



How passion fuels student athletes? A Dualistic model approach to engagement in sports

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- A) conception and design of the study
- B) acquisition of data
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- D) manuscript preparation
- E) obtaining funding

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Abstract

Several studies have explored the mechanism in increasing sports engagement. However, the underlying dynamics that drive engagement in sports remain a subject of ongoing investigations. This study aimed to delve deeper into the intricate relationship between passion and student athletes' engagement in sports. A total of 408 student athletes aged from 18–27 years old (Mage= 20.93 years, SD= 2.09) completed the questionnaire packet. The sample was composed of 37.07% male athletes (n=139) and 65.93% female athletes (n=269). Measures in the study include Sports Passion Scale (SPS) and Athletic Engagement Questionnaire (AEQ). Ethical approval was gained from the participants. The findings reveal a direct and significant relationship between passion and athletes' engagement in sports. These results highlight that passion shown by student athletes is a factor that determines a high level of engagement in sports among student-athletes. The interaction between passion and engagement highlights the need to establish a conducive atmosphere that fosters athletes' interest in their sport, resulting in increased involvement in sports.

Keywords: passion, engagement, harmonious, obsessive

Introduction

Engagement in sport has been widely investigated to determine an athlete's long-term involvement, performance, and overall well-being. High levels of engagement are associated with resilience in the face of struggles, intrinsic motivation, and continuous improvement (Vink & Raudsepp, 2018; Gupta & McCarthy, 2022; Bélanger & Ratelle, 2020), all of which are essential for sports success. Engagement in sports is commonly defined in the literature as the presence of consistent and positive cognitive and emotional experiences. The phenomenon is defined by four interrelated dimensions: vigor (i.e., showcasing a high amount of energy and resilience), dedication (i.e., strong sense of being fully involved in one's sports), confidence (i.e., belief and trust in one's own capability to achieve a high level of performance), and enthusiasm (i.e., displaying passionate excitement and satisfaction) (Hodge et al., 2009; Lonsdale et al., 2007). Understanding the factors that impact athlete involvement and how it is developed offers a significant chance to uncover the latent potential and abilities of student-athletes. Several studies have examined the association between athletes who have exhibited high levels of engagement and found they are more likely to attain their goals, maintain motivation and self-esteem, and experience reduced stress (Chua & Ayoko, 2019; De Francisco et al., 2020; Horwood et al., 2021; De Francisco et al., 2018). However, while several studies have explored the mechanism in increasing sports engagement (Chen & Liu, 2024; Graña et al., 2021; Gu & Xue, 2022), the underlying dynamics that drive engagement in sports remain a subject of ongoing investigations. One potential framework for understanding these mechanisms is the dualistic model of passion (Schellenberg et al., 2021; Vallerand & Verner-Filion, 2020), which distinguishes between harmonious passion, identified by a well-balanced and adaptable engagement in an activity, and obsessive passion, where the activity is excessively prioritized to the detriment of other aspects of life. This study, addressing the lack of existing literature on the topic, examined how passion possessed by student-athletes contributes to their engagement in sports.

The concept of passion in sports

Passion is construed as a strong emotional propensity towards an activity that holds personal value and importance, and to which individuals dedicate an immense amount of time (Vallerand et al., 2006), or as a strong enthusiasm and dedication towards the desired activity (Lopes & Vallerand, 2020). Individuals engage in passionate activities because they derive pleasure and meaning from them, and because these activities align with their personal self-perception and reflect important

