



Golf Participation, Mindfulness, Emotion Regulation, and Perceived Stress: A Comparative Study of Golfers and Non-Golfers

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Abstract

Golf has increasingly been recognised as a sport associated with psychological wellbeing through mechanisms such as mindfulness, emotional regulation, and stress reduction. But little research has explored these connections between golfers and non-golfers, and taken into account the impact of demographic variables. The current study set out to investigate the relationship between golf participation, mindfulness, emotion regulation and perceived stress and to determine if there was any difference in these psychological variables tied to golf participation. A total of 48 participants (39 golfers and 9 non-golfers) met the inclusion criteria and completed the Emotional Regulation Questionnaire (ERQ), State Mindfulness Scale (SMS), and Perceived Stress Scale (PSS). data were analyzed using descriptive statistics, Welch's independent sample T tests, Mann-Whitney U tests, Pearson and Spearman correlations, and multiple linear regression analyses controlling for age. Initial analyses revealed significantly less perceived stress for golfers compared to non-golfers, although this was not the case when controlling for age which was the better predictor of perceived stress; no differences were found between golfers and non-golfers in emotion regulation, or state mindfulness. Within the golfer group, greater years of golfing experience were associated with lower perceived stress, whereas participation at a more competitive level was associated with higher perceived stress. Furthermore, mindfulness was positively associated with emotion regulation across the entire sample. Overall, the findings suggest that although golf participation alone may not directly improve mindfulness or emotion regulation, long term engagement and the context of participation may influence psychological well-being. Future research should employ larger, more demographically balanced samples to further investigate these relationships.

Keywords: *Golf; Mindfulness; Emotion Regulation; Perceived Stress; Psychological Wellbeing; Sports Psychology*

1. INTRODUCTION

Golf is a sport that requires specific cognitive, emotional and psychological requirements on its participants (Nicholls et al., 2005). Contrary to many other sports that involve high levels of intensity or speed, golf is distinguished through its long period of activity, repetitive cycles of performance and a high degree of self-regulation. Golfers are required to make attentive decisions, sustain concentration throughout the game, and keep a steady mind no matter the success or failure. These factors are what make golf a sport that is especially relevant to psychological processes such as emotional regulation, attention control and mindfulness. Golf offers a unique perspective on the mechanisms through which participation in sports can lead to better psychological well-being (Murray et al., 2017).

Over the last few years, research in the sports psychology department has begun considering the broader psychological effects of sports participation. There has been growing recognition that the structure and nature of a sport may influence the type and extent of psychological benefits experienced (Eime et al., 2013). The benefits such as reflection, patience, and deliberate action may foster different psychological outcomes compared to those driven by speed or physical dominance. The slow pace at which golf is played enforces individual responsibility as well as consistency that may encourage psychological benefits linked to mindfulness and emotional stability.

The term “mindfulness” has been identified as a psychological construct defined as present moment awareness with attention, acceptance and non-judgement (Kabat-Zinn, 2003). It has regularly been associated with emotional

regulation, enhanced mental well-being and stress reduction. With regard to sports, the benefits of mindfulness have been known to include concentration, pressure management and error recovery. Golf has a unique structure in the sense that it requires pre-shot routines, pauses between shots, and reflective decision making, similar to the mindfulness based approach. It has also been suggested that playing golf naturally enhances the mindfulness of players (Zhang et al., 2021).

People who play golf must constantly practice attentional resetting. After every shot, players need to assess the result, come to terms with it and eventually move on to the next objective. Golf places full responsibility on individuals to regulate their own attention and emotions without instantaneous external cues on the player, and contrast to sports where play is continuous and externally driven. The mindfulness principles which emphasize accepting results and returning attention back to the present are in line with this repeated cycle of action, adjustment and reflection. As a result of this, practicing golf has the potential to eventually improve emotional fortitude and attentional control possibly going beyond the actual sport.

