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Brazilian Jiu-Jitsu and Wellbeing: An inductive thematic analysis exploring how BJJ can increase subjective wellbeing

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Keywords: health, sport, intervention, rough-and-tumble, mental toughness, Brazilian jiu jitsu

Purpose: This study aims to assess the sociopsychological impact that Brazilian Jiu-Jitsu's (BJJ) can have on the subjective wellbeing of practitioners. **Design:** Data was collected through face-to-face semi-structured interviews (N=8) and were analysed using thematic analysis taking an inductive approach. **Findings:** Improvements in the wellbeing of practitioners can be made via focusing on specific known constructs which have previously shown to increase subjective wellbeing. They included the development of mental toughness, progression towards meaningful goals and/or healthy habits and behaviours, and the forming and maintaining of positive social relationships. **Research Implications/limitations:** The present work demonstrates the psychological benefits of BJJ practice on several psychological wellbeing targets, albeit it in a modest sample size. **Practical implications:** The heightened emphasis on mental wellbeing in the general population has added increasing pressure on mental health services (Diener et al., 2018; Johnson et al., 2018; Steptoe et al., 2015; Wicking & Dean 2020). Therefore, it is of theoretical and practical advantage to explore novel ways to help individuals with both their mental health and wellbeing. **Originality:** The present study seeks to add to an emerging field of research which proposes that intentional activities such as BJJ can be integrated alongside traditional approaches to therapy in their promise to help those recovering from mental health issues.

Introduction

Brazilian Jiu Jitsu

In recent years, Brazilian Jiu-Jitsu (BJJ) has emerged not only as a martial art and competitive sport but also as a therapeutic tool with the potential for profound physical, psychological, and social implications (Farrer, 2019; Fogarty 2020; Weinberger & Burraston, 2021). Originating from traditional Japanese Jiu Jitsu through the teachings of Judoka Mitsuyo Maeda and further developed in Brazil, BJJ has garnered increasing attention for its unique approach to self-defense and its transformative effects on practitioners' well-being (see Mickelsson, 2020).

The physical demands of BJJ training takes an holistic approach to fitness, encompassing cardiovascular endurance, muscular strength (Detanico et al., 2021), flexibility, proprioception, the development of life skills (Chinkov & Holt, 2016) and has been shown to increase endogenous oxytocin, increase serotonin levels and a reduction in stress (Rassovsky et al., 2019). Engaging in regular BJJ practice has not only been shown to enhance physical health but also to foster a sense of embodiment (see Twemlow, Sacco, & Fonagy, 2008) and kinesthetic awareness, which are integral components of somatic therapies aimed at treating trauma and dissociative disorders (Foster, 2015). Through the embodiment of techniques and the cultivation of mindfulness during training (Mickelsson & Stylin, 2021), practitioners are said to develop a heightened sense of body awareness and interconnectedness, facilitating the integration of mind, body, and spirit which some have argued are particular to BJJ (see Gracie & Danaher, 2003).

At its core, BJJ is characterised by its emphasis on technique, leverage, and strategy rather than sheer physical strength, making it accessible to individuals of various ages, genders, and physical abilities (Andreato et al., 2014). This inclusive nature has contributed to the growing adoption of BJJ as a pass time and significantly here a therapeutic modality within populations experiencing stress-related illness, anxiety, depression, post-traumatic

stress disorder (Weinberger & Burraston, 2021) and/or come from traditionally hard-to-reach populations such as military personnel (Willing et al., 2019).

The structured training environment of BJJ academies, coupled with the often-supportive community ethos, provides a nurturing space for individuals to cultivate resilience, self-confidence, and emotional regulation skills, thereby bolstering practitioners mental well-being (Lafuente, Zubiaur & Gutiérrez-García, 2021; Lakes & Hoyt, 2004; Massey, Meyer & Naylor, 2013). This is consistent with Social Capital Theory (Putnam, 2000) which advocates that certain 'sporting' environments are useful in forging new ties with other across a common language of movement. However specific characteristics related to the environment are key to determine since not all sports are said to derive this benefit (see Holt et al., 2020; Seippel 2006, for examples of this debate).