aspects of their personality. In Vallerand, (2015) the Dualistic Model of Passion (DMP), when applied to sports, provides a framework for understanding various types of passion that influence athletes' involvement, performance, and overall well-being. DMP posits that the presence of harmonious and obsessive passion is contingent upon the extent to which a passionate activity has been incorporated into an individual's identity. HP, as defined in the literature, refers to a healthy and strong connection with a particular activity (Gillet et al., 2022). It indicates that the individual is willing to do the task in their own time. Additionally, HP is associated with favorable outcomes, such as enhancement in subjective well-being and the development of adaptive behaviors (Gillet et al., 2022). Conversely, obsessive passion is construed as a controlled approach to involvement in an activity due to internal and external pressure, leading to rigidity of perseverance and conflicts with various aspects of life. Much debate has been made of the dualistic model of passion that is present in high-performance sports and its significance in explaining motivational processes that contribute to the development of youth sports and elite athletes (Kovácsik et al., 2020; Schellenberg et al., 2018, Vink & Raudsepp, 2018). According to Ryan and Deci's (2000) Self Determination Theory (SDT), DMP (Vallerand, 2015) posits that an activity may develop into a part of an individual's identity either through external control or personal autonomy, resulting in either an unhealthy obsession or a balanced and positive passion. Control internalization of an activity derives from associated demands and contingencies, such as confidence, social approval, or insurmountable enthusiasm (Vallerand, 2015). Hence, individuals who have an obsessive passion experience feel an overwhelming urge to engage in the passionate activity and exhibit unwavering determination. As a result, unregulated and compulsive involvement in a passionate activity might ultimately result in a person developing a dependency on the activity. While obsessive passion might provide improved performance, it can also give rise to conflicts with other aspects of life and lead to negative behavioral, cognitive, and emotional consequences, including decreased engagement in non-passionate pursuits (Philippe et al., 2009; Schellenberg et al., 2018). In this way, athletes who engage in sports for obsessive reasons often struggle to effectively balance their time between their sport and their daily activities (i.e., lack of alignment between these activities). For instance, an athlete who states "I have difficulty imagining my life without this activity". On the other hand, integrating an activity into one's identity autonomously results in a state of harmonious passion. In a sports setting, athletes gladly and voluntarily engage in sports primarily for the enjoyment they derive from the action, rather than for the purpose of enhancing their own sense of self. Essentially, individuals

are not subject to the influence of the activity, as they willingly participate without any feeling of obligation or internal compulsion. Therefore, athletes who have a high level of performance-related motivation in their sport can effectively allocate their time to the activity without facing any internal disputes with other daily responsibilities (i.e., all activities can be accommodated within their personal timetable). An example of this is the statement “This sport showcases the qualities that I value most in myself,” which indicates that the athlete is feeling high levels of harmonious passion (Schellenberg et al., 2023). Thus, both types of passion are included in the sense of self that an individual possesses; however, obsessive passion appears to have a more prominent position in their identity.

The assumptions of numerous studies align with the dualistic model of passion, potentially yielding unique cognitive, behavioral, and affective outcomes (Jang et al., 2023; Alcaraz-Ibáñez & Paterna, 2023). Thus, it seems that the presence of harmonious passion has the capacity to enhance sports performance, which would result in improved measures of self-determined motivation and engagement in sports. Harmonious passion has been linked to positive affect, energy, and cognitive emotional involvement for activities that take place when the individual is engaged in the task at hand (Jang et al., 2023). HP also improves life happiness and reduces conflict outside the activity (Vallerand & Verner-Filion, 2020; Vallerand, 2015). Prior research has linked high levels of harmonious passion with reduced levels of negative affect, exhaustion, and ruminative thinking (Horwood et al., 2021; Lopes & Vallerand, 2020). For obsessive passion, although positive association can be observed with both indicators of well-being and ill-being, such as positive and negative affect, it is generally less prominent compared to those associated with harmonious passion (Schellenberg et al., 2018). Conversely, obsessive passion has negative consequences for both task-related and non-task related well-being due to the need to maintain

negative affect, unintegrated motivation, and compulsive engagement (Alcaraz-Ibáñez & Paterna, 2023). DMP sheds light on the distinction between harmonious and obsessive passion, offering a convincing framework for comprehending how passion drives the involvement of student-athletes in sports. In light of these insights, this study aimed to delve deeper into the intricate relationship between passion and student-athletes’ engagement in sports. Specifically, this study was based on the subsequent hypotheses:

H₁: There is a positive correlation among the factors of passion and sports engagement of student-athletes

H₂: Total passion for sports directly influence athletes’ sports engagement

H_{3a}: Harmonious passion for sports is positively associated with athletes’ sports engagement

H_{3b}: Obsessive passion for sports is positively associated with athletes’ sports engagement

Methods

Participants

A total of 408 student athletes aged 18–26 years old (Mage= 20.93 years, SD= 2.09) completed the questionnaire packet. The sample was composed of 34.07% male athletes (n=139) and 65.93% female athletes (n=269). The study participants are athletes from various colleges and universities in Iligan City, Lanao del Norte, Philippines. The participants who took part in this study were chosen using purposive random sampling. The purposive sampling methodology is a non-probability sampling method in which participants are chosen based on the researcher’s subjective assessment of who will offer the most pertinent data, rather than depending on statistical likelihood (Andrade, 2021). As such, participants was recruited based on the following criteria: (1) at least 3 years of participating in different sports tournaments, and (2) reached regional to national level meets in sports.