Furthermore, there is empirical evidence which supports the relationship between the practice of golf and positive psychological outcomes. Quantitative research has also revealed that golfers tend to have lower levels of psychological distress and higher levels of perceived mental well-being compared with the general population norms (Sorbie et al., 2022). Although no causal relationship is proven through this research, a positive relationship can be observed between playing golf and positive psychology. Qualitative research also shows that golf is seen as a calming and balancing sport for the mind. Golfers have been known to mention factors like focus in routine while in the playing environment as potential reasons for a balanced state of psychology (Andersen et al., 2019).

However, one of the major reasons for these outcomes lies in mindfulness as a mediating factor. Thus, it has been argued that golf does not have a direct impact on well-being, instead, it has been argued that golf promotes mindfulness, which then has a positive impact on mental well-being. Research has shown that mindfulness among sportsmen has a positive impact on mental well-being such as reduced levels of burnout and increased levels of vitality through satisfaction of psychological needs such as autonomy, competence, and relatedness (Zhang et al., 2021). Golf has a unique ability to promote all these factors: autonomy through independent decision making, competence through skill development, and relatedness through shared participation and social interaction (Ryan & Deci, 2000).

The repetitive and ritualistic aspects of golf further reinforce mindfulness related processes. pre-shot routines, for example, often involve breathing, visualization, and focused attention (Cotterill et al., 2010; Jackson, 2001). These behaviors resemble mindfulness exercises commonly used in psychological interventions. By repeatedly engaging in such routines, golfers may develop habitual patterns of attention and emotional regulation. Unlike structure and mindfulness training these skills are developed implicitly through sport participation, potentially making them more accessible and sustainable for participants.

The psychological effects of golf may also be due to environmental factors. Golf is normally played in a common natural environment which has been independently linked to lower stress and better mood (Ulrich et al., 1991). Focused activity and natural surroundings have attentional restoration and promote calmness. The psychological effect of golf is not solely the result of environmental exposure, and may be mediated by mindfulness processes to enhance benefits of well-being. This interaction emphasises the need to consider sports-specific contexts as a way to explore physical activity as a non-uniform experience (Barton & Pretty, 2010).

Although there are recent studies that have considered the psychological advantages of golf, there are still some restrictions in the literature. The majority of research is conducted in the context of adult or professional golf, and only a small proportion of that research is done with adolescent or non elite golfers (Chuang et al., 2021; Park et al., 2024). This is a considerable difference because younger players might play and respond to the sport in a different way and have different psychological impacts. Adolescence is a developmental time when attentional control, emotional regulation, and self-awareness continue to develop, and thus could be an important lens for the study of mindfulness processes in sport.

Another caveat is the lack of attention in research to the underlying mechanisms of mental health outcomes (Lubans et al., 2016). Although there have been studies showing improvement when a person plays golf, there is less work that tries to explicitly examine the role that mindfulness can play in this relationship. It is important to know what meditation is to know whether psychological benefits stem from the sport, the social context, or internal cognitive processes. This lack of clarity makes it challenging to determine what parts of golf are most important in helping to maintain a healthy mental state.

In addition, the impact of individual differences on the extent to which government's mindfulness may vary. The psychological effects of participation may be influenced by factors such as level of engagement in the game,

frequency of game play, and personal motivation factors (Ryan & Deci, 2000). This difference underlines the importance of research on perceived mindfulness effects instead of relying on the assumption that there are the same psychological benefits for all players who participate in the support of golf as a sport (Gardner & Moore, 2007).

The present study aims to investigate the relationship between golf participation, mindfulness, and mental wellbeing, with particular emphasis on mindfulness as a mediating variable. By examining self-reported mindfulness levels alongside mental health indicators, This research seeks to clarify the psychological processes through which golf may influence wellbeing. Unlike studies that focus solely on participation frequency or physical exertion, this study emphasizes internal cognitive and emotional mechanisms.

The primary assumption of this research is that a higher engagement in golf will be associated with increased mindfulness, which in turn will relate to improved mental well-being. By positioning mindfulness as a mediator rather than a secondary outcome, the study conjures still more nuanced understanding of golf psychological impact; the findings may offer insight into housework specific characteristic shape mental well-being and inform the use of golf as a supportive activity within broader well-being and mental health frameworks.