Rough and tumble play

One potential mechanism of transformation in BJJ may be found through its alignment with rough and tumble play (Mickelsson & Stylin, 2021; Pellegrini, 2002). In the context of BJJ this refers to a style of training or sparring characterised by physicality, intensity, and sometimes a lack of strict adherence to wider societal norms (Vertonghen & Theeboom, 2010). As Shaw (2020) has alluded to, BJJ can be described as a game of human chess. It often involves practitioners engaging in dynamic, unscripted exchanges where they actively grapple, apply techniques, and experiment with their skills in a more spontaneous manner (Pellis, Pellis & Foroud, 2005). This type of play is ever more common during live sparring or 'rolling'. During this time participants may engage in rough and tumble play to test their techniques, timing, and reactions against resisting opponents in a more realistic setting than drilling or isolated technique practice affords. Rough and tumble play can help individuals develop adaptability, resilience, and the ability to think and react quickly (Burgdorf, Kroes & Moskal,

2017) and it is thought that BJJ may represent a practice abundant in such opportunities. The concluding act of 'rolling' is the symbolic death or near-death simulation by the signal to 'tap out' which provides the safe opportunity for the practitioner to experience absolute failure in a safe way (Hogeveen, 2013). 'Survival' is thus a more unique experience shared only by a few other combat sports of a close lineage (e.g. Judo), and less so by other prescribed sports used in therapy and rehabilitation (Pescheny, Randhawa & Pappas, 2020; Rasmussen et al., 2023).

Farrer (2019) has explored how therapeutic benefit can arise from techniques aiming to destabilise and nullify an opponent's movement and energy by using technique over strength to ultimately make them surrender. He uses a Deleuzian parallel model of body and mind (Deleuze, 1988) to enhance the idea that to live well is to fully express one's power by going to the limits of one's potential, rather than to simply judge by non-empirical means and transcendent standards. The immediate and unequivocal feedback loop that comes with submitting or being submitted may represent such an example of this 'full' human expression.

Mental toughness

The psychological mechanism of action of rough and tumble play may be found through the fostering of Mental Toughness (MT; Dagnall et al, 2019). MT refers to a set of psychological attributes and skills that enable individuals to persevere and thrive in the face of challenges, setbacks, stress, and adversity (Jhamb & Kataria 2023). It involves the ability to maintain focus, determination, resilience (Mojtahedi et al., 2021), and emotional stability during difficult situations or when pursuing long-term goals. In a review of MT in sport, Cowden (2017) identified that in 88% of relevant studies athletes with higher levels of MT achieved more or perform better than those characterised as low in MT. Mojtahedi et al. (2023) recently demonstrated the protective qualities of MT on anxiety among combat sport athletes which included a sub sample of BJJ athletes and other wrestling styles (N=53).

MT has been shown to be fostered by participation in other combat sports (Gould et al., 1987; Devonport, 2006; Slimani, 2016). Presently, the authors suspect that there may be something unique that enables BJJ practitioners to foster MT, through the rough and tumble play, established as a 'safer' environment in comparison to other arenas.

Considering the growing interest in complementary and alternative therapies for promoting holistic well-being, BJJ may represent a promising frontier in the realm of integrative medicine and psychosocial rehabilitation. However, Mickelsson (2017) explains these claims are mostly derived from anecdotal reports and narratives, adding that BJJ's therapeutic properties remain understudied. The present study seeks to explore these properties.

Study aim

The present study aims to explore factors of subjective wellbeing experienced through participation in BJJ.

Methodology

Design: A series of individual face-to-face, semi-structured interviews were conducted to explore the relationship between BJJ and perceptions of wellbeing. The interviews focused on a variety of constructs including progression both on and off the mats, improvement in self-confidence, a stronger sense of resilience, and the impact that forming and maintaining positive social relationships can have on an individual's wellbeing. An inductive thematic analysis was then used to interpret the results by firstly generating data from the specific experiences of the participants. Secondly, relating them to a more general set of propositions about those experiences, and finally, linking them together under themes and sub-themes (Braun & Clarke, 2006). Ethical standards were insured through the ethics committee in the school of Psychology

and Therapeutic Studies prior to data collection. Permissions were also granted by the owner of the specific Gracie Barra dojo. School of Psychology ethics was awarded for the study which is overseen by the Faculty of Social Sciences ethics sub-committee.