Table 1. Sociodemographic profile of the participants

Variables		<i>N (%)</i>	<i>M ± SD</i>	Range
Sex	Male	139 (34.07%)		
	Female	269 (65.93%)		
Age			20.93 ± 2.09	18-26
Type of Sports	Individual/Dual Sports	143 (35.05%)		
	Team Sports	265 (64.95%)		
Social-economic status	Low to Mid-level income	262 (64.22%)		
	High-level income	146 (35.78%)		

Instruments

Athletes' passion in sports was assessed using The Passion Scale (Lopes & Vallerand, 2020). TPS consists of 14 items with two 7-item subscales measuring HP (e.g., "This activity allows me to live a variety of experiences"), and OP (e.g., "I have difficulty imagining my life without this activity") which were answered using a 7-point Likert-type scale ranging from 1 = completely disagree to 7 = completely agree. TPS showed validity and internal consistency with other studies (Kovácsik et al., 2020; Schellenberg et al., 2021). In this study, the scale demonstrates a Cronbach's alpha of .96 (harmonious passion), and .84 (obsessive passion). The SPS has an overall Cronbach alpha of .94.

The Athletic Engagement Questionnaire (AEQ) (Lonsdale, Hodge, & Jackson, 2007) was developed to measure sports engagement. This scale includes four dimensions: confidence, dedication, vigor, and enthusiasm, and consists of 16 items. Participants rated each item using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with the highest score indicating a high level of engagement in sports. This scale has shown adequate validity and reliability across multiple investigations (Gu & Xue, 2022; Graña et al., 2021). The internal consistency of AQE dimensions such as self-confidence, dedication, vigor and enthusiasm are 0.95, 0.96, 0.97, and 0.98, respectively. The AEQ has an overall internal consistency of 0.98.

Procedures

Permission was obtained from the school authorities, and the test was administered upon the approval of the university research ethics board. Consent forms were obtained from the participants. The forms clearly outlined the objective of the study and anonymity of participants' answers. The participants completed the packet of questionnaires with the help of designated researchers. The procedures have been subjected to a comprehensive assessment and the ethics review board in the university has given authorization for the implementation.

Data Analysis

The normality and reliability test results are presented in Table 2. Based on the results, the skewness and kurtosis values of all the scales did not meet the specified threshold value [2, -2]. Hence, it may be inferred that the data set do not follow a normal distribution. Furthermore, the table below presents the reliability test of each scale employed in the study. The findings indicated that all scales exhibited a high level of reliability, as evidenced by Cronbach's alpha value ranging from .84 to .98. Table 2 also presents the bivariate correlations for each scale, and it is evident that all the scales are highly correlated ($p < .001$). Moreover, an independent sample t -test was

performed to examine the significance between groups (i.e., sex, income level, and type of sports) concerning passion and sports engagement. Finally, the researchers employed multiple regression analysis to ascertain the direct impact of passion on the level of engagement in sports among athletes, as shown in Table 4. Within this modelling approach, several predictors have the ability to forecast a single target variable (Li et al., 2022). In this investigation, the two unique features (harmonious and obsessive passion) are regressed to athletes' engagement in sports.

Results

the correlation analysis in Table 2 reveals significant positive relationships between all variables. Harmonious passion (HP) shows moderate correlations with athletes' sports engagement factors ($r = .51$ to $.55$). Similarly, obsessive passion (OP) exhibits weaker but significant correlation with athletes' sports engagement ($r = .34$ to $.42$). Thus, H_1 has been accepted.

Additionally, the results presented in Table 3 summarize the findings of independent samples t -tests, examining differences in passion and engagement based on gender, income level, and type of sport (individual/dual vs. team). Gender differences were not statistically significant for either passion [$t(406) = -.752$, $p = .452$] or engagement [$t(406) = .093$, $p = .926$], suggesting that male and female athletes experience similar levels of passion and engagement in sports. Similarly, there were no significant differences in engagement based on income level [$t(406) = 1.041$, $p = .30$], or sport type [$t(406) = .122$, $p = .903$], indicating that these factors do not strongly influence how engaged athletes feel in their activities. However, a significant difference in passion was found based on income level [$t(406) = 2.525$, $p = .012$]. Athletes from low-to-mid-income households reported higher passion scores than those from high-income households.

