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RESEARCH ARTICLE **OPEN ACCESS**

‘Martial Arts Crossed Over Into the Rest of My Life’: A Qualitative Exploration of Australian Practitioners’ Experiences of Martial Arts and Combat Sports on Wellbeing

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ABSTRACT

Martial arts and combat sports (MA&CS) have emerged as a promising avenue for enhancing health and wellbeing amidst growing concerns about noncommunicable diseases and mental health issues. This study explored the lived experiences of practitioners engaged in modern MA&CS, such as mixed martial arts (MMA), to understand how the practice of modern MA&CS impacts individuals biologically, psychologically and socially. Guided by the Biopsychosocial Model of Health and adopting a social constructivism lens, 16 participants aged 28–55 years underwent semi-structured interviews, exploring the physiological, psychological and social dimensions of their engagement in modern MA&CS. Through thematic analysis, three overarching themes were developed. The first theme highlighted the role of rigorous training in fostering resilience, discipline and personal growth. The second theme demonstrated how MA&CS builds self-confidence, reduces aggression and encourages prosocial behaviour. Lastly, the third theme underscored the importance of gym environments in fostering inclusivity, mutual respect and belonging. Modern MA&CS training transcends the gym offering a unique framework that promotes biopsychosocial wellbeing through resilience, confidence and community connection. Modern MA&CS holds potential for educational, therapeutic and community interventions aimed at fostering holistic wellbeing across diverse contexts.

1 | Introduction

Physical inactivity is a significant modifiable risk factor for noncommunicable diseases (NCDs) and mental health conditions, contributing substantially to the global burden of disease and early mortality (Katzmarzyk et al. 2022; Santos et al. 2023; World Health Organisation [WHO] 2024). Physical exercise, particularly moderate-intensity activities like organised sports, is linked to improved wellbeing and reduced mortality

in adults (Gebel et al. 2015). The main purpose of sport is to promote physical activity and improve motor skills for performance (Holt et al. 2017) and hence the most recognised effect of sport is often related to physical domains (Malm, Jakobsson, and Isaksson 2019). However, secondary health benefits of sport include psychosocial development (Kim et al. 2020), community involvement (Brown, Hoyer, and Nicholson 2014; Piatkowski, Neumann, Keane, and Dunn 2023) and prosocial norms and attitudes (Malm, Jakobsson, and Isaksson 2019).

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Those who play sport also report higher levels of physical activity later in life (Kjønniksen, Anderssen, and Wold 2009), and engaging in sport may enable individuals' overall health to be developed through the acquisition of information regarding nutrition and exercise. Physical activity and organised sports can be a cost-effective solution to minimise the impact of NCDs and mental health concerns, creating improved overall health and wellbeing.

1.1 | Martial Arts (MAs) and Combat Sports (CS; MA&CS)

MA&CS offer the espoused benefits provided by sport, alongside philosophical teachings, encompassing a holistic development of mind and body, making them a unique discipline when compared to other sports and physical activities. Traditionally rooted in ancient civilisations like Egypt, Greece and China (Fuller and Lloyd 2020), MAs have evolved into hundreds of styles, ranging from noncontact practices to hand-to-hand fighting and self-defence, with some systems still rooted in traditional aspects and others having higher preference for sport settings (Burke et al. 2007; Origua Rios et al. 2018).

To differentiate the many styles of MAs, we delineate between soft or internal MAs, hard or external MAs (internal and external styles loosely refer to soft and hard styles; Sullivan et al. 2024), combat and sport and modern MA&CS. Soft MAs such as Tai Chi are typically noncontact, focusing on harmonious mind–body development (Vertonghen, Theeboom, and Pieter 2014), performed through slow, relaxed and gentle movements aimed at regulating posture and redirecting opponents' energy (Bell 2008; Gorgy, Vercher, and Coyle 2008). Hard MAs such as Taekwondo, Karate and Judo incorporate dynamic and vigorous movements aimed at transmitting and generating the maximum force possible and rely on speed, endurance and physical strength (Bell 2008; Burke et al. 2007; Gorgy, Vercher, and Coyle 2008; Theeboom and Knop 1999). As seen in the Olympics, sport MAs such as Taekwondo, Karate, Judo, Boxing and Wrestling are adapted for competition (Lafuente, Zubiaur, and Gutiérrez-García 2021), whereas combat MAs such as Krav Maga focus on real-world situations for self-defence and can involve training with weapons (Ciaccioni et al. 2024).

Despite their combat nature, which can sometimes be perceived as violent and lead to cultural resistance or parental concerns, modern MA&CS have global appeal, which is evidenced by mixed MAs (MMAs) becoming the fastest-growing sport in the world (Stan 2019). Modern forms of MA&CS are often used in competitions, such as wrestling, Brazilian Jiu-Jitsu (BJJ), boxing, Muay Thai, kickboxing or MMA, and are the main styles that MMA practitioners use in training and competitions (La Bounty et al. 2011; Schick, Brown, and Schick 2012). MA&CS are one-on-one combat competition, where individuals use either a combination of punches, kicks, knees and elbows (striking), or wrestling control, take-downs and submissions (grappling), or a combination of both (MMA), with the opponent using a range of offensive and defensive sequences (Krabben, Orth, and van der Kamp 2019). Considering the broader definition of MAs and CSs discussed

thus far, this paper operationalises MA&CS to include the core styles commonly utilised in training and competition within modern MMA: BJJ, boxing, Muay Thai and kickboxing. This specific focus on these styles reflects their centrality to contemporary MMA. By narrowing the scope to these widely practised styles, the approach is both practical and aligned with the study's aim to investigate the relevance of MA&CS in a modern context.