Ontological and Epistemological Viewpoints

From a critical realist/contextualist viewpoint (Clarke et al., 2015) BJJ can be defined as a physically engaging, competitive and collaborative activity (Pope, 2019). Therefore, ontologically this study underlines that when individuals participate in a collaborative, physically engaging activity it usually results in positive health outcomes both physiologically and psychologically.

Epistemologically, the knowledge that engaging in such an activity usually results in these positive health outcomes which can contribute to improvements in one's overall subjective wellbeing is acquired through a vast array of studies (Dwyer et al., 2020; Nemet et al., 2005; Penedo & Dahn, 2005). These studies arrive at similar conclusions demonstrating diverse long-term and short-term positive physiological health outcomes, as well as many diverse long-term and short-term positive psychological health outcomes. Furthermore, similar conclusions specifically related to BJJ practice are also evidenced in many studies (Chinkov & Holt, 2016; Fogarty, 2020).

Participants

Data was collected from 8 participants (5 males, 3 females) with ages ranging between 24 to 48. To be eligible for this study participants needed to be active members of Gracie Barra dojo. All participants were local to Leeds, were all active members of Gracie Barra dojo Leeds at the time of interview and were all new to BJJ, as participants had only been training from between five months and one and a half years and were all at the level of white belt.

Procedure and materials

The first material used for this study was the recruitment advertisement. This was a WhatsApp group message sent out to all members at Gracie Barra dojo. It highlighted what the study was aiming to explore, how to take part and explained the selection process (details provided in procedure section). After participant information was delivered to prospective participants those interested then completed informed consent forms. The interview framework was then used to guide the process creating consistency across each semi-structured interview (Kallio et al., 2016). Once the interview process was complete the transcriptions were produced and ready to be coded. Then, a broad mind map of themes was created followed by a narrowed down set of themes which were structured in a hierarchical thematic map. A research diary was also produced as part of the audit trail for this study which documented the entire research process from start to finish including the researchers' thoughts and considerations at each stage providing transparency throughout. All audio recordings were destroyed after the transcription process was finalised and the transcriptions were stored securely, where only the researchers had access. The interviews were all done within a 1-month period commencing January 2022.

Reflective statement

It is important to acknowledge the subjective position of the principal researcher in shaping the research process (McCabe & Holmes, 2009). To remain reflective throughout the research, process the principal researcher produced a research diary which detailed the research process from the formation of the initial aims through to the data synthesis. The principal researcher has trained BJJ for a couple of years now at the same club which data was collected from and is conscious of the positive impact that it has had on their own wellbeing (Bone). These assumptions may have introduced a bias in the approach to the study as we are aware that not all individuals are interested in the same activities and may respond to them in different ways.

The second researcher (Morris) is not a practitioner of BJJ and has no association with Gracie Barra dojo. Morris has however studied martial arts for several decades so is cognisant with the potential benefits of such practices. During data collection, transcription, and theme identification the second research assessed the quality of the analysis to reduce unintended bias being introduced into the findings from the principal researcher. Specifically, transcript exerts used to underpin the themes were confirmed as being aligned to the themes that were generated from the data. Prior to analysis the researchers were considerate to the potential for having heard the voices of those who may express different experiences than ourselves and had markedly different accounts to others in the participatory group.

Results

Method of Analysis

Data was interpreted using Thematic analysis. Once the interviews and transcriptions were complete the six phases of thematic analysis provided by Braun and Clarke (2006) were followed. Three main themes were identified while exploring specific constructs that are both effective at increasing wellbeing and can be obtained through participation in BJJ. The most re-occurring themes which participants claimed contributed to increasing wellbeing via participation in BJJ were the nurturing of MT (with components of resilience and self-confidence), progression toward meaningful goals and/or healthy habits and behaviours, and the forming and maintaining of positive social relationships both within and outside of the academy. Before exploring these themes in further detail, the overall immediate changes in the wellbeing of the participants before and after starting to train BJJ will be briefly discussed. Participants initials will be used throughout this analysis to preserve anonymity.