Moreover, the results of the multiple regression analyses performed for the variable in the current work are presented in Table 4. The results indicated that overall passion is a strong predictor of athletes' engagement in sports [$F(1, 406) = 138.983$, $p < .001$], implying that passion affects athletes' engagement in sports directly and significantly. Furthermore, the $R^2 = .255$ indicates that the model accounts for 25.5% of the variability observed in athletes' engagement. In this context, H_2 has been accepted. Consequently, the coefficients were examined in order to ascertain the degree of direct impact that every component of passion has on sports engagement among athletes. First, analysis was conducted to investigate the correlation between harmonious passion (HP) and athletic engagement. The results indicate that HP has a direct positive effect on AE ($\beta = 0.553$, $t = 13.375$, $p < .001$).

Table 2. Intercorrelation among variables

	1	2	3	4	5	6
1. Confidence	(.95)					
2. Dedication	0.93**	(.96)				
3. Vigor	0.86**	0.88**	(.97)			
4. Enthusiasm	0.86**	0.87**	0.96**	(.98)		
5. HP	0.55**	0.54**	0.51**	0.52**	(.96)	
6. OP	0.42**	0.42**	0.36**	0.34**	0.80**	(.84)
M	35.46	31.77	17.14	17.24	17.80	18.03
SD	7.364	7.297	3.698	3.832	3.606	3.577
Skewness	-1.341	-1.0	-1.838	-1.844	-2.371	-2.541
Kurtosis	1.044	0.368	3.528	3.245	5.758	6.599

Note: HP- Harmonious passion, OP- Obsessive passion, Significant at level $p < .001$ **

Table 3. Independent Samples t-test results

Variables	N	M ± SD	SE	t-test	Sig	Decision
Passion						
Male	139	66.51 ± 13.97	1.19	-.752	.452	Not Significant
Female	269	67.61 ± 13.86	.85			
Low-Mid level income	262	68.61 ± 12.50	.77	2.525	.012	Significant
High-level income	146	64.77 ± 15.83	1.31			
Individual/Dual Sports	143	66.22 ± 14.81	1.24	1.046	.297	Not Significant
Team Sports	265	67.78 ± 13.37	.821			
Engagement						
Male	139	70.30 ± 14.57	1.24	.093	.926	Not Significant
Female	269	70.16 ± 13.89	.85			
Low-Mid level income	262	70.76 ± 14.03	.87	1.041	.30	Not Significant
High-level income	146	69.23 ± 14.24	1.18			
Individual/Dual Sports	143	70.09 ± 15.11	1.26	.122	.903	Not Significant
Team Sports	265	70.26 ± 13.57	.83			

Table 4. Multiple Regression results and Hypothesis testing

Hypothesis	Regression weights	Beta	R ²	F	t-value	p-value	Decision
H_2	SP → AE	0.505	0.255	138.983	-	.000	Accepted
H_{3a}	HP → AE	0.553	0.306	-	13.375	.000	Accepted
H_{3b}	OP → AE	0.403	0.163	-	8.876	.000	Accepted

Note: Significant at $p < .01$, SP- Sports passion, HP- Harmonious passion, OP- Obsessive passion, AE- Athlete engagement

In this context, H_{3a} is **accepted**. Lastly, the association between obsessive passion (OP) and AE was examined. The result showed a positive significant influence of obsessive passion on athletes' sports engagement ($\beta = 0.403$,

$t = 8.876$, $p < .001$). Based on this finding, H_{3b} has been **accepted**. Hence, the results indicate that the passion of athletes towards these two factors directly and significantly impacts their level of engagement in sports.