Overall, this research seeks to extend existing literature by focusing on golf as a psychologically meaningful sport rather than merely a form of physical activity. By exploring mindfulness as a central mechanism, the study aims to highlight how the unique demands and structure of golf may contribute to mental well-being. These insides have implications for sports psychology, you support programming and the promotion of mindful engagement in physical activity.

2. METHODOLOGY

2.1 Aim of the study:

The aim of the study was to examine the relationship between mindfulness, emotional regulation, and perceived stress among golfers and non golfers. Additionally the study aimed to explore whether participation in golf is associated with differences in some psychological variables

2.2 Objectives of the study:

1. To assess levels of emotional regulation, perceived stress and mindfulness among participants
2. To compare the psychological variables between golfers and non golfers
3. To examine the relationship between mindfulness and perceived stress
4. To determine whether emotion regulation and mindfulness are associated with lower perceived stress levels

2.3 Hypotheses:

H1: Golfers will report significantly higher levels of mindfulness than non-golfers.

H2: Golfers will report significantly better emotion regulation than non-golfers.

H3: Golfers will report significantly lower perceived stress than non-golfers.

H4: Mindfulness will be positively associated with emotion regulation.

H5: Mindfulness and emotion regulation will be negatively associated with perceived stress.

2.4 Participants:

Participants were recruited using a sampling method. Individuals were eligible to participate if they were at least 14 years of age and were able to provide informed consent before completing the survey. The golfer group included individuals who had been playing golf regularly for a minimum of one year. The non-golfer group consisted of individuals who did not currently play golf and had not engaged in golf participation. Participants in both groups were required to have sufficient English proficiency to understand and complete the questionnaire independently.

Participants were excluded from the study if they reported having a diagnosed psychiatric or neurological disorder or if they were currently taking psychotropic medication, as these factors may have influenced psychological functioning and the variables under investigation. These exclusion criteria were assessed through screening questions administered at the beginning of the survey. Individuals who met any exclusion criteria did not proceed to the study questionnaires. In addition, participants who provided incomplete questionnaire responses with invalid demographic information were excluded from the final analyses.

A total of 72 responses were initially recorded. Following the application of the inclusion and exclusion criteria and the removal of incomplete responses, the final analytics example consisted of 48 participants, including 39 golfers and 9 non golfers

2.5 Instrumentation:

1. Emotion Regulation Scale (Gross & John, 2003):

The scale assesses individuals' ability to manage and respond to emotional experiences effectively. The scale measures emotional expression and emotional experience. In order to assess these, the questionnaire consists of 6 items which measure the cognitive reappraisal facet and 4 items that measure the expressive suppression facet. The scale consists of 10 questions which participants responded using a 7 point Likert-type scale ranging from 1 = Strongly Disagree, 4 = Neutral and 7 = Strongly Agree. The scale shows strong psychometric properties with a Cronbach's alpha of over 0.70 and also works well across different cultures and groups which emphasizes its validity in different populations.

2. State Mindfulness Scale (Tanay & Bernstein, 2013)

The scale measures the extent of an individual's present moment awareness and attention to internal and external experiences. The scale assesses various components of mindfulness, such as attending to thoughts, feelings, sensations in the body, and awareness of the surrounding environment. To measure these experiences, the questionnaire has 21 items that gauge the participant's attentiveness, emotional awareness, and feeling in the moment. The participants answer in a 5-point Likert Type scale ranging from 1 = Not at all to 5 = Very well. The scale has been found to have good psychometric characteristics such as high levels of internal consistency and reliability in various studies, indicating its validity and ability to assess state mindfulness in different populations.

3. Perceived Stress Scale (Cohen et al.,1983)

The perceived stress scale (PSS) measures the level of perceived stress in one's life. The scale assesses the amount of unpredictability, lack of control, and pressure felt in the past month. The questionnaire has 10 items, which are used to assess these factors by asking how often the participant has stress related thoughts and emotions. The participants are asked to respond to the questions on a likert scale from 0 = Never to 4 = Very often. Cronbach's alpha consistently exceeds the 0.70 and the scale is widely-used in many cultural and demographic groups, demonstrating good levels of reliability and validity across these groups.