Wellbeing Before and After Starting BJJ

'SD' reflected on his wellbeing before he started BJJ and rated it out of ten

> *"so, if I'd say (at) the start of April I would have been at about a four, probably going to the gym took it up a couple of points to a six, then BJJ took it up to, I don't think I've ever felt as good as this and my wife (has) noticed as well"* (03:26 - L-65-67).

'SB' also spoke about her mental health and wellbeing before joining.

> *"So, when I joined, I wasn't in the best of places I was feeling quite down, I'd been off work with a little bit of depression [ ] I think my mental health improved, which is probably being a part of here"* (04:26 - L- 80-85).

When asked about his experiences before starting BJJ 'JF' spoke about how his physical weight was affecting his wellbeing.

> *"Oh, really bad uhm I was like physically I was the heaviest I've ever been"* (02:28 - L-28).

He then goes on to say how BJJ has helped him physically which has made him

> "feel better" (07:17 L-150)
>
> and
>
> "happier" (07:17 - L-151)

Similarly, 'DA' explains how he is happier in himself since training BJJ

> *"I'm happier in myself. I'm happier in my own body. I feel more comfortable (in) my own body and [ ] I've never, ever left the gym and thought that wasn't good, every single time I've left the gym, I've always thought that was brilliant, that was really, really enjoyable. My body feels uplifted. I feel strong, I feel just good"* (12:22 - L-206-215).

'MJ' explains how starting BJJ has also made him happier and calmed him down (MJ: 17:05 L – 8)

> *"Oh, (I had) like very short fuse. I could just snap at anyone (but) now I'm, I'm very calm. [ ] I've just become very happy it's just, I'm just very happy it's like being on pills, seriously"* (17:05 - L-263-272).

Finally, 'IB' noticed how he has become a lot less stressed since starting BJJ

> *"Uhm it's, it's a really good way of distressing, but also focusing your mindset because I think of jitz as like chess, I'm awful at chess, but it's human chess" (04:09 - L-77-79).*

This is something which was alluded to earlier when Shaw (2020) explained how Jiu-Jitsu is often referred to as human chess via its ability to exercise both body and mind simultaneously.

To explore the data suggesting that training BJJ has made improvements to the participants subjective wellbeing further, the three subthemes defined here of MT, progression and positive social relationships will now be discussed.

Mental toughness

The interview framework used for this study asked the participants whether they felt they had acquired progression in areas of their life following participation in BJJ, while remaining inductive in approach the participants were encouraged to describe which areas, if any, and why. The components of MT that were most clear throughout the interviews were those of self-confidence and resilience.

Self-confidence

Improvements in one's self-confidence and self-esteem has been consistently associated with improvements in subjective wellbeing (Cheng & Furnham, 2002; Khair et al., 2021; Owens, 1993). Firstly, SB compared BJJ to her previous experiences in climbing and claimed in sports where people watch her, she can

> *"feel very nervous"* (05:33 - L-102)

before expressing how the encouragement she receives during her BJJ training has helped her in that regard

> *"with the encouragement of like Professor xxxx and coach xxxx it's just made me believe in myself a little bit more and push myself that little bit further and have less self-doubt"* (05:33 - L-105-107).

'SH' commented on how she has become more confident since training BJJ

> *"I think I've progressed with some things like confidence"* (03:46 - L-68-69).

She then later explained how her improved confidence has translated into her work life

> *"I certainly don't get nervous going into a conversation with anybody anymore and I'm certainly happy to challenge in a constructive way and you know, deal with whatever the response is (and) I think it has happened in parallel"* (10:54 - L-189-192).

Similarly, 'STT' claimed BJJ has also helped her confidence in work situations

> *"I was really nervous before the inspection happened, but I think my jiujitsu training had kind of given me confidence to just be myself and be like it's OK. [ ] So, I think it gave me the confidence to just be unapologetically myself"* (02:52 – L-61-70).

While ‘MJ’ feels the confidence he has gained through BJJ has made him more approachable now.

> *“I've gained confidence that's another massive thing you know, like [ ] I think I'm more approachable now at the same time, [ ] so now with doing jiu-jitsu, I'm literally back to where I can walk into the room full of people and actually, I can stand tall if you like”* (12:37 - L-199-207).

‘DA’ describes how he’s gained confidence through competing in BJJ

> *“I think confidence in myself that I achieved something by competing [ ] you know you see other people doing it and think I couldn't do that, but then you do it and you actually realise that the people getting on the mat [ ] they're no different to you, you know it's just about having the confidence to actually try it”* (10:18 - L-172-177).

