitive swimming	DanceSport
Indian competition	40th Sub-Junior & 50th Junior National Aquatic Championships	12th National DanceSport Championship
Year	2024	2022
Accessible youth evidence	Age 15–17	Youth, Junior, Junior 1 and Juvenile categories
Number of directly analysed records	18 performance records	5 youth/junior/juvenile performers
Main outcome measure	Race time	Medal/result
Competitive progression	Heat → Final	National competition categories/events
Numerical performance comparison possible?	Yes	Limited
Observable successful outcomes	8 finalists	6 gold + 5 silver medals among identified youth/junior/juvenile performers
Main relevance to study	Performance under progression to a higher-stakes round	Performance under judged competitive evaluation
Data limitation	Finalists are selected from heat performers	Public records do not consistently provide scores, ages or round-by-round results

Sources: Swimming Federation of India and CNI Channel's report of the 2022 National DanceSport Championship (Swimming Federation of India, 2024; CNI Channel, 2022).

4.6 Loss Aversion, Competitive Pressure and Decision-Making

When gains can be psychologically identical to losses, loss aversion affects decision-making according to the literature (Icenogle and Cauffman, 2021). Adolescents' developmental, emotional, and social factors influence risk sensitivity, and the nature of competitiveness could lead them to become more fearful about failing or place increased performance expectations. These mechanisms shed light on the present results. For the swimmers, performance ended between the heat and the finals stage, with 6 of the 8 swimmers (75%) improving and 2 (25%) reducing their performance. This variation implies that adolescents can have different reactions to the next phase of competition, which is more serious in nature. DanceSport evidence also showed youth and junior participation and competitive success in terms of documentation of performers winning medals in judged performance contexts.

However, these results are not to be interpreted as tangible proof of the concept of loss aversion. The observed performance data were collected from sports; that is, disposition was not a psychological response to sports victory and defeat. The swimming results accordingly illustrate achievement variability based on competitive levels, and the DanceSport results illustrate achievement within a more subjective evaluative context. The literature supported the hypothesis of the psychological mechanisms involved in loss sensitivity, fear of failure, and risk-prone decision-making, while they were not directly measured in the secondary sports data. For this reason, the results provide an interpretative linkage between competitiveness and loss-aversion theory, instead of a causal relation between loss-aversion and individual performance.

4.7 Overall Discussion and Implications

The collective evidence serves as an exploratory framework to gain insight into the adolescent behavioural responses to competitive pressure from a loss-aversion perspective. Psychological processes have been well documented in the literature and are known to influence adolescent decision-making, such as loss sensitivity, risk assessment, fear of failure, and circumstances. Swimming evidence offers relatively objective performance evidence which can be recorded and identified between heats and finals, whereas the DanceSport evidence is from another form of judged performance environment, in which achievement is judged through competitive evaluation. Combined, these strands of evidence indicate possible contexts for exploring adolescent responses to stress, such as competitive situations involving failure to qualify or qualify for a rank, failure to attain or fail to achieve, and failure to succeed or fail to succeed. Nevertheless, the implications of the results must be looked at with a grain of scepticism due to the fact that the data on performance was not directly psychologically expressed as aversion to loss or decision-making. Competitive settings are then offered as a potentially useful contextual setting in which to explore loss-sensitive behaviours by young people in the future.

5. Conclusion

The results of this study revealed that the theory of loss aversion is relevant and valuable in understanding adolescent decisions, especially in the context of a competitive scenario, which makes the risk of failure, ranking, or elimination more salient. The evidence provided from the Indian competition in the available situation showed that observable differences occurred across the different competitive contexts. Structured results were more conducive to quantitative evidence; swimming provided this, and DanceSport did but suffered from limited publicly available data. The present results confirm the applicability of the Prospect Theory (mainly the notion that potential losses can be given more psychological weight than gains that are equivalent in size).

In practical terms, coaches, parents, schools, or adolescent athletes/performers should so reduce the potential for undue risk of failure and ensure that competition is seen as a chance for performance improvement, not merely to avoid failure. The results, however, were constrained by relying on secondary data, incomplete DanceSport data, different units of measurement, and the absence of direct psychological measures of loss aversion across years. The findings will also not be generalizable to all Indian adolescents. To directly explore the psychological processes proposed, future research should utilize loss-aversion scales, decision-making activities, and perceived-pressure tools, in addition to interviews with adolescent athletes and dancers.

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