2.6 Data collection procedure:

The study used a purposive sampling method to select participants that met the relevant criteria to the research objectives. Data was collected through an online survey containing three scales. Participants were provided with a structured questionnaire with clear instructions on how to respond on each section. Responses were collected and then organized and prepared for statistical analysis to examine the relationships and differences between variables.

2.7 Ethical Considerations:

Ethical aspects were well considered throughout the study. All participants were informed of the purpose of the study, and consented to participate in the study. All participants had the right to participate in the study and were told that they would not be required to complete the survey, and that they could refuse to fill it out. All responses were anonymous and no information that could identify participants was gathered. Participants were also given specific and clear instructions to help them understand the items of the survey and how it was to be completed which encouraged honest and informed responses.

3. RESULTS

A total of N = 72 responses were recorded. Because the survey used branching (skip) logic, respondents who indicated that they did not play golf and had not engaged in any other sport regularly in the past year were routed directly to the end of the survey without being presented with the Emotion Regulation Questionnaire (ERQ), the Perceived Stress Scale (PSS), or the State Mindfulness Scale (SMS); these cases were recorded with values of 0 on all three outcome measures. Because a score of 0 is not a possible value on any of these instruments, scores of 0,0,0 across ERQ, PSS, and SMS were treated as a structural indicator of survey non-completion rather than as valid data.

Twenty-four cases (33.3%) were excluded from the analytic sample for the following reasons: (a) 20 respondents (12 of whom reported no regular sport participation and 8 of whom reported playing golf or another sport but did not proceed to the outcome measures) had non-completed responses (ERQ = PSS = SMS = 0); (b) 3 respondents were screened out after indicating a prior psychiatric or neurological diagnosis and/or current use of

psychotropic medication, which triggered automatic survey termination per the exclusion criteria specified a priori; (c) 1 respondent reported an implausible age (167 years) and was additionally screened out on the psychiatric/medication criteria above; and (d) 1 respondent provided a partial response (PSS = 4 only, with ERQ = SMS = 0) and was excluded due to incomplete outcome data. Note that one case meeting the age-implausibility criterion was also captured under the psychiatric/medication screen, so the total unique exclusions equal 24.

The final analytic sample comprised $N = 48$ respondents: 39 golfers and 9 non-golfers. Table 1 presents the demographic characteristics of the two groups. Golfers (M age = 51.21, $SD = 19.38$) were considerably older than non-golfers (M age = 18.78, $SD = 6.89$) and were predominantly male (84.6%), whereas the non-golfer group was predominantly female (88.9%). This marked demographic imbalance between groups reflects the composition of the responding sample rather than the sampling design and is addressed in the analyses below and revisited in the discussion of limitations.

Table 1
Demographic Characteristics of Golfers and Non-Golfers

Characteristic	Golfers (n = 39)	Non-Golfers (n = 9)
Age, M (SD)	51.21 (19.38)	18.78 (6.89)
Age range	14–76	15–34
Gender, n (%)		
Male	33 (84.6%)	1 (11.1%)
Female	6 (15.4%)	8 (88.9%)
Country of residence, n (%)		
Singapore	36 (92.3%)	6 (66.7%)
Other	3 (7.7%)	3 (33.3%)
Level of golf play, n (%)		—
Recreational	27 (69.2%)	
Amateur competitive	12 (30.8%)	

Note. Percentages are calculated within each group (golfers, $n = 39$; non-golfers, $n = 9$). “Other” countries of residence for golfers were Canada, Scotland, and the United Kingdom (1 each); for non-golfers, India (2) and the United Kingdom (1).

Descriptive Statistics

Table 2 shows descriptive statistics for the Emotion Regulation Questionnaire (ERQ), the Perceived Stress Scale (PSS), and the State Mindfulness Scale (SMS) by Group. Golfers reported slightly lower scores on the ERQ and the PSS than did non-golfers, but only the ERQ and the SMS were large enough to be sampled ($n = 9$), and the variability on the ERQ and SMS for the non-golfer group was less.