This relates to the earlier explained aspect of wellbeing where an individual can experience increases in wellbeing when realising their human potential in relation to their psychological wellbeing (Deleuze, 1988). ‘DA’ then goes on to say,

> *“I think in different aspects of my life I’m definitely more confident and more self-assured now”* (11:52 - L-199-200).

Resilience

Savoji and Ganji, (2013) claim psychological resilience is an essential process for an individual to effectively be able to deal with the demands and challenges of everyday life while retaining the ability to enjoy life. When asked whether he had developed any life skills since training BJJ ‘SD’ responded

> *"yeah consistency and definitely some resilience"* (11:17 - L-200).

Similarly, 'JF' said

> *"yeah, I think definitely resilience, definitely"* (09:25 - L-182).

'SH' also claimed she had developed resilience

> *"yeah, actually definitely, (I'm) definitely more resilient"* (10:54 - L-180).

Finally, 'STT' suggested she has gained more resilience when faced against someone she had previously struggled with

> *"eventually I had like more resilience to push through it when I was against a partner that I previously struggled with"* (04:35 - L-95-96).

A significant factor participants claimed helped them develop resilience and self-confidence was becoming more comfortable in uncomfortable situations. This echoes statements seen earlier from Farrer (2019) where he explained how BJJ is an effective tool for lessons in humility while learning to respect one's own physicality and finitude which enhances the idea that to live well is to fully express one's power by going to the limits of one's potential. 'DA' believes that becoming more comfortable through BJJ practise translates to other areas of his life

> *"to feel uncomfortable and be comfortable at the same time is what we're all striving for I think and not just in jiujitsu either. You know it's in business, it's outside in your family life it's easy to do what's easy, but you're not going to get great results if you keep doing what's easy [ ] I think Jiujitsu probably brought it to me more because you have no choice but to feel uncomfortable you know"* (14:49 - L-253-262).

‘MJ’ explained how he benefits from the knowledge that nothing in a typical day should be as challenging as training BJJ

> *“like whatever is going to happen whatever they're going to throw at you that's nothing really, you know nothing really is going to compare to someone trying to choke you or break your arm”* (12:37 - L-208-210).

‘JF’ also echo’s this sentiment

> *“if you can survive having a guy either on top of you or on your back trying to strangle you unconscious, nothing else you do (is) going to be as bad as that”* (09:25 - L-185-188).

He later describes how the confidence he has gained from this life skill translates outside of BJJ training into his everyday life

> *“when you're outside of jiujitsu in uncomfortable situations, whether it be personal life or work life or whatever, you become comfortable, you know it's not as much of a culture shock because you know we come onto the mats every day and put ourselves intentionally in those situations and we get out of it”* (17:44 - L-315-320).

‘SH’ explains how she benefits from specific training which is the live sparring aspect of BJJ

> *“with specific training I don't have much in my armoury at all so I'm going into that knowing I'm basically going to get submitted very quickly [ ] but I think just the whole going into something on the basis that you know it's gonna be really hard and you're probably not going to succeed first time, but you're absolutely going to learn something is valuable”* (10:54 – L-180-188).

Finally, SB mentions how she has benefited from live sparring as well

> *"I like challenging situations and I like to do things that push me [ ] I think that's what I really benefit from in there I guess is just that getting used to rolling with random men. That's a really big thing for a woman"* (10:11 - L-201-210).

Progression to goal

It has been previously cited that progression towards meaningful goals or healthy behaviours has important ramifications for psychological need satisfaction and improved wellbeing (Green et al., 2006; McKnight & Kashdan, 2009; Sheldon & Elliot, 1999; Spence & Grant, 2007). Also, as seen earlier, Miyata et al. (2020) highlight how intentional activities such as martial arts whereby clear goals are defined which carry a sense of meaning and accomplishment are an excellent way in which to achieve an increase in wellbeing.

McKnight and Kashdan (2009) used a model able to identify the cognitive process of purpose and found that devoting effort and making progress toward life goals provides significant increases in wellbeing through renewable sources of engagement and meaning. 'STT' explained how she feels better when she has specific goals to work towards

> *"I found giving myself like one key area to focus on meant I could really actually measure that I was making progress and that made me feel kind of better about myself"* (04:35 - L-98-100).

