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Japanese martial arts (JMA) practice is an effective wellbeing strategy in post-COVID: a qualitative appraisal

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ABSTRACT

This study aimed to examine the experiences of Japanese martial arts (JMA) practitioners during the COVID-19 to understand how JMA impacted on their mental wellbeing. Using online semi-structured interviews and thematic analysis, we explored the first-hand experiences of JMA practitioners in COVID-19 regarding their mental wellbeing. 12 practitioners were recruited through the researchers' network. Two research questions were established, exploring the impact of COVID-19 on their wellbeing (RQ1), and how JMA helped their mental wellbeing (RQ2). Four themes were identified. Theme 1 "Little impact on JMA practitioners' wellbeing (responding to RQ1)"; Theme 2 "JMA training as a coping mechanism (RQ2)"; Theme 3 "Self-mastery and self-development (RQ2)", and Theme 4 "Self-reflection (RQ2)". Our findings suggest JMA practitioners maintained good mental wellbeing during the stressful pandemic time. Mental wellbeing benefits of JMA may be summarised as "self-care", as self-mastery, self-development, and self-reflection were reported by the participants. These benefits may lead to better coping. Longitudinal and mixed-method research is needed to better understand their experiences.

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Japanese martial arts; self-development; self-mastery; self-reflection; wellbeing; health

1. Introduction: the effect of the COVID-19 pandemic on mental health and wellbeing

The COVID-19 pandemic prompted an unprecedented quarantine and lockdown response that continues to see detrimental mental health effects on people today (Kotera, 2021). The pandemic and the subsequent restrictions to contain it have affected the lives of millions of people in terms of socialising, working, and living which can negatively impact their mental health (Wu et al., 2021). A meta-analysis of over 200,000 participants analyzing the prevalence of mental health issues during the COVID-19 pandemic saw depression, anxiety, and insomnia as the most common

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mental health issues people suffered, and that the prevalence of mental health problems from COVID-19 is higher than other novel disease epidemics and natural disasters (Wu et al., 2021). Multiple social risk factors from the pandemic are likely to heighten stressors among different populations, leading to an increase in various negative mental health outcomes (Boden et al., 2021). These stressors include exposure to the COVID-19 virus (Garfin et al., 2020), movement restriction (Brooks et al., 2020), and occupations that risk infection and stress (Baker, 2020; Edwards & Kotera, 2021). Populations facing discrimination and low socioeconomic status, such as women, ethnic minorities, and individuals living alone (Bhandari et al., 2021; Bu et al., 2020), also face an increase in psychological distress due to structural inequity and systemic exposure to pandemic-related stressors (Bu et al., 2020; Raifman & Raifman, 2020). Individuals facing domestic violence or disabilities are also at greater risk of psychological distress as pandemic restrictions reduce mobility and accessibility to social services (Rajkumar, 2020). Social isolation and loneliness are also important risk factors to consider regarding government-issued pandemic measures, such as quarantining and lockdowns (Maroko et al., 2020). As many low-income communities initially face inadequate health services, social safety nets, and economic resources, mental health concerns may have the potential to be devasting and long-lasting for many people (Kola et al., 2021).

Physical distancing was enforced as health measures during the COVID-19 pandemic to prevent the spread of the virus (Shibata et al., 2021; World Health Organisation, 2022) and this has had significant negative impacts on people's mental wellbeing (Veasey et al., 2022; Xiong et al., 2020), the way people work such as new ways of working from home (Andrulli & Gerards, 2023; Kotera & Vione, 2020; World Bank Group, 2022), learning (Lemay et al., 2021; Mosavel et al., 2022), worship (Mosavel et al., 2022), and exercise (Veasey et al., 2022; Yang et al., 2022).

2. Japanese martial arts and wellbeing

During the COVID-19 restriction, many people found Japanese martial arts (JMA) helpful in maintaining good physical and mental wellbeing (Veasey et al., 2022). Particularly helpful is that practitioners found that JMA can be practiced in a restricted environment which supports the physical and mental wellbeing (Miyata et al., 2020; Robert & Macarie, 2020) of those who needed to be in isolation during the COVID-19 pandemic because it enabled them to practice JMA online (Meyer et al., 2021; Veasey et al., 2022). JMA has continued to be considered to support practitioners' physical and mental wellbeing (Miyata et al., 2020). In Japan, martial arts refer to physical and mental practices that are based on historical combat techniques (Miyata et al., 2020). In research on martial arts, most of the focus has been on the physical aspects, especially the health benefits and injuries associated with martial arts practice (Burke et al., 2007; Moore et al., 2020).

