

# Sweat it for sustainability: Impact of physical activity/exercise on sustainable consumption

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## Abstract

What would make the “elusive” green consumer actually choose sustainable products? This research draws from “dopamine hypothesis of reward” to demonstrate that physical activity/exercise (regular and immediate) is a vital factor in determining consumers' sustainable behaviors. More specifically, it examines the role of physical activity/exercise on sustainable consumption behaviors as well as the role of emotional intelligence and sustainability claims. Five studies were conducted to test the hypothesized relationships. The findings from Study 1a and 1b establish direct causal link between physical activity/exercise and customers' sustainable consumption behaviors. Studies 2a and 2b show that emotional intelligence (trait-based and ability-based) may explain the effect of physical activity/exercise (regular and immediate) on sustainable consumption behaviors. Finally, the findings from Study 3 demonstrate that sustainability claims moderate the effect of emotional intelligence on sustainable consumption behaviors. These findings offer significant implications for retailers and marketers to use physical activity/exercise as a strategic intervention to positively influence consumers' evaluation and behaviors toward sustainable products.

## KEYWORDS

emotional intelligence, exercise, physical activity, sustainability claim, sustainable consumption

## 1 | INTRODUCTION

*All truly great thoughts are conceived while walking.*  
(Friedrich Nietzsche, 1990)

The positive impact of low- to moderate-intensity exercise on brain neurotransmitters is well documented in biomedical, clinical, and sports research (e.g., Heyman et al., 2012; Meeusen & Piacentini, 2001; Ploughman, 2008). Exercise, a form of physical activity, increases noradrenaline, serotonin, and dopamine in the

brain (which are known as “happy hormones”<sup>1</sup>), lowers stress and anxiety, and elevates mood (Chaouloff, 1989; Meeusen & Piacentini, 2001). Beneficial effects of exercise on subjects' cognitive and emotional behaviors are further accentuated through enhancing the putative role of endocannabinoids system, which is known to have acute impact on mood, and causes the release of dopamine; therefore, it is linked with “runners high,” a powerful yet temporary positive emotion generated during exercise (Heyman et al., 2012).

<sup>1</sup><https://www.medicalnewstoday.com/articles/326090>

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Regular physical activity is also known to enhance self-efficacy and work focus of individuals (Ten Brummelhuis et al., 2021), and reduce the “dilution effect,” such that the consumers focus only on the goal-relevant information, while discarding the goal-irrelevant information (Zimmermann & Chakravarti, 2022). Thus, engaging in both immediate as well as regular physical activity influences consumers' cognition and affective processes and their subsequent decision-making.

According to a McKinsey report (Falardeau et al., 2021), Covid-19 pandemic has spurred the focus of consumption on wellness. More than 79% of the 7500 consumers surveyed across six countries considered wellness to be important, and 42% considered wellness in terms of fitness, enhanced physical and mental health, and healthy consumption choices such as sustainable consumption to be the top priority (Callaghan et al., 2021; Guthrie et al., 2015). Covid 19 has also emphasized people's concern for environmental wellness, that is, wellness relative to the natural environment.<sup>2</sup> Nevertheless, most of the quantum of research and conversation on wellness is built around nutrition and fitness preferences of health-conscious consumers (e.g., Lusk, 2019; Sinha & Lu, 2022), or the vast array of services and gadgets aimed at building and tracking consumer fitness (Dwivedi et al., 2022; Falardeau et al., 2021; Windasari et al., 2021). However, the positive effects of exercise in stimulating the secretion of dopamine in the human body, which acts as a salience detector to promote virtuous behaviors, such as sustainable consumption and curb vice behaviors are macro (Rhodes & Majdak, 2013). In other words, exercise may be leveraged as a strategic marketing intervention to maneuver consumers' sustainable consumption behaviors. With this understanding, our research attempts to unpack the effects of physical activity/exercise on consumers' sustainable behaviors, routed through their emotional intelligence. We also investigate the interaction of information provided in sustainability message claims (explicit vs. implicit) on consumers' sustainable consumption behavior.

Our research contributes to the theory and practice of leveraging physical activity/exercise as a marketing tool to shape consumers' sustainable behaviors in multitude of ways. First, green consumers have been rather “elusive,” in the sense that while they would report an intention to buy sustainable product/brand, in practice, they do not actually buy it (Cleveland et al., 2012; White, Hardisty, et al., 2019). Across five studies, we demonstrate the impact of immediate as well as regular physical activity/exercise as an effective driver of consumers' sustainable consumption behaviors. Second, we propose a new market segmentation parameter for firms with sustainable offerings to consider the segment of consumers who exercise regularly as a part of their lifestyle. Third, we promulgate that regular physical activity/exercise enhances consumers' trait-based emotional intelligence, while physical activity/exercise as an intervention immediately enhances consumers' ability-based emotional intelligence, which facilitates sustainable consumption. Fourth, firms with sustainable offerings can track consumer purchase

decision-making history and well utilize this knowledge to direct heuristic-based communication to consumers with low emotional intelligence, whereas deliberate information processing based on explicit sustainability cues would work well for consumers with high emotional intelligence.

## 2 | THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

This section begins with summarizing the findings of extant literature on physical activity/exercise in the consumption domain, followed by the research gaps addressed by the present research and development of hypotheses.

### 2.1 | Benefits of physical activity/exercise

Owing to the “immediate” beneficial effects of exercise on brain, moods, and cognitive and emotional behaviors of people, it is recommended as a strategic intervention to bolster positive consumer decision-making through enhancing self-efficacy (Ten Brummelhuis et al., 2021), as well as to curb seemingly undesirable consumption behaviors such as consumers' urge for impulse buying (Sultan et al., 2012). Literature supports the “affective, cognitive, and neurological benefits” (Zimmermann & Chakravarti, 2022, p. 2) of both immediate and regular physical activity/exercise on consumers' decision-making and consumption behaviors. Table 1 summarizes the findings from extant studies that investigate the impact of physical activity/exercise on consumer behavior.

### 2.2 | The research gaps addressed in the present study

There is much evidence that exercise has physiological and psychological health benefits. However, most of the prior research is grounded on understanding the impact of physical activity/exercise on cognitive aspects of the decision-making (e.g., Bollimbala et al., 2019; Sultan et al., 2012; Zimmermann & Chakravarti, 2022), which leaves the affective part of decision-making unaddressed (Shiv & Fedorikhin, 1999). However, affective processes (that involve consumers' emotions and feelings) are an integral part of consumer decision-making (Westbrook, 1987), and exercise is known to impact subjects' affect (Chaouloff, 1989; Meeusen & Piacentini, 2001). Thus, it becomes important to understand how exercise impacts consumer decision-making by influencing their affective responses.