Table 2
Descriptive Statistics for ERQ, PSS, and SMS by Group

Measure	Group	n	M	SD	Median	Range
ERQ	Golfers	39	40.77	11.55	40.00	21–64
	Non-golfers	9	46.33	8.66	46.00	29–61
PSS	Golfers	39	16.46	6.18	16.00	1–35
	Non-golfers	9	20.22	4.06	20.00	14–26
SMS	Golfers	39	67.51	16.62	74.00	38–94
	Non-golfers	9	69.11	12.61	72.00	42–83

Note. ERQ = Emotion Regulation Questionnaire; PSS = Perceived Stress Scale; SMS = State Mindfulness Scale.

Preliminary Analyses

Prior to conducting group comparisons, the assumptions of normality and homogeneity of variance were examined. Shapiro-Wilk tests indicated that ERQ and PSS scores were approximately normally distributed in both the golfer group (ERQ: $W = .971$, $p = .395$; PSS: $W = .965$, $p = .267$) and the non-golfer group (ERQ: $W = .928$, $p = .460$; PSS: $W = .958$, $p = .780$). However, SMS scores departed significantly from normality in the golfer group ($W = .885$, $p = .001$), reflecting a ceiling-skewed distribution, although not in the non-golfer group ($W = .857$, $p = .090$). Levene's tests indicated that the assumption of homogeneity of variance was tenable for all three outcomes (ERQ: $F = 3.00$, $p = .090$; PSS: $F = 1.15$, $p = .289$; SMS: $F = 1.22$, $p = .275$).

Given the violation of normality for SMS, the marked imbalance in group sizes (39 vs. 9), and the exploratory nature of the non-golfer comparison group, both a parametric test (Welch's t-test, which does not assume equal variances) and a non-parametric equivalent (Mann-Whitney U) are reported for all three outcomes. The Mann-Whitney U test is treated as the primary inferential test given these considerations, with the t-test reported for comparability with prior literature.

Table 3

Comparison of ERQ, PSS, and SMS Scores Between Golfers and Non-Golfers

Measure	GolfersM (SD)	Non-GolfersM (SD)	Welch t (df)	p	Mann-Whitney U	p
ERQ	40.77 (11.55)	46.33 (8.66)	-1.62 (15.37)	.125	125.0	.186
PSS	16.46 (6.18)	20.22 (4.06)	-2.25 (17.79)	.038*	103.5	.058
SMS	67.51 (16.62)	69.11 (12.61)	-0.32 (15.18)	.752	181.0	.895

Note. ERQ = Emotion Regulation Questionnaire; PSS = Perceived Stress Scale; SMS = State Mindfulness Scale. Welch t-tests do not assume equal variances; degrees of freedom are adjusted accordingly (Welch-Satterthwaite approximation). * $p < .05$.

Table 3 presents the results of the group comparisons. For emotion regulation (ERQ), golfers did not differ significantly from non-golfers, $t(15.37) = -1.62$, $p = .125$, $d = -0.50$; this was corroborated by the Mann-Whitney U test, $U = 125.0$, $p = .186$, rank-biserial $r = .29$.

For perceived stress (PSS), golfers reported significantly lower scores than non-golfers under the parametric test, $t(17.79) = -2.25$, $p = .038$, $d = -0.64$. The corresponding Mann-Whitney U test approached but did not reach conventional significance, $U = 103.5$, $p = .058$, rank-biserial $r = .41$, suggesting this difference should be interpreted with caution given the non-parametric result and the small non-golfer sample.

For state mindfulness (SMS), no significant difference was observed between golfers and non-golfers, $t(15.18) = -0.32$, $p = .752$, $d = -0.10$, nor on the Mann-Whitney U test, $U = 181.0$, $p = .895$, rank-biserial $r = -.03$.