JMA helps people in the management of energy, and this is an important aspect of martial arts (Seitz et al., 1990) in general that can enhance both the physical and mental wellbeing of martial arts practitioners (Miyata et al., 2020). There is evidence that martial arts training can be an effective sports-based mental health intervention for improving wellbeing and reducing symptoms associated with internalising

mental health (Moore et al., 2020). A recent study (Moore et al., 2020) shows that JMA can have positive effects on mental health. The study shows that practitioners can benefit from practicing maintaining positive physical and mental wellbeing and helping them to reduce aggressive behaviours (Moore et al., 2020). While practicing JMA, people can enhance their social connectedness (Lipowski et al., 2019) and thus connect with one another in a safe and supportive environment (Lipowski et al., 2019). This is especially important during the COVID-19 pandemic, when social distancing measures have made it more difficult to interact with people in person (Lipowski et al., 2019; Veasey et al., 2022).

Japanese martial arts (JMA) consist of structured fighting systems and traditional roots (Theeboom & De Knop, 1999), which may serve to support people in treating their mental health from the COVID-19 pandemic. JMA follows Zen philosophy of compassion and humanity (Rassovsky et al., 2019) and strives to achieve mind–body unity through meditation and self-awareness practices (Miyata et al., 2020). Significant life changes from the pandemic have impacted people's mental health, which include people adopting a more sedentary lifestyle and decreasing group activities (Takiguchi et al., 2023).

However, somatic exercise has been recognised for its significant advantages, such as reducing depression and improving mood and cognitive functioning (Mazzucchelli et al., 2010). Both Judo and Karate, representing classical martial arts, not only improve physical fitness but also provide educational and health benefits akin to somatic exercise (Garbeloto et al., 2023; Zho, 2020). A cross-sectional study examining the relationship between JMA, mindfulness, and psychological health showed JMA practitioners with a higher disposition for mindfulness and psychological health outcomes (Miyata et al., 2020). This increase in mindfulness can help decrease symptoms of stress and anxiety (Schreiner & Malcolm, 2008). Martial arts sessions as brief as 20 minutes have been shown to reduce heart rate and blood pressure, which helps to manage mood and depression (Zeidan et al., 2010). Additionally, traditional martial arts provide opportunities for psychosocial development among practitioners (Twemlow et al., 2008). These practices involve people to engage in confrontations without the use of aggressive feelings through dyadic prosocial interaction (Rassovsky et al., 2019).

Aikido principles highlight cooperation instead of competition, which helps practitioners gain skills to reconcile conflicts through understanding and acceptance of others (Friedman, 2016). Overall, traditional martial arts have the capacity to improve confidence and assertiveness by improving peoples' emotional stability (Rassovsky et al., 2019) and empathy toward others (Demorest & Koutures, 2016). It is also an accessible practice requiring little equipment (Theeboom & De Knop, 1999) and has helped improve the psychological wellbeing of many practitioners (Woodward, 2009). JMA provides various psychological benefits that have the potential to support individuals struggling with their mental health from the pandemic.

There is direct evidence that JMA leads to improved mental health benefits and positive psychosocial behaviours (Rassovsky et al., 2019), and also the reduction of stress, depression, and anxiety (Zeidan et al., 2010). However, there is little research examining the impact of JMA practices on mental health afflictions from the COVID-19 pandemic. Currently, there is only speculation that JMA may provide a solution to relieving people of negative mental health symptoms from the pandemic. Therefore, the following

study aims to evaluate JMA as a mental health strategy to address people's mental health in times after the COVID-19 pandemic.

3. Theories of wellbeing

There are many theoretical models used as an instrument to articulate a conception of an individual's psychological wellbeing such as the six-factor and PERMA models (Ryff, 1989; Seligman, 2011).

The six-factor model integrates theoretical factors aimed at assessing psychological wellbeing. According to Ryff (1989), this model comprises six components that contribute to overall psychological health and wellness:

1. Self-acceptance: Refers to having a positive attitude towards oneself, including acceptance of one's strengths and weaknesses.
2. Positive relations with others: Involve having satisfying and meaningful relationships with others, including friends, family, and community.
3. Autonomy: Reflects the ability to make independent decisions, act on one's own values, and have a sense of personal control over one's life.
4. Environmental mastery: Refers to the ability to effectively manage and adapt to the environment, including the ability to create opportunities for personal growth and development.
5. A feeling of purpose in life: Involves having a sense of direction and meaning in life, as well as a belief in the importance of one's activities and goals.
6. Personal growth and development: Reflects the desire for continuous personal development, learning, and self-improvement.