1.2 | Theoretical Framework

To understand the relationship between MA&CS and wellbeing, the Biopsychosocial Model offers a holistic framework by integrating biological, psychological and social factors (Engel 1977). This model posits that health outcomes are not solely the result of biological processes but are also significantly affected by psychological states and social environments (Gurung 2014). The biological component refers to the physical aspects of the body, including genetics, physical health and physiological functioning. The psychological component involves mental processes and behaviours such as emotions, thoughts, attitudes, perceptions and behaviours. The social component encompasses the social context in which an individual operates, including relationships, community, cultural influences and societal norms (Karunamuni, Imayama, and Goonetilleke 2021). Figueiredo (2009) specifically categorises the biopsychosocial framework for combat sports as physical fitness (biological), mental wellbeing (psychological) and social relationships (social). By aligning with this model, we can holistically explore how modern MA&CS contribute to practitioners' overall wellbeing.

1.2.1 | Potential Biopsychosocial Benefits of Modern MA&CS

1.2.1.1 | Physiological. Physical training in modern MA&CS inherently involves strength-building, cardiovascular fitness, endurance and weight management (Bueno et al. 2022; Griban et al. 2021; Bozdarov et al. 2022). Additionally, these activities enhance flexibility (Griban et al. 2021), coordination and balance (Bolotin and Bakayev 2018), while also promoting improved sleep quality (Shosha 2020). These findings are consistent with systematic reviews on hard MAs. For instance, Origua Rios et al. (2018) identified significant benefits for cardiovascular fitness, strength, athleticism, motor skills, coordination, flexibility, mobility and balance, as well as exercise self-efficacy and endurance. Similarly, Palumbo et al. (2023) found that Judo supports functional fitness, including balance, walking speed and strength, making it particularly beneficial for older populations.

1.2.1.2 | Psychological. Modern MA&CS also engage psychological factors, since training can act as a stress reliever and offer therapeutic-like benefits (Farrer 2019), enhance mindfulness (Bozdarov et al. 2022; Croom 2022) and reduce symptoms of anxiety, depression and PTSD (Willing et al., 2019). Additionally, MA&CS enhance mood, life satisfaction and overall wellbeing (Bird, McCarthy, and O'Sullivan 2019; Bozdarov et al. 2022; Croom 2022). Moreover, they encourage healthy

habits (Chinkov and Holt 2016), foster empathy, self-awareness, self-confidence, self-control and resilience (Blomqvist Mickelsson 2020; Bozdarov et al. 2022; Chinkov and Holt 2016), enhance coping (Belem et al. 2017) and strengthen cognitive abilities in overcoming challenges (Bueno and Saavedra 2016; Chinkov and Holt 2016).

These findings are supported by recent reviews and meta-analyses on MAs. Participation in hard MAs can decrease symptoms of anxiety (Ciaccioni et al. 2024; Moore, Dudley, and Woodcock 2020; Origua Rios et al. 2018; Sullivan et al. 2024) and depression (Moore, Dudley, and Woodcock 2020; Origua Rios et al. 2018; Sullivan et al. 2024), which could be attributed to training's cathartic effects (Moore, Dudley, and Woodcock 2020). Although MAs training has been found to increase wellbeing (Moore, Dudley, and Woodcock 2020; Vertonghen and Theeboom 2010), a recent review found no association (Ciaccioni et al. 2024); instead, they found significant associations for MA&CS participation improving emotional resilience (i.e., emotional competence, assertiveness, strong task-coping, lower avoidance-oriented coping and emotional reactivity, and positive reframing). Palumbo et al. (2023) reported that for middle-aged adults, MAs can reduce the fear of falling, which builds self-confidence and self-efficacy; increase mental toughness through developing resilience and the ability to cope with challenges; foster a mindset of striving for improvement and mastery, which contributes to self-discipline; and improve self-esteem and quality of life (Palumbo et al. 2023). For older adults, MAs have a positive impact on cognitive functions, mental health and quality of life (Sullivan et al. 2024).

The literature has debated the relationship between MA&CS and aggression. For example, some studies suggest reductions in aggression (Harwood, Lavidor, and Rassovsky 2017), increases in aggression (Reynes and Lorant 2004), nonsignificant reductions (Moore, Dudley, and Woodcock 2020) or mixed effects on aggression (Ciaccioni et al. 2024). Discipline-specific differences in MAs highlight how traditional MAs (e.g., karate and aikido) are potentially involved in reducing aggression, whereas competitive modern MA&CS (e.g., kickboxing and MMA) may increase it. For instance, BJJ reduced aggression while MMA increased aggression (Blomqvist Mickelsson 2020), and karate practitioners exhibited lower aggression when compared to kickboxers and wrestlers, with hostility notably higher in kickboxers (Ciaccioni et al. 2024).

1.2.1.3 | Social. The social aspect of modern MA&CS is described as the most integral aspect in creating social bonds (Sugden 2021). It nurtures trust with teammates (Andersen 2021) and advances social skills and responsibility (Croom 2022; Destani et al. 2014). Interactions with peers solidify social identity (Rodrigues, Evans, and Galatti 2019) and promote transferred learning and motivation (Bueno and Saavedra 2016). It also enhances social cohesion and group bonds through shared experiences (Kavanagh et al. 2019) and builds supportive communities that foster relationships which impart life skills (Chinkov and Holt 2016; Croom 2022). Although the systematic reviews are limited, Palumbo et al. (2023) highlighted Judo's ability to foster mutual learning and reduce social isolation through collaborative

training, and by reducing fears of falling, increased social activities and overall sociality.