The present research aims to address this knowledge gap in three ways: (1) through investigating the immediate impact of physical activity/exercise as a standalone intervention on consumers' sustainable consumption behavior routed through their ability-based emotional intelligence; (2) through investigating how regular physical activity/exercise as a consumer lifestyle shapes their trait-based

<sup>2</sup><https://studentaffairs.duke.edu/duwell/what-wellness/environmentalwellness>

**TABLE 1** Summary of studies on the impact of physical activity/exercise on consumer behavior

Study details	Study design	Summary of findings
Verger et al. (1994)	Between-subjects experiment	Participants in the exercise group had a 25% greater intake of energy than the rest group, and the significant difference came from the higher choice of proteins by the exercise group, but there was no difference for carbohydrates and fat
Sultan et al. (2012)	Between-subjects experiment	Consumers who performed physical activity had a lower propensity of impulse buying
Beaulieu, Hopkins, et al. (2020)	Review	Regular physical activity is associated with lower (higher) liking and wanting for high (low) fat food
Şarahman Kahraman and Akçıl Ok (2022)	Cross sectional	Consumers who do not engage in regular physical activity have higher “hedonic hunger” (i.e., the desire to consume food for pleasure, even in the absence of physiological hunger)
Zimmermann and Chakravarti (2022)	Between-subjects experiments	Consumers who regularly performed physical activity were less susceptible to dilution effect, that is, they could discard goal-irrelevant information, to focus only on goal-relevant information. Furthermore, on a desirability–feasibility spectrum, physically inactive participants demonstrate higher affinity toward the desirability spectrum and a neglect for feasibility. However, no such difference exists for consumers engaging in physical activity
Zhou and Zhu (2022) This Paper	Between-subjects experiments	Presenting calorie-equivalent exercise data as a marketing cue was effective to promote virtuous food-consumption behavior. Consumers demonstrated lower consumption intention for unhealthy food when the food label contained precise (vs. rounded) exercise data. Precision effect of exercise data was more prominent when the food was unhealthy versus healthy
	Between-subjects experiments cross-sectional	Physical activity has an immediate positive impact on consumers' sustainable consumption behaviors. This impact is mediated through ability-based emotional intelligence. Explicit sustainability message interacts with consumers' emotional intelligence to strengthen their sustainable consumption choice
		Regular physical activity positively impacts consumers' sustainable purchase through the mediation of trait-based emotional intelligence

emotional intelligence, to influence their sustainable consumption behavior; and (3) through investigating how affective and cognitive decision-making processes intertwine, by investigating the interaction of information provided in sustainability message claims (explicit vs. implicit) on consumers' sustainable consumption behaviors. We next build our arguments for the hypothesized relationships.

### 2.3 | Effect of physical activity/exercise on consumer sustainable behaviors

According to the American Psychological Association (APA), the reward theory focuses on “the function of satisfying or pleasurable stimuli (i.e., rewards) in learning, approach behavior, and decision making.”<sup>3</sup> The dopamine hypothesis of reward states that physical activity/exercise releases dopamine, which triggers the appetite to consume a positive reward in the individual's brain (Flack et al., 2019), such as healthy/low-fat food (Beaulieu, Hopkins, et al., 2020; Beaulieu, Oustric, et al., 2020). Nevertheless, this exercise induced

desire for indulging in rewarding behaviors is not only focused on the propensity to attain “healthy” or positive rewards (e.g., low-fat food), it is also focused toward pruning the desire for “unhealthy” or negative consumption endeavors (e.g., high-fat food, impulse buying) (Beaulieu, Hopkins, et al., 2020; Sultan et al., 2012). Suwabe et al. (2018) conducted magnetic resonance imaging (MRI) of young healthy adults and the results showed that a short (10 min) bout of mild exercise immediately resulted in elevated activity in the hippocampus as well as the cortex regions of the brain which govern human motivations, judgements, decision-making abilities, behaviors, as well as memory processing, thus enabling people to make better judgments. Thus, extant research well establishes that physical activity/exercise has a potential to enhance mood, decrease psychological distress by pleasure induction, activate the reward centers of the brain, accentuate healthy and/or virtuous behaviors, and diminish unhealthy and/or vice behaviors.

People associate sustainable consumption with positive (rather than negative) emotions (Venhoeven et al., 2020) and values (Kaur & Luchs, 2021). Indeed, people find engaging in acts of sustainability to be intrinsically rewarding (Taufik et al., 2016; Van der Linden, 2018). Sustainable consumption is also viewed as morally rewarding, and morally good behaviors are perceived to be more

<sup>3</sup><https://dictionary.apa.org/reward-theory>

meaningful and are known to elicit positive emotions (Alzubaidi et al., 2021; Venhoeven et al., 2020). Exercise enhances consumers' self-efficacy (Sultan et al., 2012), as such, their consumption endeavors would be directed toward the “feels right” regulatory fit (Higgins & Scholer, 2009), rather than the mere pursuit of hedonic pleasure, and sustainable consumption would qualify as the former. Thus, sustainable consumption may be considered as a moral behavior that is an intrinsically rewarding virtuous consumption endeavor. Both healthy and sustainable consumption are also marked by foregoing impulses of immediate gratification in favor of avoiding negative consequences in the long term (Liang & Guo, 2021; Malkoc & Zauberger, 2019; Zheng et al., 2020). As exercise is known to enhance the healthy as well as the virtuous consumption behavior, it should garner sustainable consumption choices. The foregoing discussion leads us to hypothesize that consumers who are exposed to physical activity/exercise (vs. those who are not exposed) are more likely to choose sustainable offering over a non-sustainable offering in the same product category. Thus, it is hypothesized that:

**H<sub>1</sub>:** *Physical activity/exercise (immediate and regular) positively influences consumers' sustainable consumption behaviors.*

## 2.4 | The power to choose: Emotional intelligence as the mediator

Emotional intelligence is conceptualized as an individual's ability to appraise, access, and express emotions, so as to make effective decisions (Salovey & Mayer, 1990). It comprises three individual competencies: (1) the awareness of one's own emotions and the ability to effectively harness and utilize them, (2) the perceptiveness of others' emotions and the ability to effectively accord them, (3) the capability to instrumentally use emotions for decision making (Gabbott et al., 2011). Grounded in emotional regulation theory (Gross, 1998), emotional intelligence is an important construct to understand consumers' purchase decisions.

Kidwell et al. (2008) conceptualized consumer emotional intelligence and developed a measure for it. Their conceptualization comprises four reflective dimensions, namely, “perceiving, facilitating, understanding, and managing” (p. 156). Consumers who have high emotional intelligence are more aware of their own as well as others' feelings and demonstrate better efficacy in regulating their moods as well as emotions (Mead et al., 2019; Tsarenko & Strizhakova, 2013; Wang et al., 2021). They are less influenced by emotional contagion and strategically use their consumption-related emotions to enhance their well-being through an active pursuit of positive consumption emotions and avoidance of negative consumption emotions such as regret and guilt (Hasford et al., 2015; Luchs & Mick, 2018). Consumers with high (low) emotional intelligence are also more likely to approach any conflicts with the seller/brand constructively (rather than destructively) (Ahn et al., 2016). Positive impact of emotional intelligence on decisions oriented towards individual as

well as social well-being is well established in literature (Jackson, 2005; Schutte & Malouff, 2011; Schutte et al., 2002).