The six-factor model offers a comprehensive structure for comprehending and evaluating various facets of psychological wellbeing. Utilising this scale, higher scores signify greater psychological wellbeing (Ryff, 1989).

In today's world, the six-factor model's concepts are still current, albeit, revisited with a formulation emerging from the six thematic areas examined. These often involve deeper probing for evaluation (Ryff & Singer, 2008; Ryff, 2013). In 2011, the PERMA wellbeing model was developed (Seligman, 2011). PERMA is an acronym that designates five wellbeing pillars of the authentic happiness theory (Ferraz de Carvalho et al., 2023).

According to Seligman (2018), these wellbeing pillars were based on factors that constitute the foundations of wellbeing and include:

1. Positive Emotions: This pillar involves experiencing positive emotions such as joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love.
2. Engagement: Engagement refers to being fully absorbed and deeply involved in activities that bring about a state of flow, where one's skills are matched with the challenges at hand, leading to a sense of timelessness and fulfillment.
3. Relationship Building and maintaining positive relationships with others, including family, friends, colleagues, and community members, is crucial for wellbeing. Strong social connections provide support, love, and a sense of belonging.

Table 1. Comparison of the PERMA and six-factor models of wellbeing.

PERMA model (Seligman, 2011)	Six-factor model (Ryff, 1989)
Positive emotions	Self-acceptance
Engagement	Autonomy
Relationships	Positive relationships with others
Meaning	The feeling of purpose in life
Accomplishments	Personal growth and development
	Environmental mastery

4. Meaning: Finding meaning and purpose in life involves understanding one's core values and beliefs, setting meaningful goals, and contributing to something greater than oneself. It involves understanding the significance of one's actions and their impact on others.
5. Accomplishment: Accomplishment relates to setting and achieving goals, mastering new skills, and experiencing a sense of competence and achievement. It involves pursuing and accomplishing meaningful tasks that contribute to personal growth and fulfillment.

These five pillars collectively constitute the PERMA model, offering a holistic framework for comprehending and enriching overall wellbeing (Seligman, 2018).

The wellbeing pillars of PERMA are building blocks for wellbeing and formulate the theoretical model (Bolier et al., 2013). The higher the levels attained indicate higher psychological wellbeing and determine whether an individual is more likely to flourish and therefore grow and develop (Ferraz de Carvalho et al., 2023). PERMA has had its critics though with suggestions that the model is used too widely and prematurely and is based on a trade book rather than on empirical research (Kashdan, 2017). However, it has been noted that when individuals are aware of the elements that derive their wellbeing it is much easier to live a rich and meaningful life (Seligman, 2018).

For candour in evaluation, PERMA and the six-factor model will be used as wellbeing guides for this study. The two models may be perceived to have significant overlap in a general sense, as shown in Table 1.

4. Materials and methods

4.1. Research design

Thematic analysis on data from in-depth semi-structured interviews attended by 12 practitioners of martial arts of Japanese origin, namely Judo and Karate (11 males and 1 female; Nationality = 11 UK and 1 Iran; Age M = 41.33, Range 21-62-years old; Rank = 8 Black belts, 2 Brown belts, 1 Blue and 1 Orange, Experience M = 16.16 years; Table 2) was performed. All participants were recruited through professional networks and involved one Judo, and one Karate club in East Midlands, UK. We stopped recruitment at 12 interviews, because (a) the data collected were sufficient and meaningful to address the research questions, and (b) further interviews would not contribute additional insights to the overall narrative. Each interview was conducted online due to the COVID-19 restrictions: however, studies reported the advantages of

Table 2. List of participants (n = 12).

Participant	Age	Gender	Nationality	JMA Style	Rank	Experience
P1	44	M	Iran	Judo	Black 1st Dan	8-years
P2	62	M	UK	Judo	Black 5th Dan	50-years
P3	25	M	UK	Judo	Orange	1-year
P4	31	M	UK	Judo	Black 3rd Dan	12-years
P5	38	M	UK	Judo	Brown	10-years
P6	40	M	UK	Judo	Blue	5-years
P7	52	M	UK	Karate	Black 2nd Dan	30-years
P8	45	M	UK	Karate	Brown	2-years
P9	21	M	UK	Karate	Black 3rd Dan	17-years
P10	46	M	UK	Karate	Black 5th Dan	39-years
P11	48	M	UK	Karate	Black 1st Dan	7-years
P12	44	F	UK	Karate	Black 3rd Dan	13-Years

online interviews such as greater feasibility and lower costs (Kotera, 2018). The data was examined using the thematic analysis method (Braun & Clarke, 2012). The eligibility criteria for participation were 18 years or older with no less than 12 months of experience in JMA. The study followed the consolidated criteria for reporting qualitative research (Tong et al., 2007).