She continues

> *"you can get a lot of mental stimulation out of BJJ and you can get a lot of progress and like happiness and satisfaction and fulfilment, if you have something you want to work on"* (06:23 - L-115-118).

'SD' says BJJ has now given him

"*meaningful goals"* (02:50 - L-47)

and compares the desire he feels towards improving in BJJ to other sports

> *"the desire to be really good at it, which I don't feel in any other (sports) you know I've played badminton. I played squash, I've been to the gym, I played rugby (but) I've never really felt a strong desire to be very good at those things I feel a real desire to be good at BJJ"* (01:38 – L-31-35).

Similarly, 'SB' compares BJJ to other experiences and appreciates the recognition she receives when progressing towards her goals in BJJ

> *"for me it's that recognition from somebody else that you're doing well and you're progressing cause it's not often you get that. So, like climbing, it's just based on me [ ] and CrossFit is similar it's kind of down to you to see it in yourself, whereas here what's really nice is it's somebody else believing in you and thinking actually you are doing well"* (02:51 – L-50-55).

'SH' explains how promotions awarded by the Professor which are represented by stipes on her belt makes her feel

> *"I'm sure Professor xxxx will know when I'm ready, I'll get my third stripe and I'll feel amazing about it!"* (05:52 - L-112-113).

Positive social relationships

Within-Person Interactions on the Mats

'STT' explained how she felt when the BJJ gym opened in person as opposed to training online using zoom throughout the lockdown

> *"I couldn't believe what it felt like to be in person 'cause we just hadn't had that chance to have that experience and even though I got to train with {the speaker's husband} here at home, it just didn't really feel anything like it actually felt in person and being in like in the environment with everyone else just felt, it felt magical!"* (00:20 - L-18-22).

'JF' commented on how he felt he

> *"needed to be socialising with people again" (00:47 - L-19)*

after the lockdown and now takes inspiration from other members at the gym which has made him re-evaluate what goals he would like to pursue in his own life.

> *"(I'm considering) what do I actually want to do with my life, you know, and that's purely come from kind of the positivity that I experience here, like people I've met you know I want to carry that forward into other areas of my life, which is already happening"* (07:17 - L-159-163).

He continues,

> *"meeting more like-minded people that have come from loads of different backgrounds and listening to their stories and what they're doing and being inspired [ ] you're in this kind of community, you're kind of uplifted by what they're doing as well, so it's (a place) where everyone can grow together"* (08:30 - L169-175).

Similarly, 'IB' says he takes inspiration from other members

> *"I mean some of the guys here are absolute tanks and the athleticism of them is amazing and so you try and look at them as role models and I think [ ] I want to do something very similar"* (04:42 - L-88-91).

'SD' claimed that meeting new people has opened up a lot of intellectual stimuli for him

> *"it's opened up a load of intellectual stimulus for me as well. So, (I) was thinking about this recently you know you meet loads of people don't you [ ] so you've got this kind of like situation where you're spending time with people that have got different world views and different whatever and you can pick up from that. [] I've suddenly developed a sort of it's not spiritual that will be the wrong word, but an interest in more philosophical matters that I didn't have before"* (08:30 - L-135-152).

Impact on Relationships off the Mats

'MJ' explains how the community at BJJ has helped improve his relationship with his wife by giving him a healthier social outlet

> *"oh you know the community here is great"* (21:59 - L-330).

> *"The thing is with me (I've) never been that sort of person that's just hung around and stuff so I thought that's gonna have to change [ ] because before maybe once every six months I went for a pint [ ] now once a month I go with my wife for a dinner I think that's jiu-jitsu helping my relationships, because I was really struggling with my wife (before) because we felt like we can't understand each other and now I kind of I, I grow this this feeling that you know, (I'm) able to communicate with her you know"* (21:59 - L-317-329).

'DA' also alluded to how he thinks the positive community he has experienced since training BJJ has impacted relationships within his family

> *"the communities a million times better than I thought it would be [ ] and even my wife [ ] she actually said to me I can really see why you keep going back, there's some really lovely people [ ] the community spirit and that sort of friendly environment"* (04:50 - L-87-100).