1.3 | Rationale for the Present Study

Despite growing interest in modern MA&CS, the literature remains underdeveloped, particularly regarding psychosocial outcomes (Blomqvist Mickelsson 2021). Characterised as a 'black box' (Van Der Kooi 2020), research in this field is hindered by inconsistent definitions and measures (Ciaccioni et al. 2024; Palumbo et al. 2023), complicating data synthesis and interpretation. Existing reviews often focus narrowly on traditional Asian MAs (e.g., Origua Rios et al. 2018; Palumbo et al. 2023) or adopt broad scopes that fail to account for the distinct practices within modern MA&CS disciplines, such as MMA, Muay Thai, boxing and BJJ. Furthermore, studies tend to prioritise isolated physical or mental health outcomes, overlooking their interconnections within the biopsychosocial framework (Engel 1977). There is an identified and critical need for detailed qualitative research (Van Der Kooi 2020) that examines the lived experiences of practitioners and the holistic impact of modern MA&CS on wellbeing. Such work is especially pertinent in the context of physical inactivity's significant contribution to NCDs, mental health conditions and global health burdens (Katzmarzyk et al. 2022; Santos et al. 2023). Bridging these knowledge gaps is essential for leveraging modern MA&CS as an evidence-based, cost-effective strategy to address pressing global health challenges.

The first aim of this study was to explore the lived experiences of modern MA&CS individuals and how the practice contributes to their broader sense of wellbeing. The secondary aim was to explore how the practice of modern MA&CS impacts individuals biologically (e.g., physical health), psychologically (e.g., mental health) and socially (e.g., social relationships) and how these collectively contribute to an overall holistic sense of wellbeing.

2 | Methods

2.1 | Sampling and Recruitment

The study was conducted in South-East Queensland and Northern New South Wales, Australia, regions characterised by a strong presence of modern MA&CS gyms and active participation in combat sports culture. This context is significant, as the prevalence of competitive and noncompetitive MA&CS in these areas likely shaped participants' training practices, motivations and experiences, providing unique insights into the biopsychosocial dimensions of modern combat sports. The sample of the 16 male MA&CS practitioners was recruited through purposive sampling techniques, leveraging the research team's social networks (i.e., modern MA&CS gyms) and connections in these communities. All participants in the study had informal conversations with the author about their adherence to the inclusion criteria. These included (a) an age range of 18–55 years, and (b), to practise at least one of the modern forms of MA&CS: MMA, boxing, Muay Thai, kickboxing, wrestling or BJJ. The age range of 18–55 was chosen to focus on the general adult population, excluding individuals

outside this range due to potential age-related factors that could influence the biopsychosocial impact of MA&CS. For example, individuals over 55 have increased fall risks (Gale et al. 2018) and the need for tailored training methods, as emphasised by Palumbo et al. (2023), which could introduce additional variables unrelated to the study's primary focus. Regarding the inclusion of only male participants, this was a pragmatic decision based on the composition of the MA&CS gyms available for recruitment, which exclusively comprised male practitioners at the time of the study. Recruitment continued until theoretical saturation was achieved (Braun and Clarke 2006), as indicated by no new emerging themes from the interviews, ensuring the information richness of the content (Piatkowski et al. 2023, 2024).

Study participants comprised 16 male modern MA&CS practitioners aged 28–55 years ($M = 33.69$, $SD = 11.52$). Participants were recruited from South-East Queensland and Northern New South Wales. The men interviewed engaged in an average of 5.27 combat sports training sessions per week. The average number of years spent training by the participants were 14.70 years (median = 11.5, range = 0.25–40 years). Of these participants, 16 were practitioners, 7 were coaches and 4 had currently or previously owned MA&CS gyms. Of these participants, 4 had not competed, 11 had competed in amateur competitions, ranging from 1 to 75 fights (some regional, national or international title holders/medallists), and 5 had competed in professional competitions, ranging from 1 to 12 fights (regional, national, and international title holders/medallists). Please see Supporting Information 1 for full participant details.

2.2 | Materials and Data Collection

This study was approved by Griffith University's Human Research Ethics Committee (approval number: 2023/310). The study participants were invited to engage in a one-on-one semi-structured interview relating to their subjective experience of modern MA&CS participation. Participants were invited through email with the information sheet attached. Verbal consent was provided at the start of each interview. These interviews were conducted through Microsoft Teams and lasted between 13.2 and 54.3 min ($M = 35.2$, $SD = 12.1$).

The semi-structured interview contained demographic questions to gain an initial understanding of the participants. The interview questions were informed by the Biopsychosocial Model (Engel 1977; Figueiredo 2009) and an extensive review of the relevant literature on MA&CS and psychosocial wellbeing, with particular focus on studies examining the relationships between physical training and mental health outcomes (e.g., Vertonghen and Theeboom 2010; Moore, Dudley, and Woodcock 2020). This body of work provided a foundation for identifying key themes, including discipline, community belonging and emotional regulation, which were central to understanding participants' perceptions of their training experiences. By grounding the questions in established research, the study ensured relevance and alignment with existing scholarly discourse.

The interview questions were designed by the lead and senior authors, who collectively bring over 30 years of expertise in

MA&CS. This extensive lived experience, combined with their knowledge of the academic literature, enabled the development of a robust and contextually relevant interview guide. To increase the research quality and ensure the rigour, reliability and trustworthiness of the study (Busetto, Wick, and Gumbinger 2020), the questions were pilot-tested with two MA&CS practitioners who were not part of the final study sample. These pilot sessions simulated realistic interview conditions, allowing the researchers to refine the phrasing, flow and clarity of the questions based on feedback and observations. This iterative process ensured that the interview guide effectively captured participants' nuanced perspectives while maintaining consistency across interviews.