4.2. Study design

Ethical approval of the study was granted by the University of Derby research ethics committee (No. ETH2122-0522). The study used qualitative semi-structured interviews which is considered a suitable method for as few as 8–12 participants (Adams, 2015). Further, sample saturation for participants in homogenous groups, position and organisational type, is argued to be between 12 and 15 participants (Latham, 2013; Kotera et al., 2021).

The approach involves pre-prepared questions using open-ended questions to encourage the participants to discuss and share their views on the discussed topic which acquires information and an in-depth understanding of the respondents' views (Creswell, 2007). This method also enables dialogue between the researcher and the participant, guided by a variable semi-structured interview plan employed as a data collection technique (Rubin & Rubin, 2005).

The semi-structured interview method allows participants to express their experiences, feelings and thoughts, presenting an opportunity to collect rich data through individual descriptions (Woods, 2011). Also, this method creates more freedom of discussion than a structured interview, but with more direction than an unstructured interview (Ghauri & Grønhaug, 2010).

In advance of each interview, a pre-designed semi-structured interview schedule or introduction took place with all participants to provide some guidance (Kotera et al., 2022). Our interview questions were guided by the limitations of the "Japanese Martial Arts for Wellbeing during COVID-19" journal (Veasey et al., 2022) which highlighted a need for empirical evaluation. The interviews were held via audio call by mobile phone or WhatsApp (Kotera et al., 2021). All interviews were recorded and transcribed verbatim with the consent of the participants and each interview was summarised verbally for the participant to confirm the accuracy of the transcriptions. All participants were required to

read and agree to the participant information sheet and were able to withdraw from the study two weeks after the interview.

The questions used in the interviews were designed to investigate the elements of the PERMA and six-factor models of wellbeing. The questions did not explicitly explore issues as described in the models but used them as a guide. For example, rather than asking if and how practicing JMA had influenced emotional state or relationships with others, the open-ended questions asked for more general information. This allowed participants to talk about a range of subjects that would cast light on their emotional state and relationships with others.

4.3. Recruitment

Purposive sampling to select the sample (Robinson, 2014) with specific enrolment criteria, i.e. a minimum of 12 months of experience as a JMA practitioner in Judo or Karate. The lead author, with access to Judo and Karate clubs, encountered all participants professionally within the past five years, justifying the focus on these disciplines. However, there were no direct communications before the interviews. Despite contacting 24 practitioners, only 12 volunteered. The participants only knew that the lead author was a lecturer in marketing at a UK university, conducting research into JMA. No religious or political views of the interviewer were known to the participants to avoid possible response biases.

4.4. Procedure and analysis

To systematically detect and organise significant patterns across data sets thematic analysis was used since our study seeks to identify distinctive experiences pertaining to JMA.

In essence, Thematic analysis was applied in the subsequent order to identify the relevant themes: (i) Familiarisation, (ii) Generating initial codes, (iii) Searching for themes, (iv) Reviewing themes, and (v) Defining and naming themes and (vi) Producing the report (Braun & Clarke, 2006).

Thematic analysis was chosen to systematically identify meaningful patterns, known as themes, within the dataset (Braun & Clarke, 2012). Its adaptability, compatibility with different frameworks, and availability of best practice guidelines were key considerations (Braun & Clarke, 2006). Audio recording of interviews ensured data accuracy (Braun & Clarke, 2012), and all identified themes were reviewed and confirmed by a co-author and researcher.

4.5. Familiarisation

Interview data was read repetitively to realise the entire data and gain initial interpretations and patterns, informing feasible themes (Braun & Clarke, 2006). Themes and patterns began to emerge after about 8 interviews, with no significant differences observed among participants. Saturation in data collection is commonly achieved within a range of 8–24 interviews, with variations depending on the specific topic (Riley, 1996). Likewise, audio footage was listened to repeatedly to draw out initial thematic themes (Braun & Clarke, 2006).