In H<sub>1</sub>, we theorize the positive impact of physical activity/exercise on consumers' sustainable behaviors. In H<sub>2</sub>, we propose that this impact is routed through consumers' emotional intelligence, such that regular (immediate) physical activity/exercise enhances consumers' trait- (ability-) based emotional intelligence, which further enhances their sustainable consumption behaviors. This position is grounded in executive function hypothesis, which is conceptualized as brain's ability toward “planning and carrying out action sequences that make up goal-directed behavior and requires allocation of attention and memory, response selection and inhibition, goal setting, self-control, self-monitoring, and skillful and flexible use of strategies” (Davis et al., 2011, p. 91). Regular exercise is known to enhance positive affect over long term (Kerr & Kuk, 2001), increase self-regulation (Muraven et al., 1999), reduce anxiety and stress (Long & Stavel, 1995), and reduce “dilution effect” (Zimmermann & Chakravarti, 2022). Regular exercise not only enhances mood as an immediate outcome of the session but also positively correlates with emotional intelligence as a trait, with people who exercise or indulge in physical activity frequently reporting higher scores on trait-based emotional intelligence (Laborde et al., 2017; Solanki & Lane, 2010). There is recent evidence that demonstrates the impact of physical activity/exercise in enhancing individuals' emotional intelligence (e.g., Gabour, 2020; Ruiz-Ariza et al., 2019; Tasci et al., 2022; Ubago-Jiménez et al., 2019).

The relatively recent stream of literature emphasizes on the dynamic and context-specific conceptualization of emotional intelligence (e.g., Ybarra et al., 2014) and also highlights that rather than being a stable personality trait, emotional intelligence is more of an individual's ability with respect to solving a problem at hand (Daus & Ashkanasy, 2005; Pekaar et al., 2020; Petrides, 2011). Exercise is known to immediately enhance brain's executive function, that is, the ability of human brain to guide behavior towards goal (Bollimbala et al., 2021; Davis et al., 2011), and has positive influence on affect and cognition of people, which enables better as well as quicker decision-making (Chang et al., 2012; Hogan et al., 2013; McMorris & Graydon, 1996), thus increasing individual's ability-based emotional intelligence.

Emotionally intelligent consumers are expected to be more perceptive of the issues at hand, such as sustainable consumption, and would consciously focus on the cause, as well as act towards manifesting it through behaviors (Kadic-Maglajlic et al., 2019). Carrieri and Fermani (2018) found that tourists with high emotional intelligence are more likely to choose hospitality accommodations built on the principles of sustainability. Metcalf and Benn (2013) demonstrated that high emotional intelligence of a leader is an important precursor toward an effective implementation of corporate social responsibility (CSR) strategy in the organization. Carmeli (2003) found that emotional intelligence augments managers' altruistic and positive behaviors. CSR as well as altruism are considered to be constructs akin to sustainable behaviors, in the sense that all these behaviors are oriented towards subjective well-being

(Corral-Verdugo et al., 2011; Foscht et al., 2018). Kadic-Magljacic et al. (2019) found emotional intelligence to be a significant predictor of young consumers' pro-environment behaviors. Chowdhury (2017) suggests that high emotional intelligence facilitates consumers' "doing-good" actions such as pro-environmental and ethical consumption decisions. Based on the foregoing discussion, it is anticipated that physical activity/exercise enhances consumers' emotional intelligence, which in turn will result in a higher intention to engage in sustainable consumption behaviors. Thus, it is hypothesized that:

**H<sub>2</sub>:** *Trait- (ability-) based emotional intelligence mediates the effect of regular (immediate) physical activity/exercise on consumers' sustainable consumption behaviors.*

## 2.5 | Do consumers get the message? Moderation of explicit versus implicit sustainability claims

When it comes to effectively driving marketing communication on a topic like sustainable consumption, which is marred by consumers' ambiguity and skepticism (Acuti et al., 2022; Y. N. Cho & Taylor, 2020; Leonidou & Skarmas, 2017), accompanied with the lack of reasonable knowledge to differentiate among sustainability cues (Janßen & Langen, 2017), marketers have a challenging decision whether to "hard-sell" (i.e., use direct claims that explicitly outline the sustainability appeal) or "soft-sell" (i.e., use subtle claims that implicitly indicate the sustainability appeal) (Kardes et al., 1994) the sustainability message.

In H<sub>2</sub>, we hypothesized the mediation of emotional intelligence in the relationship between consumers' physical activity/exercise and their enhanced propensity to engage in sustainable consumption behaviors. In H<sub>3</sub>, we introduce the boundary condition of explicit versus implicit sustainability message claim on this mediating relationship. We anticipate that the positive effect of physical activity/exercise on emotional intelligence and subsequently on sustainable consumption behavior will be strengthened (a moderated-mediation hypothesis) by explicit (vs. implicit) claim of sustainability in the marketing communication. In the context of sports, Thiffault (1980) demonstrated that a tachistoscopic (which is akin to explicit cue) presentation of game situation enhanced the decision-making performance of ice-hockey sportspersons. Moderate-intensity exercise enhances the information processing capability of individuals by making both sensory and motor operations of subjects more effective (Davranche et al., 2005). As such, when the exercise stimulus is bolstered by an explicit presentation of sustainability information, the consumer would be in a superior cognitive and affective frame of mind to process the given information, draw judgments and make a decision. White, Habib, et al. (2019) outline the important role of tangible, nonabstract marketing cues in promoting consumers' sustainable choices. Grazzini et al. (2018) demonstrate that the construal level of the message moderates the impact of loss-gain framing on hotel guests' recycling behavior, such that concrete (over abstract) messages when paired

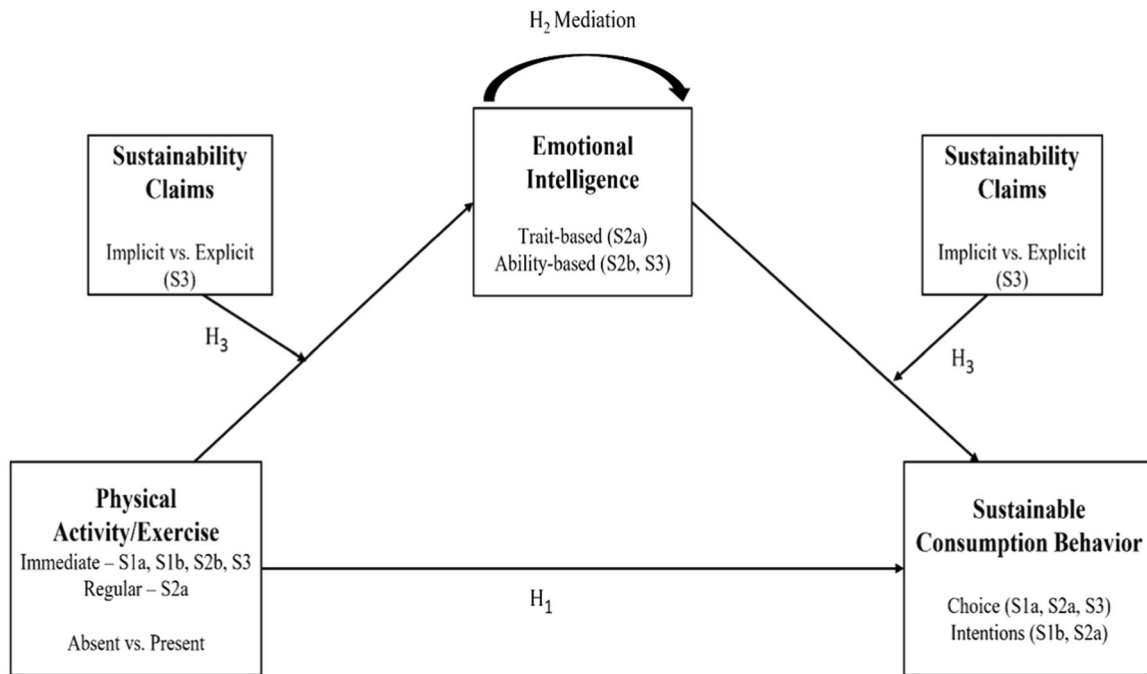
with loss-frame, are more effective in increasing self-efficacy and subsequently the sustainable choice behaviors of consumers.