Table 4

Regression of ERQ, PSS, and SMS on Golf Status and Age

Outcome	B (Golf status)	p	B (Age, centered)	p
ERQ	-5.08	.326	-0.01	.874
PSS	+2.66	.224	-0.20	< .001*
SMS	-0.37	.960	-0.04	.778

Note. Golf status coded 0 = non-golfer, 1 = golfer; age is centered on the sample mean ($M = 44.10$ years). ERQ = Emotion Regulation Questionnaire; PSS = Perceived Stress Scale; SMS = State Mindfulness Scale. * $p < .05$.

Because golfers and non-golfers differed substantially in age (age difference ≈ 32.4 years), the possibility that age — rather than golf participation per se — accounted for the observed group difference in perceived stress was examined. Across the full analytic sample, age was significantly and negatively correlated with PSS, $r = -.62$, $p < .001$, but was not significantly associated with ERQ, $r = -.13$, $p = .365$, or SMS, $r = -.06$, $p = .697$.

A series of linear regression models predicting each outcome from golf status (golfer vs. non-golfer) and age (centered on the sample mean) were estimated; results are presented in Table 4. After accounting for age, golf status was not a significant predictor of PSS, $B = 2.66$, $p = .224$, whereas age remained a significant negative predictor, $B = -0.20$, $p < .001$. Golf status was likewise not a significant predictor of ERQ ($B = -5.08$, $p = .326$) or SMS ($B = -0.37$, $p = .960$) after controlling for age, and age itself was not significantly associated with either outcome in these models (ERQ: $B = -0.01$, $p = .874$; SMS: $B = -0.04$, $p = .778$). These results suggest that the

bivariate difference in perceived stress observed between golfers and non-golfers (Table 3) is substantially attributable to the age difference between groups rather than to golf participation independently.

Table 5

Spearman Correlations Between Golf Engagement Variables and Outcome Measures Among Golfers

Golf Engagement Variable	ERQ (ρ)	PSS (ρ)	SMS (ρ)	n
Years of golf experience	-0.142	-0.335*	-0.034	39
Frequency of play	-0.178	0.157	-0.114	39
Level of play	-0.166	0.449**	-0.104	39

Note. ERQ = Emotion Regulation Questionnaire; PSS = Perceived Stress Scale; SMS = State Mindfulness Scale. Level of play was coded ordinaly (1 = recreational, 2 = amateur competitive); only two levels were represented among golfers in this sample. * $p < .05$. ** $p < .01$.

To further characterize the relationship between golf participation and the outcome measures, exploratory Spearman correlations were computed within the golfer subgroup ($n = 39$) between indices of golf engagement — years of golf experience, frequency of play, and self-reported level of play (recreational vs. amateur competitive) — and ERQ, PSS, and SMS scores (Table 5).

Years of golf experience was significantly negatively correlated with perceived stress, $\rho = -.34$, $p = .037$, indicating that golfers with more years of experience tended to report lower perceived stress. Level of play was significantly positively correlated with perceived stress, $\rho = .45$, $p = .004$, such that golfers competing at the amateur competitive level reported higher perceived stress than those playing recreationally. Frequency of play was not significantly associated with any outcome (all $p > .30$). None of the golf engagement variables were significantly correlated with ERQ or SMS scores (all $p > .30$).

Across the full analytic sample ($N = 48$), ERQ scores were significantly positively correlated with SMS scores, $r = .45$, $p = .001$, indicating that individuals reporting greater use of emotion regulation strategies also reported higher state mindfulness. ERQ was not significantly correlated with PSS, $r = .07$, $p = .649$, and PSS was not significantly correlated with SMS, $r = .15$, $p = .300$.

In summary, golfers and non-golfers did not differ significantly in emotion regulation (ERQ) or state mindfulness (SMS). An apparent group difference in perceived stress (PSS), with golfers reporting lower stress, was significant under a parametric test but only marginal under the more conservative non-parametric test, and was no longer significant once age was statistically controlled — age itself was the stronger and more robust predictor of perceived stress. Within the golfer subgroup, greater golfing experience was associated with lower perceived stress, while a more competitive level of play was associated with higher perceived stress. Given the substantial age and gender imbalance between the golfer and non-golfer groups in this sample, these findings should be interpreted as preliminary, and the apparent associations between golf participation and psychological outcomes should be considered alongside age and competitive level as candidate explanatory variables in future research with larger and more demographically matched samples.