4.6. Generating initial codes

To begin the systematic analysis of data, coding was conducted presenting labels to data (Braun & Clarke, 2012). This theory-driven methodology (Braun & Clarke, 2006) for coding was utilised, relating to our research questions:

RQ1: How would you describe your wellbeing during the COVID-19 pandemic?

RQ2: What coping mechanisms do you currently use as a practitioner of JMA and is JMA helpful for self-reflection?

4.7. Searching for themes

The codes were organised into potential themes (see Table 3) for processing and examining the data. In essence, the codes across all four interview areas were compared in terms of similarity and overlap (code clusters) to draw out the main themes (Braun & Clarke, 2006).

Table 3. Summary of findings.

No	Themes and corresponding RQ	Example of Participant Excerpt
1	The impact of COVID-19 had little impact on JMA practitioners' wellbeing (RQ1)	"Practicing and learning Judo at home was good for me physically and mentally during the pandemic" (p. 1). "Karate had a positive impact on my wellbeing during COVID-19, it gave me something to focus on, something to drive towards during the pandemic" (p. 7). "Karate was a good distraction, and I completed a lot of training during the pandemic" (p. 9). "Karate Zoom classes helped, it felt like I was achieving something" (p. 11).
2	JMA training is a stress relief and a coping mechanism (RQ2)	"Judo is a stress coping mechanism, when I stop, I realise how important it is and how well it is working. When I stop going, I realise I start to struggle" (p. 3). "Judo helps me with stress, I might have a hard day with work or personal life, the minute I go and come back I feel like a new man, it releases the stress' (p. 4). "Karate clears my head and helps me focus. I can go back home, and my wife can give me jobs and that focus helps me to complete them" (p. 8). "Karate is great for coping with stress; you are focused which helps you mentally and helps focus your mind" (p. 9).
3	JMA practitioners achieve self-mastery and self-development (RQ2)	"Judo will help change your life, change your body physically and give you mental strength and awareness' (p. 1). "Training in Karate helps me to become the best version of myself, not focusing on other people but improving myself and being better than I was yesterday" (p. 9).
4	JMA helps self-reflection and wellbeing (RQ2)	"I feel like I am a big part of the team (the club), I reflect on Judo, I like Judo, it is good for the soul" (p. 4). "Judo helps you reflect on your physical and mental self because you are then more aware and tuned in to yourself. You are more aware of your reactions in life, you deal with things better due to training" (p. 6). "I self-reflect, I keep a check on my own feelings, and I adjust accordingly. Using Kata in Karate as an example, I use this as a physical meditation, it takes me away from the now and I use this, it switches my mind off and I focus on this kata for that moment in time" (p. 10). "Kata in Karate helps me self-reflect, it is a walking meditation. I focus on Kata, I focus on where I am in the room, where my body and breathing are. As you become more experienced, you're going to develop in a more focused way" (p. 12).

4.8. Reviewing and naming themes

The four themes identified were evaluated to make sure themes accurately captured the relevant dataset to address our research questions (Braun & Clarke, 2012). The codes were compared with the relevant data extracts to ensure the findings had consistency between each theme and each set of extracts (Braun & Clarke, 2006). The lead author conducted the initial coding and theme development, followed by the last author confirming consistency and accuracy. Subsequently, all authors collectively reviewed the work, culminating in unanimous agreement.

Likewise, we ensured the themes captured the most important elements and were relevant to the research questions (Braun & Clarke, 2012). The increased number of themes (T) stating that the recent COVID-19 pandemic had little impact on their wellbeing due to practitioners training at home or online via Zoom video classes (T1) corresponded to RQ1; JMA training post-COVID-19 is a coping mechanism for stress (T2) corresponded to RQ2; JMA post-COVID-19 helps our wellbeing as we become more self-aware due to self-discipline, self-control, and self-mastery (T3) corresponded to RQ2; JMA helps practitioners post-COVID-19 to self-reflect towards self-mastery (T4) corresponded to RQ2.

5. Results

The demographics were diverse, but the responses were very similar with no themes emerging differentiating age, gender, nationality, rank, or experience.