Information diagnosticity is dependent on the implicit versus explicit nature of marketing cues (Kardes et al., 1994; van Ooijen et al., 2017). While Kardes et al. (1994) find that consumers who perceive that they lack sufficient context-specific knowledge rely on explicit cues to make diagnostic inferences, they also acknowledge that self-monitoring influences the decisions and judgments following such inferences. Consumers' knowledge structures with regard to sustainable consumption are marred by skepticism, and there is a "knowledge-to-action" gap when it comes to consumers translating sustainable consumption information into actions (Markkula & Moisaner, 2012). As such, consumers maybe doubtful about their own knowledge structures with regard to sustainable consumption, and in such a situation, exercise would enhance their belief about sustainable choice being "right" (as outlined in H<sub>1</sub>), and explicit sustainability message would strengthen the information processing capability, as well as the self-efficacy (Sultan et al., 2012) required to perform the "right" behaviors. Moreover, physically active consumers are characterized by an enhanced focus on weighing the goal-relevant information and the unlikelihood to favor "desirability" attributes over "feasibility" attributes (Zimmermann & Chakravarti, 2022). As such, when presented with sustainable goal-relevant information with explicit framing, consumption decisions of physically active consumers are expected to be less marred by dilution effect. However, implicit sustainability claims are not compatible with either enhanced emotional intelligence (in terms of better decision-making capabilities) or superior self-efficacy in terms of behavioral manifestation of making the "right" consumption choice.

In sum, we expect that positive impact of physical activity/exercise on emotional intelligence will be strengthened (positively moderated) by explicit sustainability claim, as such additional and clear information would further enhance consumers' emotional intelligence in terms of self-efficacy and decision-making capability. Furthermore, the positive impact of emotional intelligence on sustainable consumption choice behavior will also be strengthened by explicit sustainability claim, as detailed/explicit information would foster consumers' belief that sustainable buying is the "doing-good" action (Chowdhury, 2017). We do not anticipate such a moderation in case of implicit sustainability claim, after all, in this case the consumer would not have clear information cues that would aid his/her self-efficacy to facilitate decision-making and subsequent behaviors.

**H<sub>3</sub>:** *The mediation relationship posited in H<sub>2</sub> is moderated by sustainability message claim, such that the relationship is strengthened when the sustainability claim is explicit than implicit.*

The conceptual framework of the study is shown in Figure 1, along with hypothesized relationships. Table 2 highlights the details of five studies conducted to test the proposed hypotheses. The five studies conducted are described in detail in the following sections.



**FIGURE 1** Conceptual framework

**TABLE 2** Summary of studies conducted to test the hypothesized relationships

Study	Design	Predictor	Mediator	Moderator	Outcome	Controls
S1a	Field experiment in retail stores	Physical activity/exercise as an intervention (Absent vs. Present)			Product choice (Product: sustainable vs. non-sustainable diary)	Age, gender
S1b	Pre-registered experiment	Physical activity/exercise as an intervention (Absent vs. Present)			Purchase intention (Product: sustainable vs. non-sustainable dinnerware collection)	Age, gender, attitude toward the ad, and environmental concern
S2a	Cross-sectional survey	Regular physical activity/exercise as a lifestyle	Trait-based emotional intelligence		Sustainable product purchase intention	Age, gender and environmental concern
S2b	Simulated field experiment	Physical activity/exercise as an intervention (Absent vs. Present)	Ability-based emotional intelligence		Product choice (product: sustainable vs. non-sustainable shampoo)	Age, gender, and environmental concern
S3	Field experiment in retail stores	Physical activity/exercise as an intervention (Absent vs. Present)	Ability-based emotional intelligence	Sustainability claim (explicit vs. implicit)	Product purchase (Product: bisphenol A (BPA)-free water bottles)	Age, gender

### 3 | STUDY 1A: THE EFFECT OF PHYSICAL ACTIVITY ON CONSUMERS' SUSTAINABLE CHOICES

Taking inspiration from axiom 1 of ecological validity (Van Heerde et al., 2021) which prescribes researchers to look into the real world of marketing rather than just the literature, we conducted field experiment to capture consumers' actual behavior. Study 1 employed a one-factor (physical activity/exercise: present vs. absent) between-subjects field

experiment (Sarkar et al., 2020) to assess the impact of immediate physical activity/exercise on consumers' sustainable choices.

#### 3.1 | Method

We conducted Study 1a in two physical stores of a popular omnichannel multiproduct retail brand in India. The facilities are hypermarkets of the same brand, both located in shopping mall



premises in the National Capital Region (NCR), and carry a wide range of products (e.g., food, grocery, clothing, stationery, toys, exercise equipment, kitchen utensils, grooming products) and offer multiple brands in each product category. We contacted the facility managers, briefed them about the purpose of research, and requested them for the research to be conducted, with the research cost being borne by the researchers. We conducted the study in the months of October–November, 2021, which is a festive season in India.

For the experiment conditions, the participants not exposed to physical exercise (Group 1—corresponding to hypermarket facility 1) were debriefed about an ongoing festive season's free gift. They could choose between a sustainable diary of a popular FMCG brand in India, which was made from ozone-treated paper, free from elemental chlorine, or a regular (non-sustainable) diary from the same brand, but with 500 leaflets more than the sustainable diary. The participants were informed that Maximum Retail Price (MRP) for both the diaries was the same.

The participants exposed to physical exercise (Group 2—corresponding to hypermarket facility 2) were informed about a festive season's challenge, where they had a chance to win a sustainable or a regular (non-sustainable) diary, provided they completed a challenge of two rounds of 300 jump ropes or 300 basketball dribbles in 3 min per round. Please see Appendix A for the stimulus and product choices.