These open-ended questions related to participants' experiences in modern MA&CS training and how it contributed to their overall wellbeing, with specific questions related to biological, psychological and social benefits. Participants were prompted for further details as necessary. For example, a general question such as: 'How has combat sports training influenced your overall physical wellbeing?' was accompanied by prompts such as 'What do you think that confidence stemmed from?' or 'In terms of just the physiological level, say your physique, fitness, and strength levels, how has it influenced that?' A full list of questions can be found in Supporting Information 2. Verbatim transcripts were produced from the interviews, checked for accuracy and errors and then imported into data management software for further analysis.

2.3 | Data Analysis

The data were analysed through a lens of social constructivism (Adams 2006), using a combination of inductive and deductive approaches. Social constructivism emphasises peoples' understanding of their world based on their own experiences (Creswell and Poth 2016). The analysis of MA participants' perceptions of training and its impact on their psychosocial wellbeing was guided by this framework. Social constructivism shaped the research by focusing on how participants interpreted and gave meaning to their training experiences in relation to their mental and emotional health. This framework guided the exploration of participants' narratives and sought to understand how they defined and described wellbeing within the context of their training. This involved examining the language they used, the values they attached to their experiences and the ways their interactions in the MA community influenced their self-perceptions and interpersonal relationships. The Biopsychosocial Model was integral to both the deductive and inductive analysis processes, guiding the development of themes related to participants' physical, psychological and social experiences of MA&CS training. This framework assisted in structuring the analysis by ensuring that each domain of wellbeing was considered and informed the interpretation of the data as it emerged from participants' narratives.

The analytic process was guided by reflexive thematic analyses (Braun and Clarke 2019) and followed Braun et al.'s (2019) six-phase approach. Interviews were transcribed immediately, and an initial reflective familiarisation process began, which contributed to the dependability of the final transcripts. Upon

completion of the interviews, the transcripts were coded in NVivo 12 (QSR), where data were categorised into themes based on patterns identified and developed from the interviews. Excerpts from the data were highlighted and assigned preliminary codes. To organise conceptual support for these codes, relevant examples from the transcript were chosen, highlighting a reflective process as the themes were developed through continual reflection and re-engagement with the transcripts (Braun and Clarke 2023). Throughout this process, a list of verbatim quotations illustrating each theme was compiled, and a list of theme titles and representative extracts were created.

The first author has been an active member of the modern MA&CS community. He acknowledges his significant lived experience within modern MA&CS and maintains personal networks with practitioners in the community. Throughout this reflexive process, he continually reflected on the research, maintaining meticulous notes, journaling, memo writing and engaging in robust discussions with the corresponding author (also a modern MA&CS practitioner) to provide critical feedback on the approach and protect against any pre-existing beliefs, presuppositions or knowledge from influencing the interviews, analysis or findings. Member checks were performed to ensure the research was consistent with respondents' views (Busetto, Wick, and Gumbinger 2020), reduce possible research bias, and help verify, validate, assess and establish the trustworthiness and credibility of the qualitative results (Birt et al. 2016). These checks were conducted informally through in-person discussions at MA&CS gyms, where two participants reviewed their own transcripts, initial themes and interpretations, providing feedback to ensure accuracy in capturing their experiences. They agreed with the accuracy of the transcript coding. Please see Supporting Information 3 for details on the coding process.

3 | Results

Through the analysis, we identified and developed overarching themes that demonstrated the multifaceted impact of modern MA&CS training, with physical, psychological and social dimensions intricately woven together. Three overarching themes emerged from the data: (1) physical challenges as a pathway to psychological transformation, (2) confidence augmentation and its role in prosocial behaviour and (3) community and camaraderie in MA&CS enhancing social wellbeing. Each theme captures unique aspects of participants' experiences while collectively demonstrating how engagement in MA&CS contributes to overall biopsychosocial wellbeing.

3.1 | Theme 1: Physical Challenges as a Pathway to Enhance Psychological Functioning

Participants consistently described how the demanding physical nature of training served as a catalyst for elevating their psychological function. The rigorous training sessions, characterised by both physical and cognitive challenges, pushed participants beyond their perceived limits, leading to personal growth and enhanced mental resilience. In each training session,

participants engaged in a self-confrontation process, exploring physical limitations, expanding comfort zones and assessing their capabilities. P14 [43, Muay Thai, MMA], discussed how 'That's something that I remember from early on ... having to find new ways of digging deeper and pushing myself more.' The metaphor of 'digging deeper', underscored the participants' dedication to surpassing previous limits and continuously striving for personal growth and advancement.

Some participants spoke directly to this symbiotic relationship between physical and psychological domains. For example, the experience of grappling with an adversary underscored the intricate fusion of physical sensations and cognitive strength, as P13 [37, MMA], describes 'Being stuck under 120kg person that's holding you down ... you're at their mercy ... you have to submit ... you realise that you have a physical and a mental limit which is beyond that of what your perception is.' These moments represented a pivotal juncture where participants were confronted with palpable trials of perseverance, emphasising recognition of innate thresholds, both somatic and cognitive. The perpetual exposure to challenges and the navigation of difficulties, such as being 'dominated' in training, imparts valuable lessons in maintaining composure amid stress. Similar to participants experiences in Chinkov and Holt's (2016) study, this process fostered the ability to stay calm under pressure and nurture problem-solving skills in and beyond such contexts.

P10 [35, MMA]: You're constantly presented with a challenge, constantly having a hard time, getting dominated in a roll ... it's always teaching you to be calm in stressful situations. It helps you have the ability to problem solve under stress, that translates into real life, it does have carryover.