5.1. Theme 1: the impact of COVID-19 had little impact on JMA practitioners' wellbeing (RQ1)

The datasets from T1 showed that 9 out of 12 participants asserted the recent COVID-19 pandemic had little impact on their wellbeing due to training at home and having mental toughness due to martial arts training. Mental toughness and character were mentioned by some of the participants, and it seems training in JMA has helped them develop and overcome the COVID-19 challenges. Table 2 shows an example from P7 stating that Karate had a positive impact on their wellbeing during COVID-19, it gave them something to focus on, something to strive towards during the pandemic. P4 and P12 all stated that their wellbeing remained the same and noted the importance of JMA which helped them to reduce stress and become a stronger character with mental and physical toughness. Moreover, P9 cited "Karate was a good distraction, and I completed a lot of training during the pandemic". Also, "constantly being able to concentrate on kata, training, sparing combinations etc. It gave me a purpose, something to focus on it really helped me and I know other people were struggling, I was not, and Karate had a positive impact".

5.2. Theme 2: JMA training is a stress relief and a coping mechanism (RQ2)

The datasets from T2 showed that all 12 participants believed that JMA was a stress relief and a coping mechanism before, during, and after the COVID-19 pandemic. All

participants stated that JMA removes stress when training. An example of this is P3 who cited "Judo is a stress coping mechanism, just by going and fighting, you are not only fighting someone else but also yourself. You fight to exhaustion and you feel like you are conquering something. You are conquering the person you are by fighting, for yourself. This is a stress coping mechanism". Also, P4 quoted "Judo helps me with stress, I might have a hard day with work or personal life, the minute I go to Judo and come back, I feel like a new man, it releases stress'. Moreover, P8 stated "Karate clears my head and helps me focus. I can go back home, and my wife can give me jobs and that focus helps me to complete them. Karate helps me work and clears stress'. Also, P9, noted "Karate is a great coping mechanism, your focused on yourself and the mental side helps you focus your mind, this helps with the training. You can go down to the Dojo and train and enjoy the session and forget about stress. It is a great coping mechanism; it helps you build the foundations of resisting stress'. P6 stated "It is good for stress relief, it is not physiological, it is not hormonal, when you come out the dojo you have got a stress relief, you have an outlet for aggression". Furthermore, P11 noted "I take a step back and have self-control, with stress, being disciplined helps. I practice Karate and reflect; I then try and improve towards self-mastery. I look, visualise, and repeat the training towards self-mastery. I keep practicing being the best version of myself".

5.3. Theme 3: JMA practitioners achieve self-mastery and self-development, thus helping wellbeing (RQ2)

The datasets from T3 showed JMA helps our wellbeing with all 12 participants confirming.

P1 stated that "Judo will help change your life, change your body physically and give you mental strength" and P9 cited "Training in Karate helps me to become the best version of myself, not focusing on other people but improving myself and being better than I was yesterday" (P9). P2 and P3 stated that JMA helps them with their wellbeing post-COVID-19 and stated the importance of self-mastery. P4 echoed these views and talked about Judo making them more self-aware which in turn gave them self-control and discipline. P5 and P7 stated that JMA helped their wellbeing and helped them deal with stressful things and gave them self-discipline, self-control, and self-mastery.

P5 cited "JMA helps you learn and know yourself and control yourself". While P7 cited "You have a calmness around you, you do not lose control when others may". Furthermore, P10 cited "JMA helps you take a step back from things and be more well-balanced. I manage to be laid back and I manage things this way. I manage to box things off. My wife tells me I manage to box things off and take situations and deal with them and move on. I do not dwell on it, I move on. Self-control and self-discipline". Equally, P11 and P12 noted the importance of self-discipline, self-control, and self-reflection. P11 cited "I have self-discipline and I have self-control which are big things in JMA. Being disciplined makes you more aware, you have more knowledge and are in control of yourself. Practicing makes you more controlled and have self-mastery; your attitude makes you humble and a better person knowing you are more in control of yourself".

5.4. Theme 4: JMA helps self-reflection and wellbeing (RQ2)

The datasets from T4 showed that all participants found JMA helpful for self-reflection which helps our wellbeing post-COVID-19. P1 and P2 stated the importance of self-reflection and how Judo helped them with their mental strength and wellbeing. P3 cited "The physical outlet helps me self-reflect and I have adult ADHD, this means when I am at work, I have attention deficit. However, when I go to Judo, I feel like I go into a state of flow and work at 100%. I have mental clarity and I am entirely focused on this other person's strength and balance". P4 and P5 noted that Judo helped them self-reflect towards self-mastery which helped their wellbeing. Both stated that Judo was good for their soul and self-esteem. P6 also cited that "Judo helps you reflect on your physical and mental self because you are then more aware and tuned in to yourself. You are more aware of your reactions in life, you deal with things better due to training".