A total of 162 respondents participated in the experiment (57.7% male and mean age = 37.8 years). We tracked the metabolic equivalent of task (MET) score for each respondent (more details about MET are provided in Study 2) using a Fitbit device, and found a statistically significant difference in the mean MET for control, that is, non-exercise group ( $M = 3.76$ ) versus exercise group ( $M = 6.92$ ) ( $t = 7.96$ ,  $p < 0.05$ ), thus establishing the effectiveness of our manipulation.

### 3.2 | Results

We first conducted a  $\chi^2$  test to assess  $H_1$ . The data fulfilled the criterion of all observations being independent and cells in the contingency table being mutually exclusive. No cell had an expected count below 5.

The relation between physical activity and sustainable choice was found to be significant ( $\chi^2_1 = 12.45$ ,  $p < 0.001$ ). Shoppers who were exposed to exercise were more likely to make a sustainable product choice than those who were not exposed to exercise, and the difference was statistically significant. The  $\phi$  coefficient was 0.319 ( $p < 0.001$ ) (Guilford, 1941), while the odds ratio was 4.324 (Ferguson, 2016) indicating medium to large effect size.

Next, binary logistic regression was carried out by taking sustainable product choice as a dependent variable and exercise as an independent variable. The omnibus test  $\chi^2$  was significant ( $\chi^2 = 12.271$ ;  $p < 0.001$ ). The Cox and Snell  $R^2$  was 0.06 and Nagelkerke  $R^2$  was 0.09. Exercise was found to be a significant predictor of sustainable product choice ( $B = -1.184$ ; Wald = 11.71;  $p = 0.001$ ; Exp ( $B$ ) = 0.31).

### 3.3 | Discussion

The findings of study 1a revealed that engaging in physical activity/exercise results in a significant increase in choosing sustainable products. We found consumers who were in exercise present conditions were more likely to choose a sustainable instead of a regular (non-sustainable) dairy product compared to those in the exercise absent condition.

## 4 | STUDY 1B: REPLICATION OF THE EFFECT OF PHYSICAL ACTIVITY ON CONSUMERS' SUSTAINABLE PURCHASE INTENTIONS

The objective of Study 1b was to replicate the main effect of physical activity on consumers' sustainable purchase intention. We registered this study before collecting the data on Aspredicted.org ([https://aspredicted.org/PJG\\_MR6](https://aspredicted.org/PJG_MR6)).

### 4.1 | Method

Two-hundred US participants (58.0% female and mean age = 30.69 years) recruited from Prolific Academic in exchange for a nominal payment were randomly assigned to one of the two experimental conditions (physical activity: present vs. absent) using a between-subjects design. Participants were asked to imagine visiting a home improvement store and finding that it was running a giveaway contest in which 100 shoppers could win \$300 cash or gift cards. In the physical activity present condition, participants were required to do 20 squats to enter the giveaway contest. Participants watched a video of a person doing 20 squats and visualized themselves doing the squats. In the exercise absent condition, the participants must simply sign up to enter the giveaway contest. Participants then came across an advertisement for eco-friendly Fern Dinnerware Collection. Fern Dinnerware Collection is a natural and earthy heavy-duty dinnerware collection that combines durability with sustainable decision. Each piece was handcrafted in the eco-conscious factory using all-natural clay, reclaimed water, and recycled scrap materials from previous productions. It is finished with a nontoxic reactive glaze that provides a unique mottled color pattern with tonal variations unique to each piece, enhancing their one-of-a-kind charm.

Following the evaluation of the stimulus, we elicited sustainable purchase intention (three-item scale adapted from Suki, 2016;  $\alpha = 0.91$ ), manipulation check (four item volitional energy expenditure scale adapted from Stults-Kolehmainen et al., 2021), environmental concern (four-item scale adapted from Roberts & Bacon, 1997;  $\alpha = 0.81$ ), attitude toward the advertised product (two items adapted from Lancellotti & Thomas, 2018;  $r = 0.69$ ), and demographic items (age and gender).

## 4.2 | Results

The manipulations worked as intended. Those in the exercise present condition ( $M = 6.04$ ,  $SD = 0.74$ ) reported that they had to engage in higher energy expenditure to enter the giveaway contest than those in the exercise absent condition ( $M = 2.91$ ,  $SD = 1.40$ ,  $F_{1,198} = 392.31$ ,  $p < 0.001$ , partial  $\eta^2 = 0.665$ ).

An ANOVA was carried out with sustainable purchase intention as the dependent variable and exercise conditions as a fixed factor. The results showed a significant main effect of the exercise condition on sustainable purchase intention ( $F_{1,198} = 7.05$ ,  $p = 0.009$ , partial  $\eta^2 = 0.034$ ), such that the sustainable purchase intention was higher in the exercise present condition ( $M = 4.62$ ,  $SD = 1.10$ ) than in the exercise absent condition ( $M = 4.16$ ,  $SD = 1.34$ ). Also, the addition of age ( $p = 0.055$ ), gender ( $p = 0.111$ ), attitude toward the advertised product ( $p < 0.001$ ), and environmental concern ( $p = 0.709$ ) as covariates in the model did not change the significance of the main effect of exercise on sustainable purchase intention ( $F_{1,194} = 4.010$ ,  $p = 0.047$ , partial  $\eta^2 = 0.020$ ).

## 4.3 | Discussion

The findings of Study 1b indicate that physical activity/exercise increases consumers' sustainable purchase intention. This, together with the findings of Study 1a (sustainable product choice), established the effect of physical activity/exercise on sustainable consumption behavior. Furthermore, the results persisted even after controlling for the role of age, gender, attitude toward the ad, and environmental concern. These studies illustrate the role of physical activity/exercise, but they offer no explanation as to why it increases sustainable consumption behaviors. Consequently, we designed the next two studies to investigate the underlying mechanism of emotional intelligence behind the physical activity/exercise effect on sustainable consumption behaviors. In Study 2a, we examine the role of trait-based emotional intelligence in the relationship between regular physical activity/exercise on sustainable consumption behavior. In Study 2b, we investigate the mediating role of ability-based emotional intelligence in the effect of immediate physical activity/exercise on sustainable consumption behavior.

## 5 | STUDY 2A: MEDIATION OF TRAIT-BASED EMOTIONAL INTELLIGENCE IN THE EFFECT OF REGULAR PHYSICAL ACTIVITY/EXERCISE ON SUSTAINABLE CONSUMPTION BEHAVIOR

Study 2a examines the underlying mechanism by which physical activity/exercise influences sustainable consumption behavior. Specifically, we investigate the role of trait-based emotional intelligence in the relationship between regular physical activity/exercise and sustainable purchase intention.

## 5.1 | Method

We recruited 322 US Qualtrics respondents to take part in the survey. Out of the total responses received, seven respondents were excluded as the responses were incomplete. Hence, 315 responses were considered for final analysis (53.0% males; mean age = 36.0 years). Regular physical activity/exercising was measured following the approach suggested by De Moor et al. (2006). First, the participants were asked to mention whether they exercised on a regular basis ("Yes" or "No"). The participants who responded affirmatively were requested to provide additional information on type, frequency, and duration of exercises done by them. The information was gathered to compute the MET score for each respondent which is an index for metabolic energy expenditure. The MET score<sup>4</sup> represents the rate of energy expended by individual while resting (1 MET = 1 kcal/kg/h). The respondents were classified as "regular exerciser" if they exercised for at least 60 min per week with a MET score of 4 or more. In this study we considered all types of MET scores to increase variability in our data.