The interconnectedness between physical and psychological resilience became a defining characteristic of the profound influence of MA&CS on participants' overarching mindset. Through training, the relentless determination to persist and persevere despite challenges cultivates a mindset that resonates across various facets of life. As P12 [28, MMA] highlighted: 'It's affected my mindset around pretty much anything in life. You just keep pushing forward, no matter how s**t things are there's always gonna be that moment where you come through.' Many participants fostered the belief that life's adversities can be overcome with perseverance and an unwavering commitment to 'pushing forward', shaping mental resilience alongside physical endurance. The narrative of participants highlights their process of navigating challenging training sessions, where the impulse to quit is overridden, leading to incremental mental fortitude into various aspects of life.

P16 [37, MMA]: Martial arts, it's just so hard physically. Your mind follows the body ... hard training sessions, your mind wants to quit, you override that. Every time you do that you get a bit stronger mentally and that translates outside of the gym as well.

Beyond resilience, MA&CS inherently demands discipline and mastery, which often permeated into other areas of participants' lives, as immediate feedback and visible progress motivated self-improvement. As P10 [35, MMA] described: 'It's such honest feedback training. You can't fake it. It's definitely affected my discipline ... that largely has to do with the desire to continue training for a long time.' The concepts of discipline and mastery became a guiding principle for participants, who credited their ability to delay gratification and prioritise long-term benefits to the lessons learned during training, with P4 [28, Muay Thai] reflecting, 'Having discipline to make decisions based on what I want long term ... that delayed gratification.' This capacity for delayed gratification and disciplined decision-making exemplifies how the lessons from MA&CS training permeated other areas of participants' lives.

There was an overarching sentiment among participants that MA&CS fostered discipline, which was instrumental for adopting and maintaining a health-focused lifestyle.

The rigours of training not only require physical stamina but also necessitate discipline through a balanced approach to sleep and nutrition, thereby providing a holistic framework for wellbeing. P4 [28, Muay Thai] stated that 'The discipline I've learned from martial arts has crossed over into the rest of my life. To things like food, sleep, fitness, alcohol consumption ... what I've learned will carry on.' Other participants highlighted how MA&CS provided a novel source of satisfaction, leading to a significant reduction in alcohol consumption and supporting addiction recovery, as P1 [28, MMA] states, 'Before martial arts I was doing a lot of alcohol and drugs. Martial arts kind of grounded that. I started finding satisfaction elsewhere ... that was martial arts.' Similarly, the testimony of P15 [55, Boxing], 'Structuring my whole life around feeling emotionally fit, emotionally strong, mentally strong, physically strong', underscores the important role of modern MA&CS fostering a lifelong commitment to physical and psychological wellbeing.

Another significant aspect of participants' psychological transformation was the therapeutic effects of MA&CS training. Participants described the strenuous physical and mental requirements of training, which often culminate in a state of exhaustion. This experience, evocatively likened to deploying a 'sledgehammer' against personal problems, served as a deterrent to rumination. The subsequent cognitive liberation, attributed to endorphins, emerges.

P16 [37, MMA]: "[When] you're done with it, you're too exhausted to give a f*** about what it was you were anxious about. It's like a sledgehammer to your problems ... you've got better chemicals and hormones and you see things in a positive way instead of a negative way."

This neurochemical shift, attributed to endorphins, prompted a reframing mechanism, allowing participants to perceive external challenges through a rejuvenated lens. This indicates how training serves as a therapeutic conduit, facilitating the release of accumulated daily stressors. P7 [28, BJJ] describes 'It's almost therapeutic to me ... clears my mind, gives me a reset.'

This juxtaposition—physically and mentally stressful training sessions becoming a haven for stress relief and wellbeing—underscores an interesting development in wellbeing. In line with this, participants indicated a noticeable contrast in their mental state when they train regularly versus irregularly. The statement by P11 [32, Muay Thai], '[Training] I see the absence of negative mental health. I don't feel anxious or have symptoms of depression. I just feel calmer', highlights the consistent and clear sentiment: Regular training acts as a protective factor for wellbeing, highlighting the importance of continual engagement in training to foster mental equilibrium. Moreover, the link between physical strain and mental growth contributes consistently to mental health benefits as P5 [32, BJJ, MMA] describes 'The biggest reason that myself and [others] do it ... is for the mental health benefits. Doing something tough and physical ... makes you more relaxed and more happy.' This consistent engagement in MA&CS training not only fostered relaxation, happiness and overall mental health benefits but also paved the way for further psychological growth, particularly in the development of confidence and prosocial behaviour, as explored in the next theme.

3.2 | Theme 2: The Confidence Augmentation and Its Role in Prosocial Behaviour

The development of confidence was another significant aspect of participants' experiences in MA&CS training, and it was found through different pathways and with nuanced meanings. Some participants highlighted that the confidence they gained through training was through the positive interactions and support they had from their gym community. Having positive role models to support them and encourage them provided participants with the 'biggest benefit' from training. As P11 [32, Muay Thai] reflected, 'The biggest part about getting the confidence ... the people around me really supported me, encouraged me, the people around me were amazing.' Participants described how positive interactions and encouragement, especially through the mentorship of role models like coaches or experienced peers, nurtured their sense of confidence and overall biopsychosocial wellbeing. P16 [37, MMA] highlighted this process, saying 'The compliments from people, above you in skill level, you earn your confidence, it's freely given when it's deserved ... they're left with a nice feeling.' Confidence was further bolstered by both physical (e.g., change in body shape) and psychological transformations (e.g., an induced positive mood) through MA&CS training. These bio-psycho changes helped participants gain social confidence, thus increasing their overall biopsychosocial wellbeing. As P3 [28, Boxing] noted, 'Looking and feeling the best I've felt ... it was so good to have the confidence to meet new people ... [not] worry about my body.' This growth in confidence not only improved their social interactions but also led them to seek validation within.