P9 cited "I self-reflect by learning from my instructors and try and get into their mindset. I record myself and then review and learn. I am focusing on my posture now while carrying out techniques. It is mental strength; I have a checklist to ensure I am being respectful to others and the situations I am in. I have principles and I am disciplined to ensure I do things with honour not just doing things because others are. I have principles I live by. The structure behind Karate helps me, you always know when someone practices Karate because they tend to be disciplined and respectful and some of the kindest people you will ever meet". Also, P10 cited "I self-reflect, I keep a check on my own feelings, and I adjust accordingly. Using Kata in Karate as an example, I use this as a physical meditation, it takes me away from the now and I use this, it switches my mind off and I focus on this kata for that moment in time". Equally, P12 mentioned mediation citing "Kata in Karate helps me self-reflect, it is a walking meditation. I focus on Kata, I focus on where I am in the room, where my body and breathing are. As you become more experienced, you're going to develop in a more focused way".

6. Discussion and results

The results of the research may also be viewed through the lenses of the theories of well-being discussed earlier, namely PERMA (Seligman, 2011) and the six-factor theory (Ryff, 1989).

Positive emotions are reflected strongly in the data, with respondents saying that JMA made them "feel better", giving them "mental strength" and having a "huge positive impact". It is clear from the results that the practice of JMA is connected with positive feelings (as seen in the PERMA model) about oneself and particularly about one's mental strength. This is likely why participants felt well able to cope with the stresses presented by COVID-19 and by lockdowns in particular. Participants talked about self-esteem, self-control, self-mastery, and self-reflection, linking this to "looking after" themselves and using the techniques of JMA to improve themselves both in body and in mind (Kotera et al., 2023). This speaks to the ideas of self-acceptance and autonomy in the six-factor model.

In terms of engagement (PERMA model), this was assisted often by technology during the pandemic, as practicing JMA can be done alone, at home, or away from others, and some used visualisations, videos, or Zoom classes to stay engaged in their practice. While some activities, such as team sports or visiting gyms, may have been impossible at times during the pandemic, reducing the opportunity for engagement, there were ways that those practicing JMA could continue to engage and draw strength from that engagement.

While JMA is a discipline concerned with self-mastery, there is a subsequent effect on relationships, with participants describing "comradeship" with other practitioners, feeling part of a group with shared understanding. They also described how the practice allowed them to socialise, even if this was over Zoom, and that it also provided spiritual support. Although some described themselves as being "lonely" or "solitary", these were the minority and engagement in JMA seemed possible whether participants were self-described extroverts, or introverts.

The purpose (six-factor model) and meaning (PERMA model) for JMA practitioners seemed largely related to health and fitness, aiming for a "healthy body and mind" and seeing "physical activity as a stress relief". Practitioners talked about reviewing their progress, performance, and diet, striving for physical and mental fitness. It may be that this meaning was particularly important to practitioners during the pandemic as it was something they could focus on, something that would prepare them to cope with the difficulties of the pandemic.

Participants were quite clear that practicing JMA gave them a sense of achievement through achieving their goals, taking part in competitions, and having a focus on the future. JMA was described as a practice that "changes lives' or "changes your life" and had a clear structure with teachings. While competitions were not possible during lockdowns and through most of the pandemic, the goals described by participants were wider than the physical contest – the goals of knowledge, learning, and achieving the self-mastery of the discipline were important, speaking to the accomplishment of the PERMA model and the growth and development of the six-factor model.

None of the participants discussed themes of environmental mastery per se, but the discipline considers mastery of oneself, rather than of the external environment. It's implied in the participants' responses that control of oneself equips the practitioner to master his/her environment. During the pandemic, people did not have mastery of their environment, as lockdowns and social distancing measures were externally imposed but the practice of JMA is likely to have helped participants to cope with these environmental constraints.

The positive emotions (PERMA model), self-acceptance, and autonomy (six-factor model) came through most strongly in the participants' stories, showing this to be the strongest of the factors for the JMA discipline. Participants mentioned issues around positive emotions, self-acceptance and autonomy more than twice as many times as the next most mentioned issue, which was physical health associated with meaning and purpose.

7. Contribution and limitations of research

The contribution of this study includes that it reported the mental wellbeing benefits of JMA, which has not been evaluated in depth, especially during the pandemic. During this emergency time, many people experienced mental wellbeing challenges. The positive

mental wellbeing benefits of JMA can be suggested as an alternative solution for the mental wellbeing challenges. Additionally, the study identified specific components of mental wellbeing such as self-mastery and self-reflection. These components can help practitioners to be more aware of the positive impacts of JMA, further supporting their mental wellbeing. The components need to be further evaluated in future research.