Trait-based emotional intelligence scale was adapted from Gabbott et al. (2011). This is a 16-item higher-order scale with three first-order dimensions: ability to deal with own emotions, ability to deal with others' emotions, and ability to use emotions to facilitate thinking. Similar to Study 1b, sustainable purchase intention was measured with three-items adapted from Suki (2016). We controlled for respondents' age, gender, income, and education.

## 5.2 | Results

The measurement model was tested by correlating emotional intelligence dimensions with sustainable product purchase intention and running a confirmatory factor analysis. The measurement model achieved a satisfactory fit (CMIN/DF = 3.56; CFI = 0.93; RMSEA = 0.09). The composite reliability values were all greater than 0.80. Table 3 presents the scale items.

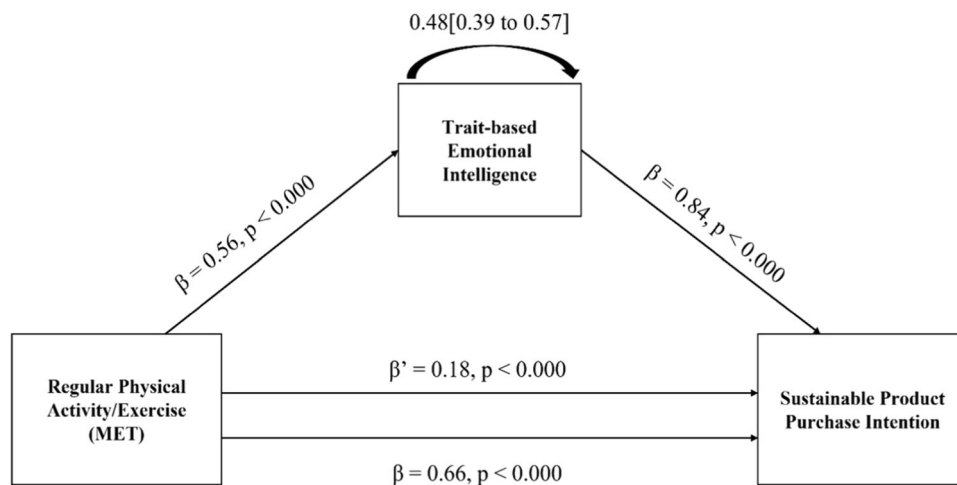
We used PROCESS Model 4 (Hayes, 2017) to test  $H_2$ . We found that trait-based emotional intelligence mediates the relationship between regular physical activity/exercise on sustainable product purchase intention as the 95% confidence intervals (CIs) of the indirect effect did not include zero (indirect = 0.48,  $SE = 0.05$ ,  $CI = 0.39-0.57$ ). Regular physical activity/exercise has a significant positive effect on trait-based emotional intelligence ( $\beta = 0.57$ ,  $p < 0.001$ ). Emotional intelligence had a significant positive impact on sustainable product purchase intention ( $\beta = 0.84$ ,  $p < 0.001$ ). The direct effect of regular physical activity/exercise on sustainable product purchase intention ( $\beta = 0.66$ ,  $p < 0.001$ ) reduced when emotional intelligence was included in the analysis ( $\beta' = 0.18$ ,  $p < 0.001$ ). These findings provide support for  $H_2$ , showing that the effect of regular physical activity/exercise on sustainable product purchase intention is mediated by trait-based emotional intelligence. Figure 2 presents the results of the mediation analysis.

<sup>4</sup><https://metscalculator.com/>



**TABLE 3** Scale items used in study 2 and CR values

Construct items	CR
Emotional intelligence: ability to deal with own emotions	
I am aware of the events that can trigger my positive or negative emotions	0.81
I am aware of my emotional state when I engage in any activity	
When I am experiencing something, I can easily identify the emotions I am feeling	
I can appear calm even when I am upset with others	
If I am upset with others, I can make myself feel better quickly	
When I am frustrated with others, I can overcome my frustration	
Emotional intelligence: ability to deal with others' emotions	
When I talk to others, I can gauge their reactions from their facial expression	0.83
When I talk to others, I can gauge their reactions from their tone of voice	
When I talk to others, I can gauge their reactions from their body language	
If I choose to, I am able to help others see the positive side of negative events	
If others are unhappy, I am able to cheer them up if I choose to	
If others become frustrated, I am able to help them overcome this feeling if I choose to	
I feel happy when I see that people are treating others well	
I get upset when I see that people are taking advantage of others	
Emotional intelligence: ability to use emotions to facilitate thinking	
I do not let my emotions overcome my thinking when I am problem-solving	0.85
When facing a delicate problem, I can generate the right emotion to help me solve it	
Sustainable product purchase intention	
I intend to buy sustainable product because of environmental concern	0.81
I expect to purchase sustainable product in the future because of its environmental benefits	
Overall, I am glad to purchase sustainable product because it is environmentally friendly	

**FIGURE 2** Mediation results of emotional intelligence (Study 2a). Figures in brackets are 95% confidence intervals.

### 5.3 | Discussion

The study findings provide support for the mediating role of ability-based emotional intelligence in the relationship between regular physical activity/exercise on sustainable product purchase intention. We investigate whether immediate physical activity/exercise influences sustainable consumption behavior via ability-based emotional intelligence in the following study.

## 6 | STUDY 2B: MEDIATION OF ABILITY-BASED EMOTIONAL INTELLIGENCE IN THE EFFECT OF IMMEDIATE PHYSICAL ACTIVITY/EXERCISE ON SUSTAINABLE CONSUMPTION BEHAVIOR

While Study 2a tested the effect of regular exercise, Study 2b confirms the mediating role of ability-based emotional intelligence in the relationship between immediate physical activity and sustainable consumption behavior.

### 6.1 | Method

As part of induction program of the incoming batch of students at a reputed business school in India, a store simulation activity was planned. A total of 450 students participated in the immediate physical activity in batches of 30–45 students. The student batches were randomly assigned to one of the two conditions: physical activity absent and physical activity present. The physical activity present condition required students to walk a distance of about 1 km from their student residence to the registration desk. Following the registration, the students responded to the ability-based emotional intelligence scale adapted from Kidwell et al. (2011) (Supporting Information: Appendix B). They were then apprised of a complementary welcome product being gifted as part of their induction, where they could choose any one of the two brands being offered. In the physical activity absent conditions, the students completed the registration in the student residency and following this responded to the ability-based emotional intelligence scale, and chose the complementary welcome product that they would like to receive as a gift. As a complimentary product, a 180 ml shampoo bottle was provided. There were two brands of shampoo available for students to choose from. They were informed that both brands offer similar benefits at similar prices (Brand A—a popular shampoo brand that enjoys a high market share in India, but not a sustainable brand and Brand B—a newly launched brand, which is a sustainable brand).