> *"I'd say it gives me more patience because before if you're having a bit of a crappy day [ ] you know you start rubbing each other up the wrong way, whereas now I come away from the house for a few hours, come here, physically exert myself, enjoy myself, then go home and everything is reset. So yeah, I think it's impacting relationships across the family"* (14:02 - L-233-239).

The analysis presented above extends and provides further insight to the literature reviewed in the introduction surrounding BJJ and wellbeing. It includes quotes from all the participants interviewed and is one possible interpretation of the data. This interpretation is specific to the researchers, which reflects their understanding of the data considering their own knowledge and understandings of academic theory and research.

Discussion

The themes and sub-themes identified within this research paper strengthen earlier claims that wellbeing can be increased through participation in BJJ. It is important to stress that all participants broadly expressed positive experience during their BJJ training. Also, as previously stated, increases in wellbeing is something that is often overlooked regarding mental health interventions despite it being imperative while treating mental illnesses long-term

(Slade, 2010). The key findings within the study present a clearer understanding of how wellbeing may be increased through BJJ. Firstly, the development of MT including core elements of resilience and self-confidence was shown to improve participants wellbeing by allowing them an opportunity to realise their human potential in relation to their psychological wellbeing, which is has been argued important in the development of the self (Deleuze, 1988).

Secondly, participants demonstrated that progression towards meaningful goals within BJJ because of training BJJ can positively impact wellbeing via improvements in perceptions of their own lives. Whilst there is evidence supporting the benefits of different combat sports such as kickboxing and karate to enhance subjective wellbeing (Gould et al., 1987, Devonport, 2006, Slimani, 2016), BJJ may be found to be distinct from these in terms of three aspects. Namely the ability to fully experience the entirety of the art form through the 'roll' (Hogeveen, 2013), through the sanctioned rough and tumble play (Burgdorf, Kroes and Moskal, 2017) and through the spontaneous nature of the play enabling individual expression of physicality and psychology (Pellis, Pellis & Foroud, 2005).

The final theme spoke to participants claims that positive social interactions are crucial to increasing wellbeing while proving BJJ to be an excellent facilitator for this, which is consistent with some literature (see Chinkov and Holt, 2016). It is possible that BJJ has some shared socialising benefits to other sporting activities (Eather et al. 2023). Therefore, presently it may be argued that BJJ offers a different sporting experience to those more traditionally viewed as enhancing elements of social interaction (Eather et al., 2023), and may be more amenable for harder to reach groups (Weinberger and Burraston, 2021; Willing et al., 2019).

Limitations

The authors wish to acknowledge four potential limitations to the present study, which can be improved upon in future work. Firstly, the authors acknowledge the prior association that the principal researcher had with respect of the sample used, and how this might have led to an implicit bias in favour of the gym and what they practice. The authors are confident however that the checks detailed in the paper mitigated against this.

Secondly, the modest sample size is reflective of the typical class size of this gym when recruitment took place. Use of only one gym limits what can be said about the wider practice of BJJ but does help understanding in the benefits of this practice at least at this local level. Furthermore, as part of the Gracie Barra gym network there are established and standardised ways that this gym is run which is equivalent to tother gyms under this franchise.

Thirdly, it is possible that the experiences of this gym might only reflect the specific environment fostered here and may not be readily extendable to other gyms. However, given the correspondence that the present data has with the wider literature this seems to have been less of an issue.

Finally, the authors were not able to make assessments of wellbeing prior to participants engagement with BJJ, but it is worth noting that all participants derived some benefit from their practice, whatever starting point they may have been at as they initiated training.

Implications and Recommendations for Future Research

It is hoped the current study has highlighted in greater depth what previous studies have concluded in regard to BJJ improving wellbeing. Thus, presenting an opportunity to examine how BJJ can be effectively utilised as part of a mental health/wellbeing intervention via its positive impact on subjective wellbeing. Therefore, recommendations for future research are to explore the specific appropriate contexts where BJJ could be used in therapy, techniques as

to how BJJ can be integrated into a mental health intervention and an evaluation of the drawbacks and benefits from BJJ being integrated within or alongside a mental health/wellbeing intervention.

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