The gym environment also serves as a sanctuary for self-validation, where participants confront not just the physical opponents but their own insecurities, doubts and fears. Many participants stated that they no longer felt the need for external validation in social settings, because they validated and proved themselves internally with each session. P8 [28, MMA] reflects on this, stating, 'I don't need to worry about anything because it gets proven in the gym. The confidence within myself of not

having to worry about people, within a social setting'. Some participants noted the link between the skillset and resilience forged in the gym, and how it creates internal confidence. The physical challenges faced in training allow participants to face challenges head-on, feel physically safe and experience a reduction in both physiological and psychological fear, all of which translates to a broader life confidence. This confidence increases their psychosocial wellbeing, as noted by P11 [32, Muay Thai], 'It's a two-prong thing, knowing that I'm not in any physical danger ... and developing a confidence that comes with the resilience of learning to get hit...things that I might typically be afraid ... social situations ... become a bit easier.' This unique form of confidence, cultivated through MA&CS training, empowered participants to replace previous aggressive tendencies with calm and prosocial responses.

Although MA&CS are often perceived as aggressive sports, the narratives of participants in modern MA&CS reveal a significant paradox: These aggressive-natured sports lead to decreased aggression. All participants who had aggressive tendencies pre-training reported nuanced responses for a complete halt of their violence. Many noted how modern MA&CS training offers confidence and a sense of calm in stressful situations, thus promoting prosocial behaviour. Through intense and stressful training sessions, many participants found themselves calmer and confident in handling confrontational situations, as P10 recalled, 'This dude started mouthing off...the last thing I want to do is fight him. I de-escalated the situation, was fully calm the whole time and in a situation like that, training helps.' Through the confidence gained in the gym, being humbled, and gaining a new skillset, participants developed increased prosocial behaviours, which was reflected by P14 [43, Muay Thai] [stopped fighting] '100%. I had no reason to prove myself, you get humbled every day, you change your way of thinking, you learn to fight and you don't wanna do it ... because you realise what kind of power you have.'. The innate self-confidence many participants gained from the skills allowed a higher level of internal self-respect and external community respect. This common ground of mutual respect and unique self-confidence that combat sports training offers promotes enhanced biopsychosocial wellbeing and safer communities, with P11 [32, Muay Thai] stating 'I had the confidence to intervene in fights and stop them. People seem to notice that confidence ... it's respected and allows you to deescalate things.'. The increased confidence and shift towards prosocial behaviour not only impacted participants individually but also set the stage for deeper social connections in their community.

3.3 | Theme 3: Community and Camaraderie in MA&CS Enhancing Social Wellbeing

The role of modern MA&CS spaces acting as fostering a sense of community was notable. By emphasising an ethos of nonjudgemental respect, modern MA&CS have an inherent ability to dispel preconceived notions and demystify stereotypes, fostering a genuine appreciation for all individuals. As P16 [37, MMA] reflected, 'I got to [City] and joined the club ... It don't matter what skin colour, who you are. There's doctors, lawyers, coppers, criminals, on the mats, they're the same. They're all friends. They got this one thing in common.' The sense of community, deeply rooted in mutual respect and shared goals, influences

practitioners broader social interactions, enabling practitioners to find a community instantly.

Further, modern MA&CS offer a unique expression of camaraderie and belonging. Developed through unparalleled levels of inclusivity and mutual respect, these shared experiences foster a sense of community where individuals meet in the 'middle ground'. P16 [37, MMA] highlighted, 'You don't have to be a certain type of person to belong, no one's judging. It humbles the bullies, strengthens the victims, we all end up in that middle ground with each other.' For many experienced practitioners, the gym becomes their community. Participants describe how the intimate nature of training, sparring and grappling allows special forms of relationships to develop. These sessions provide access to vulnerability, allowing instant bonds to form and creating a strong sense of community that feels like 'family', providing a positive sense of community. The trust and understanding learned inside the gym allow participants to be 'more relaxed and open' in conversations with people outside of the gym.

P4 [28, Muay Thai]: "When you join a gym it becomes like a family ... the bonds that you build, is very special ... it's not just about training, it's about getting food after training. They are often the people you speak to when you're dealing with other stresses in life ... the sense of community that you can find in that space is pretty enormous."

For some participants, the community formed in modern MA&CS extends beyond the outside world. This allowed participants to feel more connected to their local communities. The connections created within the local gym enabled participants to have a sense of social wellbeing outside of it. As P3 [28, Boxing] described, 'The [Boxing] community bled outside of the gym ... it made me a part of the actual community ... made me feel more of a local and made me feel really nice.' Many participants highlight that the positive environments within the gym enhanced their social wellbeing. A clear link between psychological wellbeing and social wellbeing is evident through the positive interactions in the gym as P11 [32, Muay Thai] reflects 'I've met a lot of great people and expanded this supportive network ... that's really nice to have and makes me feel warm and fuzzy.' This expanded network of social support through the gym provides enhanced psychosocial wellbeing.

4 | Discussion

The current study sought, firstly, to explore the lived experiences of modern MA&CS practitioners to understand how the practice contributes to their broader sense of wellbeing. Further, guided by the Biopsychosocial Model of Health (Engel 1977), the secondary aim was to understand the multifaceted impact of MA&CS across biological, psychological and social domains, and how these collectively contribute to an overall holistic sense of wellbeing. Captured through participants' experiences, the findings demonstrated three interconnected themes illustrating the multifaceted impact of modern MA&CS on practitioners' wellbeing: (1) physical challenges as a pathway to enhanced psychological functioning, (2) the augmentation of confidence and

its role in prosocial behaviour and (3) community and camaraderie enhancing social wellbeing. To our knowledge, this is the first study to explore the lived experience of modern MA&CS practitioners in Australia and how it benefits their biopsychosocial wellbeing.