### 6.2 | Results

The findings of the regression analysis with physical activity condition as an independent variable on ability-based emotional intelligence as

a dependent variable were significant ( $F_{1,448} = 147.97, p < 0.001$ ). Immediate physical activity has a significant positive impact on ability-based emotional intelligence ( $\beta = 1.58, p < 0.001$ ). The logistic regression model with ability-based emotional intelligence on sustainable product choice was significant (Model LL = 58.73;  $df = 2; p < 0.001$ ). Furthermore, immediate physical activity/exercise has a positive direct effect on ability-based emotional intelligence ( $\beta = 1.58, p < 0.001$ ). Taken together, the results indicate that ability-based emotional intelligence to mediate the effect of immediate physical activity/exercise on sustainable consumption behaviors. This supports  $H_2$ .

### 6.3 | Discussion

The findings of Studies 2a and 2b provide support for the mediating role of ability-based and trait-based emotional intelligence in the relationship between immediate and regular physical activity/exercise on sustainable consumption behaviors.

## 7 | Study 3: BOUNDARY CONDITION OF SUSTAINABILITY CLAIMS

The objective of Study 3 was to test the moderation of sustainability claims (explicit vs. implicit) on the effect of physical activity/exercise (immediate) on sustainable consumption behavior, via the mediation of emotional intelligence (ability-based).

### 7.1 | Method

We employed a 2 (physical activity: present vs. absent)  $\times$  2 (sustainability claim: explicit vs. implicit) between-subjects field experiment. The outcome variable, that is, sustainable product choice was captured as a binary variable (yes: buys the sustainable product vs. no: does not buy the sustainable product).

According to the store managers, water bottles are a fast-moving product from the shelves, so we selected eco-friendly bisphenol A (BPA)-free water bottles. BPA-free bottles are largely being designed by brands as an initiative toward sustainable product design (Lewis, 2012). The explicit sustainability claim had an eco-friendly bottle with a packaging that clearly stated that the bottle was BPA free, 100% recyclable and re-usable, food grade, odorless, unbreakable and hygienic. The implicit sustainability claim only had BPA free mentioned on the bottle in a subtle font, without any further elaboration. The bottles each had a capacity of 1 L and were priced at INR 499.

The experimental setting (facilities chosen) was the same as Study 1, and the shoppers who were screening water bottles were gently nudged to check the new range of bottles on shelf. In exercise condition, we invited customers who were shopping for eco-friendly bottles to undergo a complementary 7-min complete body vibration

massage using a massage chair<sup>5</sup> which is a deep oscillation device (Kraft et al., 2013). A total of 246 respondents participated in the experiment groups (71.1% male and mean age = 33.6 years). The participants in the exercise absent condition were not extended any such invitation for massage while they were shopping for eco-friendly bottles, but their purchase behavior was observed. We tracked the MET score for each respondent using a Fitbit device, and found a statistically significant difference in the mean MET for control, that is, non-exercise group ( $M = 3.41$ ) versus exercise group ( $M = 7.32$ ) ( $t = 10.88$ ,  $p = 0.002$ ), thus establishing the effectiveness of our manipulation. Please see Supporting Information: Appendix C for the stimulus and product choices.

## 7.2 | Results

PROCESS Model 58 (Hayes, 2017) was used to test the moderating role of explicit versus implicit sustainability claim in the effect of exercising on emotional intelligence as well as the effect of emotional intelligence on sustainable product choice.

Both linear regression ( $F_{3,240} = 49.99$ ;  $p < 0.001$ ) as well as logistic regression models (Model LL = 54.24;  $df = 4$ ;  $p < 0.001$ ; Nagelkerke  $R^2 = 0.31$ ) were significant. MET score was taken as a continuous measure indicator. The results showed that physical exercising indicated through MET score had a significant effect on emotional intelligence ( $\beta = 1.16$ ;  $p = 0.001$ ; LLCI = 0.45; ULCI = 1.87) as well as on sustainable product choice ( $\beta = 0.46$ ;  $p = 0.022$ ; LLCI = 0.06; ULCI = 0.85). The effect of ability-based emotional intelligence on sustainable product choice ( $\beta = 0.26$ ;  $p = 0.009$ ; LLCI = 0.06; ULCI = 0.46) was also significant.

The interaction effect of MET and sustainable product information (Explicit vs. implicit) on emotional intelligence was not found to be significant ( $\beta = 0.19$ ;  $p = 0.419$ ; LLCI = -0.27; ULCI = 0.66). The interaction effect of emotional intelligence and sustainable product information (Explicit vs. implicit) on sustainable product choice was found to be significant ( $\beta = 0.46$ ;  $p = 0.025$ ; LLCI = 0.06; ULCI = 0.86). The findings of the Dawson analysis (Dawson, 2014) (see Figure 3) shows that as emotional intelligence increases, the likelihood of consumers to purchase sustainable product increases. These findings provide partial support for  $H_3$ .

## 7.3 | Discussion

The findings of Study 3 show that sustainability claims moderate the relationship between emotional intelligence and sustainable product choice, but not for the effect of exercise on emotional intelligence. A plausible reason could be that exercise leads to enhanced ability-based emotional intelligence, irrespective of the exposure to sustainable product information stimuli, explicit or implicit. Thus,

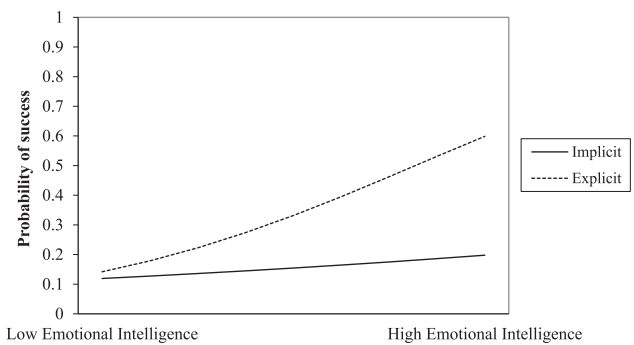


FIGURE 3 Dawson plot for Study 3

sustainability claims have no significant differential roles to play in the effect of exercise on emotional intelligence.

## 8 | GENERAL DISCUSSION

What would make a consumer actually buy a sustainable product? Findings from the present research explicate that physical activity/exercise is one of the key factors to determine consumers' sustainable behaviors. The findings from Studies 1a and 1b establish a direct link between physical activity/exercise and customers' sustainable consumption behaviors. Studies 2a and 2b reveal that emotional intelligence is the underlying mechanism by which physical activity/exercise impacts sustainable consumption behaviors. Furthermore, we show that while trait-based emotional intelligence may explain the effect of regular physical activity/exercise on sustainable consumption behavior, ability-based emotional intelligence is the underlying mechanism for the effect of immediate physical activity/exercise on sustainable consumption behaviors. Finally, the findings from Study 3 demonstrate that sustainability message claims moderate the effect of emotional intelligence on sustainable consumption behaviors.