Discussion

The results presented demonstrate significant positive correlations among all variables, suggesting a robust interaction between passion and the various elements of athlete engagement. Harmonious passion, characterized by intrinsic motivation and a balanced affection for the activity, demonstrates moderate correlations with confidence, dedication, vigor, and enthusiasm. This indicates that athletes possessing harmonious passion are inclined to exhibit enhanced focus, resilience, and dedication in their athletic pursuits. Obsessive passion, arising from a more inflexible, compulsive connection to the activity, also has a positive correlation with these components, albeit to a smaller degree, indicating that its impact may be less consistently advantageous. A student-athlete motivated by harmonious passion may voluntarily dedicate more hours to training due to their genuine enjoyment of the task, resulting in continuous engagement and personal development (Bélanger & Ratelle, 2020; Vallerand & Verner-Filion, 2020). Conversely, an athlete with obsessive passion may engage in excessive training, thereby risking burnout or stress (Lopes & Vallerand, 2020). The findings suggest that cultivating harmonious passion in student-athletes may promote sustainable and good involvement, whereas reducing reliance on obsessive passion could mitigate adverse effects linked to overcommitment or pressure. This comprehension is essential for coaches and educators seeking to provide supportive settings that prioritize well-being in conjunction with performance.

Moreover, the significant difference in passion linked with income level underscores the influence of socio-economic factors on athlete sports engagement. Athletes from low-to-middle-income households exhibited greater levels of passion for sports than those from high-income households. This disparity may arise from differing motivations and perceptions of sports engagement among income groups. For individuals from lower income brackets, sport may serve as a pathway to upward mobility, personal accomplishment, or a means to obtain resources and opportunities that would otherwise be inaccessible (Book et al., 2021). The elevated enthusiasm within this group may indicate a profound innate motivation fueled by the aspirational and transformative capabilities of sports in their life. This finding implies that economic background may influence the intensity or type of passion athletes feel toward their sport, potentially due to differing motivations or opportunities available across income levels. The implications of these findings highlight the importance of considering socio-economic factors when developing strategies to foster passion in sports. For instance, programs aimed at promoting sports participation might focus on addressing the unique challenges faced by athletes from diverse economic backgrounds. Additionally, the lack

of significant gender or sport-type differences suggests that passion and engagement strategies could be broadly applied across these groups, promoting inclusivity and accessibility.

Moreover, the second hypothesis that was examined aimed to ascertain the substantial and immediate impact of passion on the athletes' engagement in sports. The finding has demonstrated that the passion shown by student-athletes is a factor that determines the high level of engagement in sports among student-athletes. Existing research supports the notion that athletes who have a high degree of passion are more deeply committed to engagement in their sports. The athletes' higher level of harmonious passion in sports guarantees a genuine integration within the self, enabling the individual to completely engage in the passionate activity with an openness that promotes pleasant experiences (Lopes & Vallerand, 2020; Vallerand & Verner-Filion, 2020). Athletes highly engaged in sports tend to have high levels of achievement, linked to persistence such as higher flow and lower burnout in student athletes (Gu & Xue, 2022; Fawver et al., 2019; McGee & DeFreese, 2019). Significantly, athletes who have a high level of energy and resilience use it to maintain their focus and commitment, even in the face of challenges and setbacks (Gupta & McCarthy, 2022). A positive correlation exists between increased engagement in sports and elevated levels of satisfaction, improved performance, and an increased sense of purpose among student-athletes. The fervor of their passion for sport fuels determination, empowering them to surmount obstacles and achieve their goals. Furthermore, the results might be construed that as long as student athletes experienced a greater passion, their engagement in sports is also being strengthened (Bélanger & Ratelle, 2020; Vallerand, 2015). Meanwhile, it was discovered that harmonious passion can significantly and directly influence athletes' engagement. Athletes experience the manifestation of HP when they engage in sports driven by their pleasure and passion for the activity. Such enthusiasm greatly enhances the level of engagement of student-athletes in sports. Based on the results, it may be hypothesized that this kind of passion is fueled by inherent desire, when the athlete's participation in sports is a personal choice made without exposure to any external influence or coercion. A study by Jang et al. (2023) highlighted that since HP corresponds to the athlete's values and interests, it promotes a profound and enduring engagement. Athletes who possess a harmonious passion are more susceptible to encountering positive feelings, attaining states of flow and demonstrating perseverance in the face of obstacles (Schellenberg et al., 2023; Lopes & Vallerand, 2020). Thus, engagement improves both athletes' performance and persistent dedication to the sport, as athletes derive pleasure and satisfaction from their athletic pursuits. Moreover, it was also found