This study found that participation in modern MA&CS fostered not only physical improvements but also significant changes in attitudes and behaviours, including a lasting commitment to self-improvement and health-oriented lifestyles. Participants reported proactively seeking health-related knowledge, experiencing greater life satisfaction, and, in some cases, reducing alcohol and substance use. These findings align with Ciaccioni et al. (2024), who attribute such shifts to the discipline and self-control cultivated through MA&CS training. Similarly, Palumbo et al. (2023) emphasise that the structure and rigour of MA&CS promote a mastery mindset, encouraging practitioners to prioritise long-term health and build resilience. The demanding nature of MA&CS training challenges practitioners to endure physical and mental adversity, which incrementally enhances their ability to cope with challenges both inside and outside the gym (Chinkov and Holt 2016; Fuller 1988). This resilience, defined as maintaining healthy function during adversity (Sarkar and Fletcher 2014), reflects broader psychological benefits. As highlighted in previous research (Blomqvist Mickelsson 2021; Ciaccioni et al. 2024; Palumbo et al. 2023), these benefits extend beyond training to positively influence everyday life.

Similar to Chinkov and Holt (2016), BJJ practitioners in this study reported that the resilience gained through MA&CS training enhanced their ability to cope with external challenges. By overcoming physical and mental adversity, participants developed composure and problem-solving skills that helped them navigate high-stress situations. These findings align with Palumbo et al. (2023) and Ciaccioni et al. (2024), who note that the discipline and self-control required in MA&CS training contribute to mental fortitude, equipping practitioners to handle external pressures. As Palumbo et al. (2023) suggest, the nature of modern MA&CS inherently fosters a mastery mindset, motivating practitioners to pursue self-improvement through discipline, delayed gratification and a focus on long-term health. This mindset extends beyond the gym, enhancing emotional resilience and the ability to maintain composure in challenging situations (Blomqvist Mickelsson 2021; Ciaccioni et al. 2024). These findings extend Ciaccioni et al.'s (2024) review by demonstrating how the resilience cultivated through training supports broader coping strategies, emphasising its impact on emotional resilience and problem-solving in everyday life.

The confidence augmentation discussed by participants occurred through a mixture of internal and external methods and was linked to increased prosocial behaviours and an overall sense of wellbeing. Extending previous MAs and modern MA&CS literature, the internal methods of self-confidence were gained through physiological benefits (i.e., gaining strength and athleticism), which led to an enhanced body image (Costarelli and Stamou 2009), and self-esteem (Kostorz, Gniezinska, and Nawrocka 2017). The confidence gained from external methods came through praise from peers and coaches (Croom 2022), higher perceptions of physical ability (Richman and Rehberg 1986) and skill development (Ball and Martin 2012). Through

skill development, practitioners were physically and mentally equipped to handle unsafe situations, increasing participants' perceived safety (Kotarska et al. 2019), which further strengthened their external confidence. Overarching, these confidence systems were linked to form holistic biopsychosocial wellbeing, promoting prosocial behaviour through decreased aggression outside of the gym environment.

The findings contribute to the ongoing debate in the literature regarding the role of MA&CS in aggression and offer unique insights into the literature on aggression and confidence in MA. Previous literature on MA&CS and aggression has found increases in aggression (Reynes and Lorant 2004), nonsignificant positive effects (Moore, Dudley, and Woodcock 2020), discipline-specific effects (Blomqvist Mickelsson 2020; Ciaccioni et al. 2024) and decreased aggression (Harwood, Lavidor, and Rassovsky 2017). Our findings highlight how participation in modern MA&CS training exhibits a paradox: The intense and stressful nature of combat training seems to diminish external aggression in participants' lives. This shift from prior violence to peace is influenced by modern MA&CS values and boosted self-confidence through training. Each training session was a humbling experience, allowing participants to recognise their limitations and the potential consequences of their skills. This humbling process reduced their need to prove themselves externally, leading to a shift from prior aggression to a more peaceful approach in daily interactions. Understanding the power they held and the ramifications of using it helped reduce their fear and increase calmness in stressful situations. This aspect adds depth to the understanding of how MAs training influences psychological and behavioural outcomes.

Despite these positive findings, some literature presents conflicting views on the relationship between MAs and aggression. Moore, Dudley, and Woodcock (2020) found minimal, nonsignificant reductions in aggression among MA practitioners. Ciaccioni et al. (2024) reported that certain disciplines, like kickboxing, showed higher physical aggression compared to other sports, while Blomqvist Mickelsson (2020) found decreased levels of aggression in BJJ but increased levels in MMA. Our findings provide qualitative support for the Harwood, Lavidor, and Rassovsky (2017) study, which indicated decreased levels of aggression, but expand this to modern MA&CS and temper any previously aggressive behaviours. The findings highlight the potential benefits that modern MA&CS can provide in reducing aggression and promoting prosocial behaviour through increased confidence levels. However, it is important to note that a moderating factor for aggression within MA&CS is the length of time spent training (Harwood, Lavidor, and Rassovsky 2017). Considering that most of the participants in this study are lifelong martial artists, this could be a contributing factor to the significant reduction in aggression. In addition, although many of the participants trained in striking and MMA, most participants also trained in BJJ, which could be indicative of the reduced aggression levels, according to Blomqvist Mickelsson (2020).