### 8.1 | Theoretical contributions

The present study makes several contributions to the marketing and consumer behavior literatures. First, this research is one of the pioneering efforts to extend the literature that investigates the impact of exercise on consumer behavior (see Table 1) to understand the impact of exercise in enhancing consumers' sustainable consumption as a self-rewarding behavior. We assimilate the findings from biomedical, clinical, and sports research into consumption domain, to demonstrate that exercise promotes consumers' virtuous consumption endeavors such as sustainable choice behaviors. While rewards in extant marketing literature have largely been conceived as marketer-induced incentives (e.g., Teichmann, 2021), we draw on dopamine hypothesis of reward to postulate the use of exercise as a marketing intervention to elicit consumers' self-rewarding/intrinsically rewarding behaviors. The quest to understand consumer

<sup>5</sup><https://trendtofit.com/best-massage-chair/>

behavior grounded in the dopamine hypothesis of reward is directed toward understanding the evolutionary psychology in the marketing domain, i.e., “why” reasons behind product purchases and consumer behaviors (Otterbring, 2021).

Second, there is much evidence that exercise has physiological and psychological health benefits. However, most of the extant research is grounded in understanding the impact of physical activity on cognitive aspect of the decision-making (e.g., Bollimbala et al., 2019; Sultan et al., 2012; Zimmermann & Chakravarti, 2022), which leaves the affective part of decision-making unaddressed (Shiv & Fedorikhin, 1999). The present research addresses the impact of physical activity on the affective part of consumer-decision making by investigating the impact of exercise-generated dopamine on consumers' affective responses (specifically emotional intelligence).

Third, we extend the findings of Sleep et al. (2020), who posit that firms need to recruit sales persons with high emotional intelligence. We extend this paradigm to recruiting the right customer. Through empirical evidence, we drive the necessity of firms to recruit customers with high emotional intelligence, especially when the firm would want to reinforce sustainable consumption behaviors.

Fourth, the current literature seems divided if marketers should “hard-sell” or “soft-sell” sustainability message/information (e.g., Granato et al., 2022; Steenis et al., 2017;). This problem is also compounded with the fact that a lot of seemingly “similar” products on store shelves may confuse the consumer so that s/he may not buy the product at all (J. Cho & Janda, 2021). We contribute to this conundrum of how to effectively design sustainability cues so as to efficiently drive consumers' actual purchase, by elucidating that physical activity accompanied with explicit sustainability claim/information may be one of the drivers of sustainable product purchase behaviors.

## 9 | MANAGERIAL IMPLICATIONS

Retailers keenly strive to differentiate their reward programs from their competitors, as well as to enhance the design and effectiveness of these programs (Minnema et al., 2017). The findings from our research offer valuable insights to retailers by suggesting that physical activity/exercise could be well utilized as a strategic intervention to stimulate reward functions in consumers' brains, such that they indulge in self-rewarding virtuous consumption behaviors (such as sustainable consumption) while also pruning vicious consumption behaviors. In doing this we also provide a strategy to extend the “gift strategy” implications of Das et al. (2021) by positing exercise as an intervention to catch the “elusive” green consumers through inducing “self-gifting” (rewarding) behaviors. We anticipate that such intervention would work better than “free samples” in nudging actual consumer behavior, by reducing consumers' skepticism about the paradox of free gifts (Gudeman, 2001).

Implications of findings from Study 2 lie in segmenting the consumer markets, such that firms with sustainable offerings must

look at the segment which incorporates regular exercise as a lifestyle. Periodic tests/surveys may be conducted to assess lifestyle as well as the ability/trait-based emotional intelligence of consumers, so as to effectively identify and target the segment. Kidwell and Hasford (2014) propose that consumers high (low) on emotional intelligence will thoughtfully consider (automatically react to) meanings of emotions (emotional cues). Furthermore, they propose that convergence of emotional abilities of consumers and salespersons, that is, high (low) emotional intelligence of both consumer and the salesperson would result in most successful interactions, resulting in higher consumer satisfaction and long-term relationships. Firms can track consumer purchase decision-making history and well utilize this knowledge to direct heuristic-based communication to consumers with low emotional intelligence, while invoking deliberate information processing would work well for consumers with high emotional intelligence. Firms can also use consumer and salesperson purchase/interaction history to arrive at best consumer-salesperson pairings based on their respective emotional intelligence, to maximize customer satisfaction and long-term customer retention.

With high consumer skepticism towards sustainability claims (Mukendi et al., 2020), it is a challenging decision for sustainable product marketers to decide on the appropriate advertising strategies. Grounded in findings from Study 3, we suggest that marketers aid physical activity-based interventions with explicit sustainability claims to better facilitate consumers' sustainable purchase. This may be done by inviting consumers to participate in low to moderate intensity physical activities/challenges, or even simply extending the invitation to enjoy a relaxing oscillating massage. Combined with findings from Study 2, we also suggest that for consumers who report engaging in physical exercise on a regular basis should be exposed to explicit sustainability claim (rather than generic sustainability claims), clearly outlining the attributes, processes and benefits of the sustainable product.

## 10 | LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The benefits of physical activity are widely recognized and may well extend beyond sustainable purchase behavior to include other virtuous consumption behaviors. Future research could extend this position to investigate impact of exercise in enhancing ethical consumption behaviors as well as in curbing negative/vicious consumption behaviors. Further, to keep the meaningful parsimony of our research intact, we have restricted our studies to only small number of products. Sustainability is a much broader phenomenon, and therefore to generalize the findings to other product classes, contexts or industries, additional research should be conducted. Covid 19 pandemic has motivated stakeholders to share data (Viglia et al., 2021), and future research works may leverage on this understanding to request/collect consumer data on variables such as body mass index to assess the roles of such variables of salience

(Bollimbala et al., 2019) in determining consumers' fitness and its impact on their consumption behaviors.

Our findings are limited to leisure physical activity. Zimmermann and Chakravarti (2022) state the results of exercise vary for leisure versus occupational physical activity, and this forms an interesting avenue for future research. Furthermore, future research should aim at investigating the impact of other forms of physical activity stimuli (such as dance/aerobics/strength activities), the intensity of the exercise as well as the time of engagement in the physical activity on consumers' emotional intelligence as well as their behaviors. Next, while we do study the impact of explicit versus implicit sustainability claims in aiding sustainable purchase behaviors of consumers who exercise, we do not investigate if this mechanism is routed through an enhanced understanding of sustainability message and/or a reduced skepticism about sustainability claim. This understanding is important to best design sustainability messages that would be most effective in driving sustainable choice behavior, and should be pursued by researchers.

Lastly, consumers' pursuit of sustainable consumption would depend on a lot of factors other than physical activity, such as their socioeconomic status (Kim et al., 2022), narcissism and faith in humanity (Bowen et al., 2022), generational cohort (Casalegno et al., 2022), and mindfulness (Kaur & Luchs, 2021). The integration of such consumer-related factors that shape sustainable consumption along with physical activity should be pursued by future research.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the first author upon reasonable request.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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