that OP has a substantial effect on athletes' engagement in sports. This idea is defined as how much an athlete is driven by external factors such as acknowledgement, apprehension of failure, or an uncontrollable obsession to do better others. Additionally, it can be inferred that highly engaged athletes who are obsessively passionate tend to allocate substantial time and effort, exhibit profound concentration and commitment, are motivated to train more, push their limits, and consistently strive to enhance their performance. Consequently, while obsessive passion can significantly enhance engagement, it is important to note OP is driven by compulsion rather than genuine enjoyment, leading to negative consequences such as burnout, emotional distress, and an imbalanced life (Vallerand, 2015; Schellenberg & Verner-Filion, 2021; St-Cyr et al., 2021). Obsessive passion (OP) can stimulate significant engagement and success. It is crucial for athletes and those who support them to recognize the possible negative consequences and strive to discover techniques to harmonize such passion with their overall well-being (Schellenberg et al., 2021). Hence, harmonious passion and obsessive passion influence athletes' participation in sports in various ways. Harmonious passion, characterized by an inherent, balanced, and voluntary affection for the action, exerts a greater impact on athlete involvement than excessive passion. This indicates that athletes motivated by harmonious passion are more inclined to engage in sports due to their authentic enjoyment of the activity and appreciation for the experience, resulting in enhanced and enduring involvement. In contrast, excessive passion, defined by a compulsive necessity to participate in the activity to uphold self-esteem or satisfy external expectations, exerts a diminished influence on engagement. Although obsessive passion can still drive sports engagement, its impact may be less reliable and possibly less advantageous over time. This implies that fostering long-term sports participation and well-being among athletes requires a more balanced and harmonious approach. For instance, a student-athlete driven by harmonious passion may willingly dedicate time to practice and competitions, enjoying the process and achieving a sense of fulfillment (Jang et al., 2023; Schellenberg et al., 2023; Gillet et al., 2022). In contrast, an athlete motivated by obsessive passion might engage out of fear of failure or pressure to prove themselves, which could lead to stress, burnout, or disengagement over time (Schellenberg & Verner-Filion, 2021; St-Cyr et al., 2021). These insights indicate that coaches, educators, and sports psychologists ought to prioritize the cultivation of harmonious passion by highlighting intrinsic rewards, personal development, and enjoyment in sports. Reducing pressure and fostering circumstances that mitigate excessive dependence on external validation can diminish the risks linked to obsessive passion, thereby ensuring that

sports participation remains a constructive and fulfilling experience.

Conclusion

The current study examined the relationship between passion and athletes' engagement in sports among a group of student-athletes drawn from various state universities and colleges in Iligan City, Philippines. Based on the overall findings, it can be concluded that the level of passion exhibited by athletes significantly influences their involvement in sports, particularly for those who develop a stronger dedication to training and competition. Moreover, athletes that possess a profound passion for their chosen sport often encounter significantly higher levels of satisfaction, which in turn leads to long-term involvement. The research findings indicate that the interaction between passion and engagement highlights the need for establishing a conducive atmosphere that fosters athletes' interest in their sport, resulting in increased involvement in sports.

While the current research provides new perspectives on how the passion for sports influences athletes' engagement, it is important to recognize its limitations. First, the cross-sectional design undermines the ability to establish a causal relationship between passion and engagement. Secondly, it should be emphasized that the study employed self-report measures that could have introduced biases, since individuals may have either inflated or underestimated their levels of passion and engagement. Additionally, considering the use of social desirability scales might be advantageous in order to mitigate the bias in the study of experimental procedures. Furthermore, incorporating qualitative methods, such as in-depth interviews or focus group discussions, could provide richer insights into the personal experiences and underlying motivations of athletes, offering a deeper understanding of the nuances of passion and engagement. This qualitative approach could complement the quantitative findings and enhance the overall interpretation of the results. It is recommended that future research should include athletes from across various geographical regions and sports disciplines in order to enhance the broad relevance of the results.

Ethics approval and informed consent

The respondents were required to provide their consent by agreeing to a statement attached in Google Forms. Additionally, respondents were advised about the objectives of the study, its instruments, and the variables being measured for the study. Minor risks answering the online survey were also enumerated. Respondents were free to withdraw or to ask for debriefing at any time.

Competing interests

No competing interest.

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