The community formed within the gym was cited as one of the most beneficial aspects of participants' experiences. Extending upon previous literature, the findings support the notion that modern MA&CS training can establish a sense of community (Chinkov and Holt 2016; Croom 2022), provide opportunities

to broaden social networks and help develop strong bonds and friendships (Sugden 2021). This study extends this further, as modern MA&CS offered a unique expression of community-building. The gym community, characterised by mutual respect, shared goals and inclusivity, enabled practitioners to easily establish connections, broaden their social support networks and cultivate deep, family-like bonds. Additionally, the sense of belonging and community created inside the gym extended beyond its walls. Participants reported feeling more integrated, calm and open in broader social situations, influencing their social interactions in external community settings. Previous literature suggests that traditional MAs can produce positive social norms, attitudes and behaviours through mentorship from coaches, team members and exposure to diverse individuals (Cynarski 2019). The current findings support this, showing that modern MA&CS training not only shaped individuals' values but also fostered a mindset of mutual respect, which positively influenced their psychosocial wellbeing.

4.1 | Implications

Previous literature indicates that traditional MAs can produce positive social norms, attitudes and behaviours due to the mentorship provided by coaches, experienced team members and training with a diverse group of people (Cynarski 2019). The current findings support this notion, as modern MA&CS training shaped individuals' values and fostered a mindset of mutual respect, thereby enhancing their psychosocial wellbeing. Furthermore, the gym community and positive role models foster confidence, which positively impacts every aspect of the Biopsychosocial Model. Extending previous MA literature, participants gained confidence through enhanced self-esteem (Kostorz, Gniezinska, and Nawrocka 2017), which increased their self-worth. Additionally, their confidence improved through skill development (Ball and Martin 2012) and by increasing their perceived safety, as they felt more physically and mentally equipped to handle unsafe situations. Given the multifaceted benefits of MA&CS, ranging from improved cardiovascular health to enhanced conflict resolution abilities, consideration should be given to integrating MA&CS into exercise prescription frameworks by healthcare professionals such as general practitioners. This holistic approach, akin to 'lifestyle prescription' models (Cornell et al. 2020), could offer comprehensive support for individuals seeking to improve their overall wellbeing.

MMA is recognised as the fastest-growing sport in the world (Stan 2019). As a result, modern MA&CS have gained widespread popularity and practice (Reale, Slater, and Burke 2017). Alongside this popularisation, there are salient benefits for a wide range of age groups (Bird, McCarthy, and O'Sullivan 2019; Bueno and Saavedra 2016). However, while prior studies have often focused on Asian MAs and their psychological outcomes, our study extends the literature to modern MA&CS disciplines such as MMA, Muay Thai, boxing, kickboxing, wrestling and BJJ. This addresses a gap noted by Blomqvist Mickelsson (2021) and Van Der Kooi (2020), who highlighted the lack of depth in the literature concerning the psychosocial context of modern MA&CS. The present study indicates the potential multifaceted

benefits for overall biopsychosocial health and wellbeing for individuals who practice modern MA&CS. Previous interventions on MAs through school-based programmes have shown increases in prosocial behaviour, self-regulation and decreases in conduct problems (Lakes and Hoyt 2004). Future research could extend this type of intervention to include elements of modern MA&CS. The benefits found in Lakes and Hoyt' (2004) study share parallels with the current study. There have also been interventions for juvenile delinquency and adolescent aggression (Burt and Butler 2011) using MAs. MA&CS training may be particularly beneficial for populations with deficits in discipline, self-awareness and resilience, as identified in this study. Educational systems may see value in incorporating modern MA&CS into their physical education programmes (Theeboom, De Knop, and Wylleman 2008), as these emphasise not only physical fitness but also as a conduit for personal and social development. While we acknowledge the potential physical risks (e.g., injury) of MA&CS programmes, we believe the benefits related to self-regulation and conflict resolution position modern MA&CS as a potential cornerstone for developing life skills training courses for children and adolescents.

4.2 | Limitations

This study has several limitations that warrant acknowledgement. The purposive sampling strategy resulted in a nonrandom, homogeneous sample of 16 male participants from a specific geographical location in Australia, lacking gender diversity and broader cultural representation. Within the sample, there was a significant proportion of experienced practitioners, including professionals, coaches and gym owners, whose vested interests may have introduced bias. In addition, the interview questions did not include enough sociodemographic questions to fully capture the nuances and similarities between participants. The first author's close involvement in the MA&CS community, despite efforts at reflexivity and member checking, may have introduced bias, impacting the confirmability and neutrality of the results. Moreover, although participants reported numerous benefits associated with modern MA&CS and extremely limited negatives, it is important to acknowledge the potential physical risks inherent in these activities, such as injuries ranging from minor bruises and sprains to more serious conditions like concussions and fractures (McPherson and Pickett 2010). These risks are particularly pertinent when considering the implementation of modern MA&CS in clinical, educational, and community settings. Future research should include diverse gender representation and broader demographics, employ more open-ended and neutral questions, conduct comparative analyses to address these limitations and consider longitudinal and mixed-methods designs to explore these relationships over time and validate the proposed mechanisms.

5 | Conclusion

This study contributes to the understanding of how modern MA&CS practices support biopsychosocial wellbeing, demonstrating that the biological, psychological and social domains are interlinked to create a holistic sense of wellbeing. Participants'

experiences highlight how training fosters physical health, psychological resilience and social belonging, underscoring the unique value of modern MA&CS. These findings suggest practical applications for clinical, educational and community settings. Modern MA&CS could be leveraged as a targeted intervention to enhance mental health, build social connections and improve overall wellbeing, offering a versatile strategy to address diverse individual and community health needs.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.