4. DISCUSSION

This current study aimed at finding out whether there were any differences between players' mindfulness, emotion regulation, and perceived stress, and whether the years of experience, how often they played the game, and their level of participation were associated with these psychological variables. Although the hypotheses pertaining to the main groups were mostly unsupported, the results provide meaningful insights into the association between participation in golf and mental wellbeing. Overall, the results suggest that factors like age, golfing experience, and involvement in competitions may impact psychological outcomes more than simply participating in golf.

In terms of mindfulness, the present study did not reveal a significant difference between golfers and non-golfers. This is in contrast to previous studies that indicated that golf is a sport that naturally cultivates the mindful experience because of its slow pace, repetitive movements, and focus on the present moment (Zhang et al., 2021). Likewise, Gardner and Moore (2007) suggest that sports in which the attentional control must be maintained over a prolonged period (e.g. golf) promote mindfulness through repeated attentional focus and acceptance of performance results. A potential reason for the conflicting results is that the majority of golfers in this study played a recreational rather than competitive game. For the recreational player there might be a greater emphasis on enjoyment and social interaction than on conscious strategies and reflection. In addition, the State Mindfulness

Scale assesses "state" mindfulness at a particular moment in time, not "trait" mindful tendencies that can be established over years of playing golf.

Likewise, no statistically significant difference was found between golfers and non-golfers in emotion regulation. The result contrasts with past studies indicating that frequent setbacks, frustrations and performance pressure are normal features of golf that help golfers develop emotional control (Nicholls et al., 2005). One potential reason is that the Emotion Regulation Questionnaire is assessing aspects of emotional regulation rather than emotional responses in sports performance. Therefore, although golfers might be able to manage their emotions well during the game, such ability might not necessarily transfer to the real-life scenario measured by the questionnaire. There are also many non-sports factors that impact emotion regulation, such as personality, life experience, and social environment, which may affect the general emotion regulation of golf participants only to a small extent.

The findings relating to perceived stress were more complex. At first, golfers seemed to have a much lower perceived stress than non-golfers, consistent with previous research that has found positive correlation between golf participation and psychological wellbeing (Sorbie et al., 2022). Nevertheless, after taking into consideration the effects of age, playing golf was not found to be a determinant factor of stress perception anymore. In this instance, however, age takes the place of the other factors. Therefore, the differences in perceived stress level between golfers and non-golfers may be mainly attributed to the age gap between the two groups and not the activity of playing golf. Current psychological literature suggests that older adults experience less perceived stress than younger adults, because of their more mature emotional development and improved stress coping strategies developed through experiences in life. Therefore, it is important to consider age as an important variable in interpreting the relationship between golfing involvement and stress.

The exploratory analyses produced some of the strongest findings within the study. The number of years golfers had been practicing the sport was significantly related to lower perceived stress levels. This finding partially supports previous research suggesting that long-term participation in golf may contribute to improved psychological wellbeing through repeated opportunities to develop patience, resilience, and emotional control (Andersen et al., 2019). However, because years of golfing experience is naturally related to age, it cannot be determined whether reduced stress is the result of continued golf participation or broader developmental factors. Future longitudinal research would be beneficial in determining whether prolonged golf participation independently contributes to lower stress over time.

Conversely, amateur competitive golfers reported significantly higher perceived stress than recreational golfers. This finding aligns with results from prior research that showed more competitive pressures lead to more stress and performance anxiety (Nicholls et al., 2005). While recreational golf may provide opportunities for relaxation and stress reduction, competitive golf introduces external pressure that may offset many of these psychological benefits. This highlights the need to consider the level of competition and not treat golf participation as a monolithic experience.