Limitations include that our sample were all relatively experienced practitioners. To recommend JMA as a mental wellbeing strategy, novice practitioners need to be evaluated. Additionally, our sample was confined to the UK, warranting a more diverse representation. Broadening gender diversity through the recruitment of participants across various gender identities would also contribute to a more comprehensive understanding in future studies.

Secondly, although the co-authors of this research included both mental health researchers and JMA practitioners, our interpretation may be biased toward researcher perspectives. Our findings should be presented to JMA practitioners to receive daily-life applications of our findings in their lives. However, our findings can be foundational work towards greater and more rigorous research for JMA on mental wellbeing.

8. Conclusion and avenues for future research

Despite the mental wellbeing difficulties reported during the pandemic, JMA practitioners maintained a high level of mental wellbeing. Our study identified that JMA may help self-care, by supporting self-mastery, self-development, and self-reflection. These positive components can help them cope with heightened stress. Future research needs to evaluate the long-term impact of JMA both quantitatively and qualitatively. Moreover, larger and more diverse samples are needed.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Institutional review board statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of the University of Derby (protocol code ETH2122-0522, 25th November 2021) for studies involving humans.

Informed consent statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of interest

The authors declare no conflict of interest.

Data availability statement

The data is unavailable due to privacy.

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Appendices

Appendix 1. This appendix shows the interview questions.
Appendix 2. This appendix shows the codes generated from the study.

1. Interview questions

The aim of this study interview plan is to explore your experience on how JMA in modern times has impacted on your mental health and if JMA is an effective wellbeing strategy. Below are guide questions to stimulate the exploratory discussions.

(1) Please confirm your age, gender and Nationality?
(2) You have reached great heights and rank in JMA; how long have you been practicing?
(3) How would you describe your wellbeing during the Covid pandemic? What were the highs and lows? Did your wellbeing improve, worsen, or stay about the same during the pandemic?
(4) What did you do to try to maintain or improve your wellbeing during the pandemic?
(5) Did practising JMA help with your wellbeing during the pandemic? If yes, how did it help?
(6) Do you feel that being a JMA practitioner made you more aware of your own wellbeing?
(7) How does practitioner experience in JMA help with your wellbeing?
(8) How do you feel you achieve self-mastery through JMA?
(9) How do you cope with stress as a martial artist?
(10) When and how do you self-reflect with practicing JMA?

2. Codes generated (n=120)

Achieving goals
Adjust
Agility
Balance
Calm
Changes lives
Changes your body
Changes your life
Checks your ego

Clears my mind
Competitions
Compliant
Comradery
Comradeship
Confidence
Developed
Discipline structure
Exercise
Extrovert
Feedback
Feel better
Feeling better about yourself
Fighting
Fighting yourself to be better
Fitness
Fitter and healthier
Flexibility
Focus
Goals
Good ethos and standards
Good stress relief
Healthy body and mind
Healthy eating
High and lows during COVID-19
Huge positive impact
Humble
Humbling
Improve
Introvert
Judo
Keep fit
Keeps things in order in your mind
Keeps you well balanced
Knowing
Knowledge
Learning
Learning and practicing
Learning from others to improve
Lockdown
Lonely
Looking after yourself
Massive endorphin relief
Meditation
Mental and physical toughness
Mental and physical wellbeing
Mental health check
Mental strength
Mental toughness
Mentally and physically better
Mind focused
Moral conduct
More patience
Not affected
Persistence
Physical agility
Physical activity is a stress relief
Physical and mental strength
Physical exercise
Physical meditation
Physical outlet
Physical outlet helps
Positive impact
Positive thinking
Practice

Practicing
Principles
Purpose
Randori
Reflecting and self-mastery
Regular training
Respect
Review my progress
Review performance and diet
Reviewing my progress
Self-aware
Self-awareness
Self-belief
Self-control
Self-diagnose
Self-discipline
Self-esteem
Self-healing
Self-mastery
Self-positivity
Self-reflect
Self-reflection
Self-reflection to improve
Self-regulation
Self-reliance
Social interaction
Socialise
Solitary
Spiritual help
Strong mentally
State of mind
Strength
Stress coping mechanism
Stress relief
Strong character
Stronger mentally and physically
Teach
Teamwork
Techniques
Trained at home
Use visualisations
Visualisation
Watching videos
Wellbeing remained the same
Strengthen your mind and body
Zoom classes