The strongest relationship that was found in the current study was between mindfulness and emotion regulation. Higher scores on the mindfulness scale were associated with higher use of adaptive emotion regulation strategies. The results are congruent with previous studies showing that mindfulness promotes emotional regulation, and that by being aware of thoughts and feelings without judgment, individuals learn to respond to their feelings (Kabat-Zinn, 2003). This relationship was not exclusive to golfers, but it does provide further support for the previously known theory that mindfulness and emotion regulation are tightly linked processes, which are essential for psychological wellbeing.

Based on the results of the current study, it appears that the association between golf participation and mental wellbeing is not as straightforward as previously thought. After exposing golfers to non-golfers, the results indicate that there was no significant difference in the levels of mindfulness and emotion regulation reported by golfers relative to non-golfers, but that years of golfing experience was correlated with lower perceived stress, while competitive golfers reported more stress than recreational golfers. When considering golf participation, the apparent stress advantage for golfers was attributed more to age than to golf itself, making that an important consideration when evaluating the psychological results. More research with a larger and more representative sample, along with the use of a longitudinal study design, would clarify the relationship between golfing, mindfulness and psychological health.

5. CONCLUSION

The current study adds to the existing literature examining the association between golf participation and psychological well-being. While golfers did not show a significantly more positive relationship with mindfulness

or emotion regulation than non golfers, the findings draw attention to the need to take into account individual and contextual factors when investigating the psychological impacts of sport. More specifically, age, years of golfing experience, and level of competition seem to have more impact on the golf participation-only model of perceived stress. However, these findings should be interpreted cautiously because the golfer and non-golfer groups differed substantially in both age and gender, making it difficult to separate the effects of golf participation from demographic influences. The results indicated that the psychological benefits often attributed to golf might develop over time, and can vary depending on the recreational versus competitive involvement.

The results have implications for sports psychology and mental health promotion. They argue that being involved in sport doesn't necessarily lead to improved psychological health; it depends on how, how long and how much sport is performed. Competitive golf may need extra psychological assistance in the event that it creates stress on their performance, whereas recreational golf can also be a good stress reliever. The results could also help coaches, psychologists, as well as health care practitioners aiming to encourage physical activity in the context of comprehensive well-being programmes.

5.1 Limitations of the study

1. Multiple statistical analyses were conducted (including group comparisons, correlations, and regression analyses), which may have increased the risk of Type I error. As no formal correction for multiple comparisons (e.g., Bonferroni correction) was applied, statistically significant findings should be interpreted with appropriate caution.
2. The study included a relatively small sample size, particularly within the non-golfer group, reducing statistical power and limiting generalizability.
3. There was a substantial age and gender imbalance between golfers and non-golfers, making it difficult to isolate the effects of golf participation from demographic differences.
4. The cross-sectional design prevented conclusions regarding cause-and-effect relationships between golf participation and psychological outcomes.
5. All measures relied on self-report questionnaires, which may have been influenced by social desirability bias or inaccurate self-perceptions.
6. The State Mindfulness Scale measured momentary mindfulness rather than long-term mindfulness, which may not fully capture the psychological effects of sustained golf participation

5.2 Future Recommendations

1. Future studies should recruit larger and more demographically balanced samples to improve the generalisability of findings
2. Longitudinal research should be conducted to examine whether long-term golf participation contributes to changes in mindfulness, emotion regulation, and perceived stress over time.
3. Future research should compare golfers across different levels of participation, including recreational, amateur, and professional players, to better understand the influence of competitive demands.
4. Additionally psychological variables, such as resilience, self-efficacy, anxiety, and wellbeing, should be examined to provide a more comprehensive understanding of golf's psychological impact.
5. Mixed-methods research incorporating qualitative interviews alongside quantitative measures may provide deeper insight into how golfers perceive the psychological benefits and challenges associated with participation

This study as a whole shows that the link between the golf activity and psychological wellbeing is complex. Higher levels of mindfulness and emotion regulation were not found to be a significant factor in golf participation, but past experience and the setting of playing golf seems to have a significant effect on perceived stress. These results help to gain a deeper understanding of the psychological impacts of golf and will help inform future research investigating the role of sport in mental health and wellbeing.

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